Myanmar

Preparatory Survey for
Yangon Private Hospital Project
(PPP Infrastructure Project)
In
Republic of the Union of Myanmar
Final Report
(Public Version)

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Japan International Cooperation Agency

Ishii-Kai Medical Corporation

Chiyoda Corporation

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Preparatory Survey for Yangon Private Hospital Project

Republic of the Union of Myanmar

Final Report

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1. Background and Purpose of this Research

1.1. About This Work

The word *Work* means evaluation activities related to *Preparatory Survey for Yangon Private Hospital Project (PPP Infrastructure Project)* which JICA (Japan International Cooperation Agency) will be managing jointly with Ishii Hospital and Chiyoda Corporation via an outsourcing agreement.

1.2. Background of this Work

Myanmar is one of the least developed countries as identified by the UN (the United Nations), and requires general development including in the healthcare sector. According to a healthcare-related index, for example, mortality of children younger than 5 years old is 72 in 1,000, and mortality of nursing mothers is 200 in 100,000 (The World Bank, 2015). Therefore we believe there is a great need for improvement in Myanmar compared to other Asian countries. When we look at the quality of healthcare in the existing hospitals and general practices, we cannot say that medical infrastructure has been sufficiently developed.

Recently Myanmar is politically stable, and income level is gradually increasing, so it is considered to be important to develop the healthcare sector moving forward. On the other hand, healthcare-related expenditure including government spending is lower than that in other countries, so it will be essential to mobilize private funds to accelerate development of healthcare infrastructure and the healthcare sector. The current government party (NLD) in Myanmar has positioned healthcare and education policy as a priority, and manifestos for NLD from the election in November 2015 state that they will allow the establishment of private hospitals, within the law.

Based on the circumstances above, we've planned the establishment and management of a private hospital in Yangon, the biggest city in Myanmar, via a joint venture between Japanese companies and foreign companies.

1.3. The Purpose of this Work

This research is to examine the feasibility of the planned private hospital project in Yangon; we have been examining various aspects for feasibility, such as finance, management, law, technology, environmental and social considerations, development effectiveness and so on. This research also analyses and collects information to contribute to decisions for investment and finance for this project.

1.4. The Methodology of this Work

To evaluate the feasibility of this project, we have collected information and analysis on the below;

- Expectation of medical demand and unit cost of medical treatment
- The management of competing hospitals in Myanmar and overseas
- The basic design of the hospital building
- An estimate of the cost of construction for the hospital building
- Planning for the supply of medical equipment and materials
- A study of environmental and social considerations
- A plan for finance, management and operation based on the research above

2. A Study of the Medical Markets in Myanmar

2.1. Macro Environment in Myanmar

Myanmar is the second biggest country in Southeast Asia in terms of land area. In terms of population, it is the fifth biggest country, having a population of 52,890,000 in 2016, and is estimated to grow to 54,000,000 by 2023.

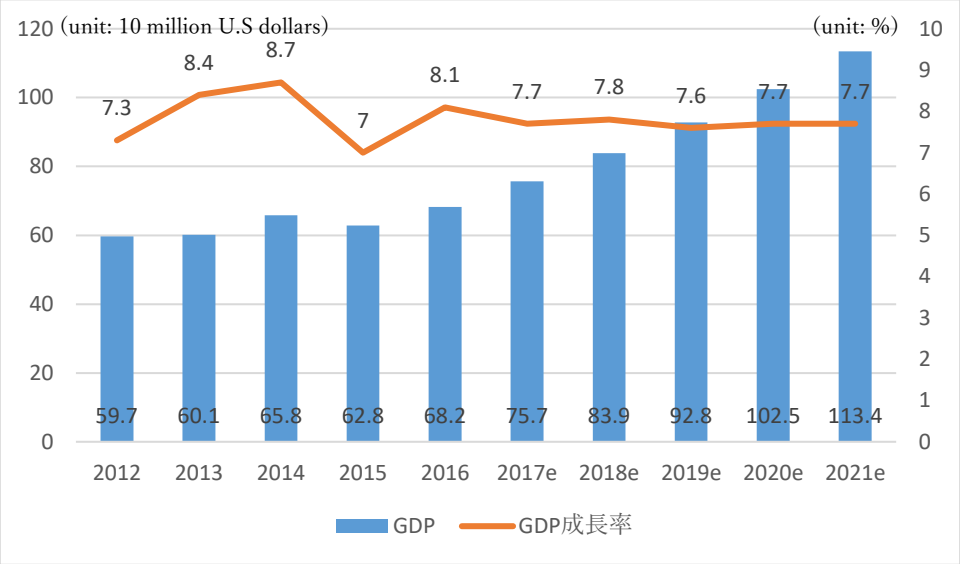


Figure 1 GDP and GDP growth rate in Myanmar

(Source: IMF)

Recent GDP growth rate in Myanmar is remarkable. Figure 1 shows that GDP growth rate is estimated to achieve an average of 7.2% or more over the 12 years from 2012 to 2023, even though it dropped temporarily due to stagnation of the economy from the election in 2015.

It is predicted that GDP growth rate in Myanmar will be higher than that in other ASEAN counties in the future. Table 1 shows that GDP and GDP per capita in Myanmar (2017) is lower than corresponding figures in Thailand, however the projected average growth rate from 2017 to 2023 in Thailand is only 3.7%, and is 7.1% in Myanmar – almost double that of Thailand.

We can also see from Table 1 that GDP growth rate in Myanmar is the highest of the other 7 countries (Indonesia, Philippines, Vietnam, Malaysia, Cambodia, Laos, and Singapore)

Table 1 Population and GDP in ASEAN countries

Countries	Population (2017) (million)	GDP (2017) (10 billion US$)	GDP per capita (2017) (US$)	GDP growth rate (2017-2023)
Indonesia	261.9	1,015.40	3,876	5.50%
Philippines	105.3	313.4	2,976	6.90%

Vietnam	93.6	220.4	2,354	6.60%
Thailand	69.1	455.4	6,591	3.70%
Myanmar	52.6	66.5	1,264	7.10%
Malaysia	32.1	314.5	9,813	5.10%
Cambodia	16	22.3	1,389	6.50%
Laos	6.7	16.9	2,542	6.90%
Singapore	5.6	323.9	57,713	2.80%

(Reference, IMF)

GDP growth rate in Myanmar started increasing since the election and the beginning of economic reform in 2011. In 2013, the rate increased further due to expansion of trade as the U.S. and Europe reduced economic sanctions. It is estimated that the growth rate in Myanmar will be consistently higher than in other ASEAN countries until 2021. Therefore Myanmar is a very attractive market in ASEAN countries as GDP growth rate will be increasing in the future.

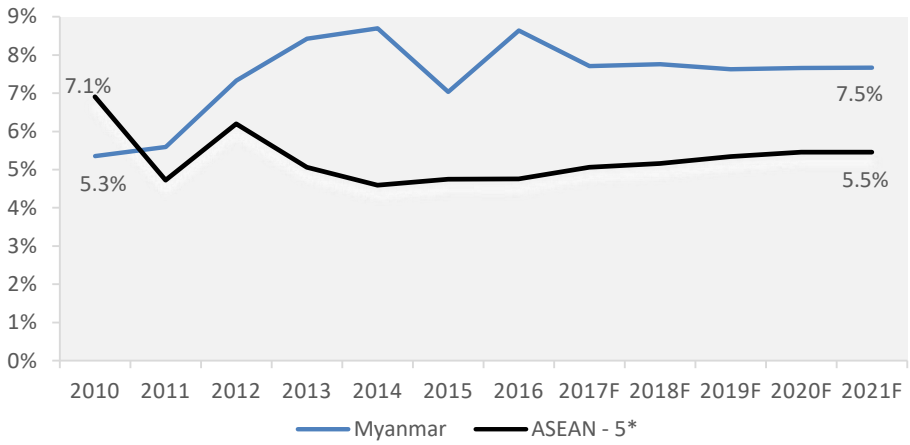


Figure 2 Comparison of GDP growth rate between Myanmar and ASEAN countries

(Reference, IMF)

The economy of Myanmar relies massively on agriculture, however there has been a gradual shift to tertiary economic growth and infrastructure improvement. The new government elected in 2016 has been focusing on increasing agricultural productivity and land reform. The total foreign investment for agricultural productivity and land reform was over US$2 billion over the past 5 years. The manufacturing sector is also expected to increase, with the intension to expand exports, including the development of special economic zones (SEZ).

Since economic reform began in 2011, Singapore Parkway Hospital, Bumrungrad Hospital and Samitavej Hospital in Thailand, Indonesia Lippo Group (etc) have started hospital businesses in joint ventures with local businesses in Myanmar.

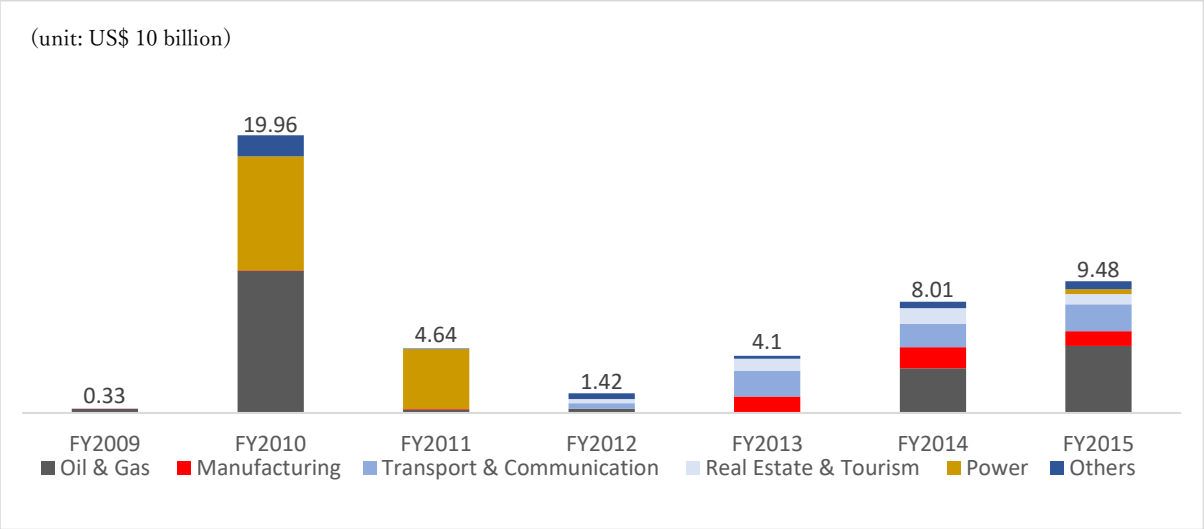
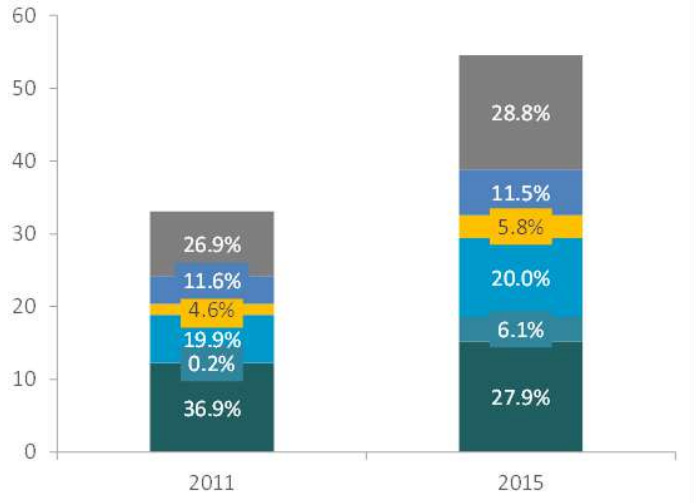


Figure 3 Amount of foreign direct investment in Myanmar (FDI)

(Reference: IMF、DICA)

GDP is increasing across each industry recently in Myanmar.

Figure 4 shows that most industries averaged more than 10% annual growth from 2011 to 2015. Energy in particular experienced a compound annual growth rate (CAGR) of 126.7%. Actual dollar amount of investments about doubled. This indicates that growth of each industry sector is pushing forward economic growth in Myanmar.



Industry		CAGR (2011-2015)
	All industry	13.3%
	Agriculture	4.5%
	Energy	126.7%
	Manufacturing	10.5%
	Construction	10.5%
	Logistics	10.3%
	Others	12.0%

Figure 4 GDP growth rate by industry

（Reference: IMF, DICA）

It is estimated that the average monthly wage per capita in Myanmar is going to increase dramatically during the 7 years between 2016 and 2023. Figure 5 shows that the middle-income group (more than US$120 per month) in 2016 was 24%. This middle-income group is predicted to increase

to 48% in 2023, which is double the 2016 percentage. Some experts also estimate that the middle income group will increase from 5,000,000 to 10,000,000 people due to the boost in economic development after economic reforms in 2010.

Myanmar has been categorized as a low income country in the past, however the World Bank re-categorized Myanmar as a low-middle income country in 2015, as the middle-income group increased, Myanmar improved its economy, and increased GDP per capita.

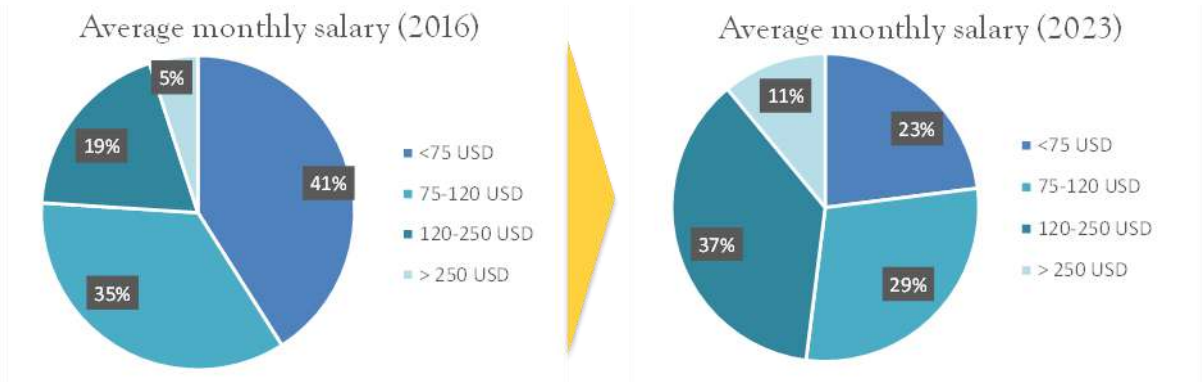
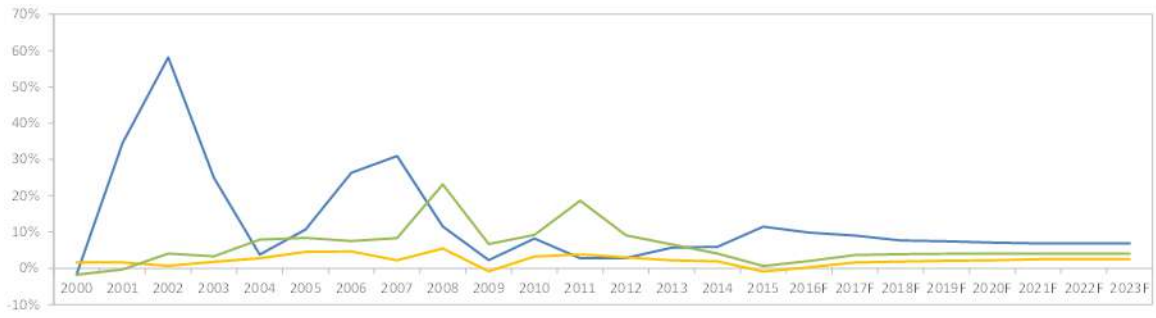


Figure 5 Monthly average income in 2016 and 2023

（Reference: World Bank）

Inflation in Myanmar is high compared to Thailand and Vietnam, and influences consumer expenditure. Figure 6 shows that inflation increased by 60% in 2001 in Myanmar. From 2016 to 2023, it is predicted to drop from 6.8% to 5.7%, however it is expected to remain higher than inflation in Thailand and Vietnam.



Country	2016	2017	2018F	2019F	2020F	2021F	2022F	2023F
Myanmar	6.8%	5.1%	5.5%	5.8%	6.2%	6.1%	6.0%	5.7%
Thailand	0.2%	0.7%	1.4%	0.7%	1.1%	1.8%	1.8%	2.0%
Vietnam	2.7%	3.5%	3.8%	4.0%	4.0%	4.0%	4.0%	4.0%

Figure 6 Estimation of consumer price index and inflation

*(*Reference*: IMF)*

When comparing exchange rates for Thailand and for Myanmar, the Bhat is stable; in the period prior to 2018, the lowest rate was 31.31 Baht per US dollar, and the highest rate was 36.50, which is about 20% variation for the US dollar exchange rate. The exchange rate was normally between THB

30 and 40 for 2014 to 2018. On the other hand, the exchange rate for Burmese Kyat increased dramatically between 2015 and 2016. The gap between the worst rate of 954.0 and the best rate of 1,364, which is about a 40% variation.

Due to a lack of measures taken to address the massive trade deficit, and the lack of action to increase reserve, inflation in Myanmar kept increasing until 2017, and the weakness of the Burmese Kyat against the US dollar is still present.

An estimate says that the Myanmar population of 50,000,000 in 2012 will increase to 54,000,000 in 2023. Compound annual growth rate (CAGR) is expected to be 0.7% between 2012 and 2023. Population percentages by age-group shows that the largest age-group of 39.9% is 25-54 years old, followed by 28.3% for 0-14 years old, and 16.7% for 15-24 years old. This indicates that more than 80% of the population in Myanmar is younger than 54 years old. From a population density perspective, Yangon has the highest density, followed by Mandalay and Ayeyarwaddy – though the density is similar for all three centers.

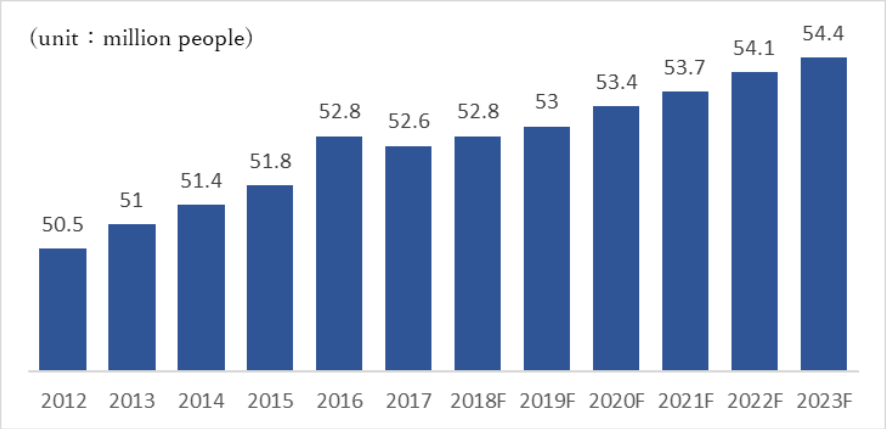


Figure 7 Population in Myanmar

（Reference: IMF）

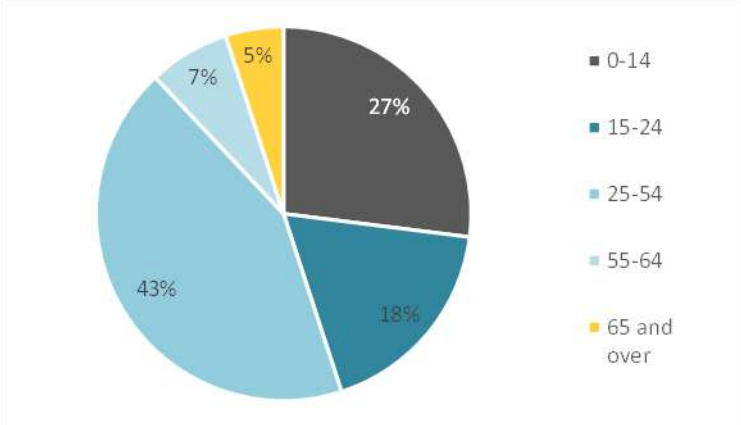


Figure 8 Population by age

（Reference: Myanmar Population and Housing Census）

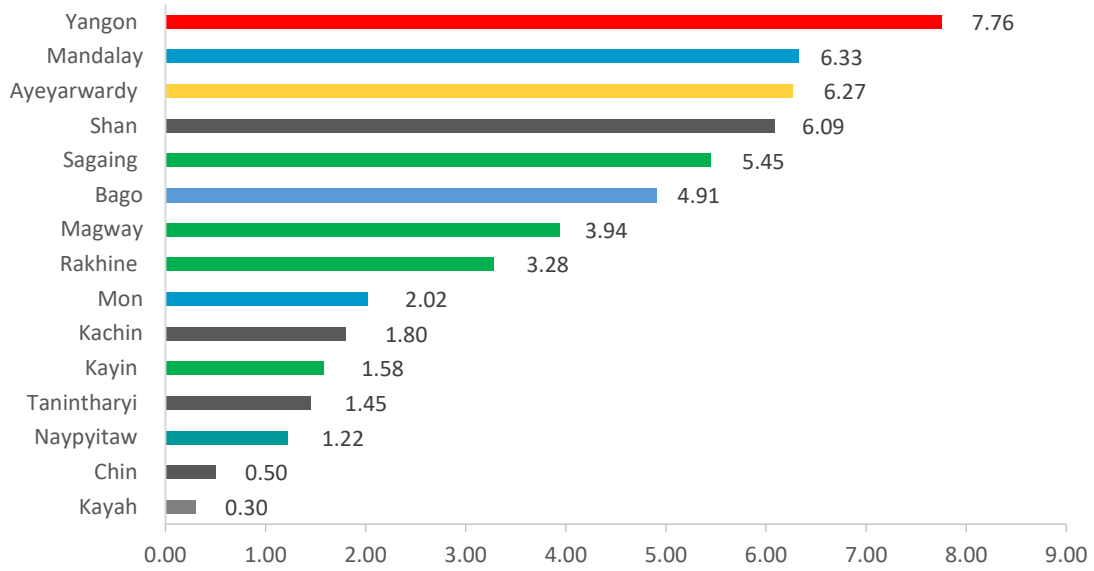


Figure 9 Population Density by City

（Reference :Myanmar Population and Housing Census）

Infrastructure improvement is an important task for Myanmar. Myanmar is adjacent to China, India, Bangladesh, Laos and Thailand. The most important markets are Thailand (32% of Myanmar's exports in 2014/15) and China (30.2% of Myanmar's exports in 2014/15).

Myanmar's urbanization rate was 35% in 2015, and it has increased by 2.49% each year. It is predicted that the population will increase in urban areas of Yangon. As with other ASEAN countries with urbanization trends, there will be a requirement to provide more effective medical and educational institutions in the principal city.

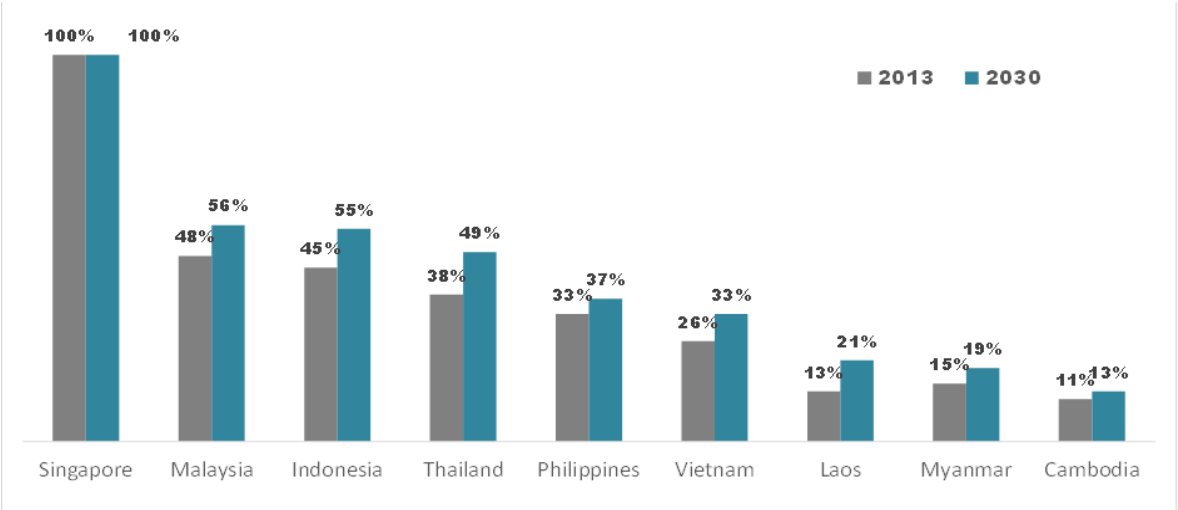


Figure 10 Predicted Urban Population Ratio

（Reference: Solidiance）

2.2. Medical Expenditure in Myanmar

2.2.1. Medical Expenditure Overview

Medical expenditure is basically divided into government expenditure and private expenditure, however the situation in Myanmar is different to that in Japan. As the public health insurance system has not yet been developed in Myanmar, government expenditure is mostly used in providing medical services at public hospitals, and private expenditure is mainly used to purchase over-the-counter drugs, and for medical consultation at private hospitals and clinics.

Government medical expenditure was US$792 million in 2017, which is more than 5% of the total government budget, and equal to only about 1% of GDP. On the other hand, in recent years, the government has continued to increase medical expenditure; medical expenditure in 2012 was 1.1% of the total government expenditure, compared to 3.7% in 2015, up to 5.8% in 2017. To remedy disparities between supply and demand for medical care, the government plans to continuously increase medical expenditure at a rate of 6% per year until 2020.

Thus, the proportion of medical expenditure in the total expenditure of the Myanmar government is growing, and improvement of medical access and medical infrastructure is a national initiative. However, when comparing with other ASEAN countries, the absolute amount of expenditure is still quite inferior. Regarding the proportion of medical expenditures in the total expenditures of governments of neighboring ASEAN countries (Singapore, Malaysia, Indonesia, Thailand, Vietnam) in 2017, the proportion of medical expenditure for other ASEAN countries is over 10%, while the medical expenditure of Myanmar is just 5% of total expenditure.

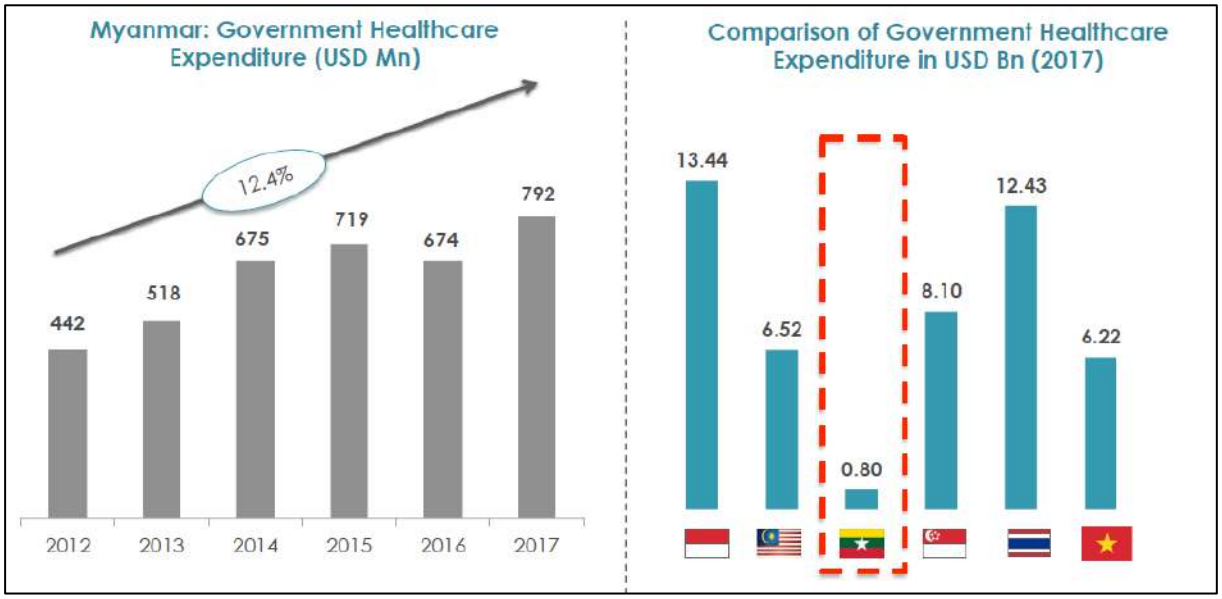


Figure 11 Growth of Government Healthcare Expenditure in Myanmar and Comparison with Neighboring Countries (2017)

(Reference) Solidiance

Medical expenditure in the private sector is also growing, according to WHO statistics, from US$619 million in 2010 to US$1,260 million in 2015, an average increase of 15.3% over the five years. The same statistics predicted an increase to US$3,310 million in 2017, more than doubling from 2015, however there is no particular comment on this in the database, so the precision of this number remains unknown.

As well as government expenditure, expenditure is still inferior compared with other ASEAN countries, and in 2015, expenditure in Myanmar was about one-fifth the total expenditure of Thailand and Malaysia, etc.

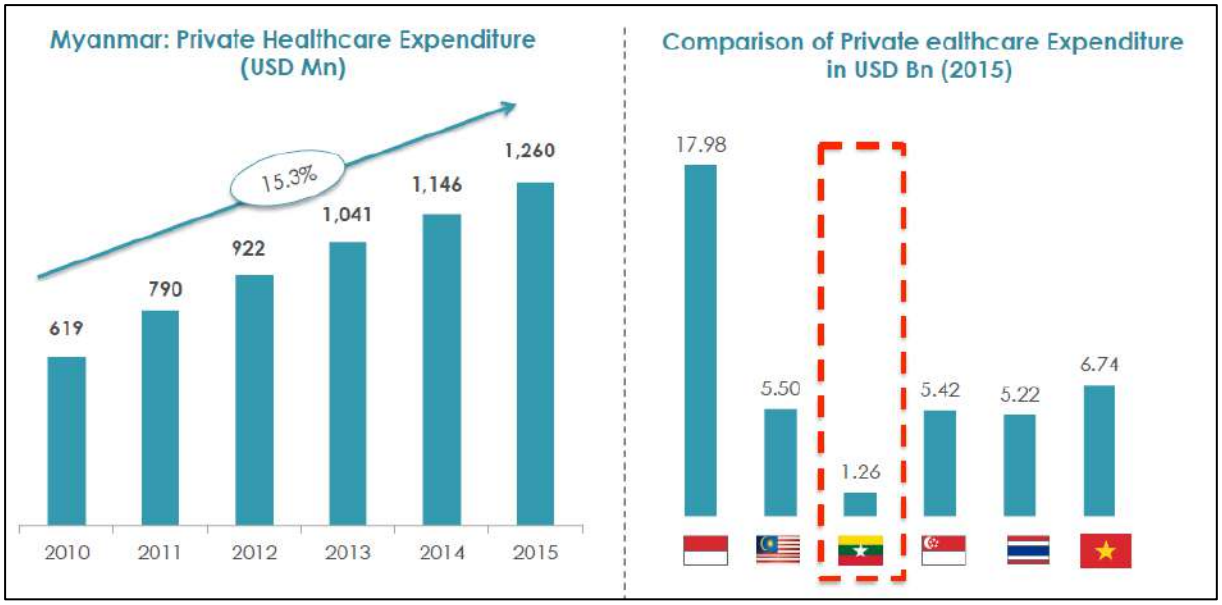


Figure 12 Growth of Private Healthcare Expenditure in Myanmar and Comparison with Neighboring Countries (2015)

(Reference) Solidiance

Thus, at government and private levels, government expenditure is still at a lower level than other ASEAN countries. The total medical expenditure, including government and private sector expenditure, was US$35 per capita in Myanmar in 2015, the lowest among neighboring ASEAN countries (Singapore, Malaysia, Indonesia, Thailand, Vietnam, Myanmar) and when compared with Indonesia, which has the next lowest expenditure of the ASEAN countries, Myanmar's per capita expenditure is still less than half of Indoneasia's, and less than a quarter of Vietnam's per capita expenditure. In addition, the proportion of Myanmar's medical expenditure compared to GDP is 2.3%, which is about 20% lower than Indonesia's GDP expenditure proportion, and about 45% to 70% lower than the proportion of GDP expenditure in other ASEAN countries.

Medical expenditure is expected to continue to increase, due to growing awareness of people's health and demand for private medical facilities, and medical expenditure is expected to reach 4% to 5% of GDP by 2025.

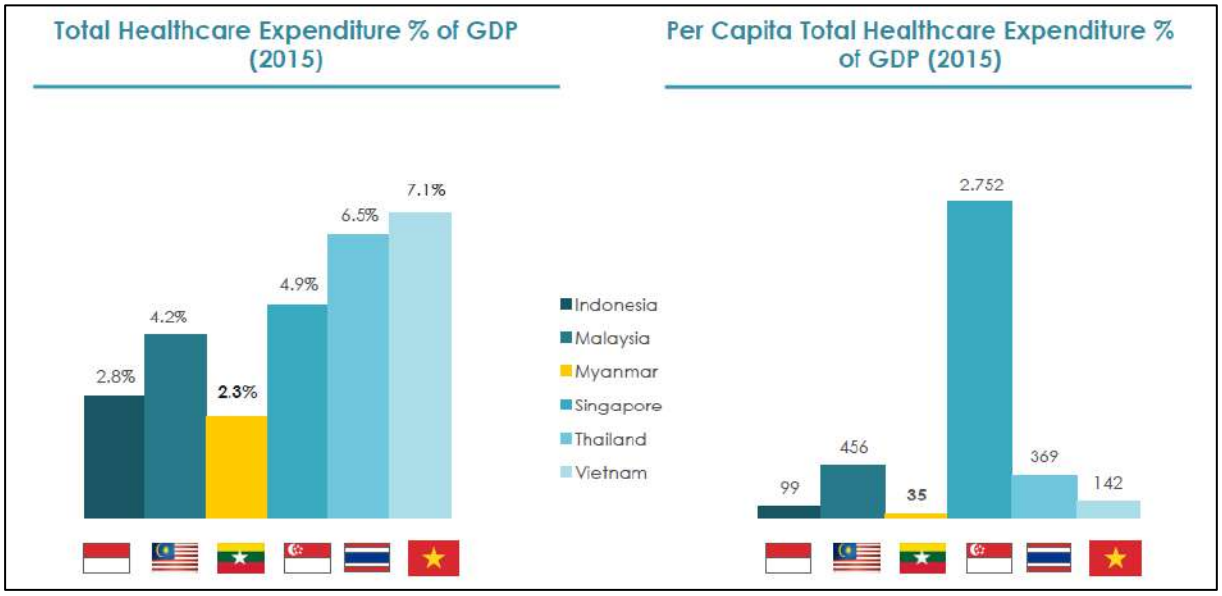


Figure 13 Total Healthcare Expenditure % of GDP and Total Healthcare Expenses Per Capita (2015)

(Reference) Solidiance

2.2.2. Finance of Healthcare Expenditure

As described in 2.2.1, public hospitals in Myanmar are mainly funded by government expenditure. When you visit a public hospital, you can receive medical treatment and treatment for most conditions is free, however there are quite a few people who use private hospitals and clinics, as they hope for shorter waiting times and better medical facilities and equipment.

Figure 14 summarizes the healthcare expenditure by financing agent, based on an interview with the Ministry of Health. 78% of expenditure is out-of-pocket, the biggest proportion of total healthcare expenditure, followed by 15% government expenditure, and 6% international NGOs. Employers are able to use the social security system, but because the scope of coverage is extremely limited, the share of expenditure is only 1%, and not fully utilized.

As mentioned above, Thailand also has a large out-of-pocked ratio, and public hospitals are maintained by government expenditure, while people who have incomes above a certain threshold generally go to private hospitals and clinics at their own expense. More than 90% of healthcare expenditure in Thailand is out-of-pocket.

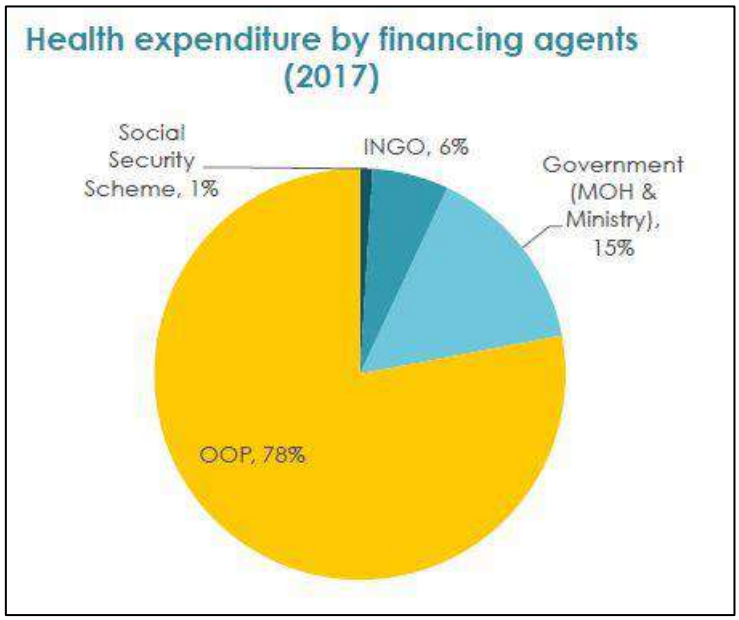


Figure 14 Method of expenditure of Healthl Expenses (2017)

(Reference) Ministry of Health and Sports, Myanmar

A private health insurance system exists as a way to reduce out-of-pocket healthcare expenses, but in Myanmar the system is not yet popular. In Myanmar, 'Healthcare insurance' was approved to sell through 12 private insurance companies and the national health insurance provider in July 2015. However it is not essential for employees to apply for the private insurance, and available insurance services all have the same coverage and price at all insurance companies, therefore the number of healthcare insurance subscribers is as very small - about 2,000 as of February 2016. The cost for health insurance is 50,000 Kyat (US$40), and a maximum of 5 insurance policies are available per person. Coverage for medical costs in insurance policies is mainly for the cost of hospitalization. There is a maximum of 150 days coverage for hospitalization. Policy-holders can receive up to 5 allotments of support, of 15,000 Kyat (US$12) per day for 30 days of hospitalization.

2.2.3. Myanmar Government Policy

The government of Myanmar, especially the Ministry of Health and Sports, which is in charge of health and medical policy, is forced to operate within a very limited budget in terms of expenditure, when compared to other countries (as we have seen above), and there are other issues, as below;

- The number of medical staff is below the minimum recommended by the WHO
- The roles and responsibilities of each stakeholder involved in health and medical treatment are not clarified
- There is a lack of budget and resources to manage and maintain medical equipment and facilities, especially in rural areas

In response to these issues, the Ministry of Health and Sports also considers and develops national strategies such as medical development planning and national health planning, while being supported

by related international organizations such as the WHO. In this scope, the Ministry of Health and Sports also conducts analysis on medical issues the country is currently facing, or expects to face in the future. We will describe these issues below.

First, in the vision for healthcare from 2001 to 2030, the government has established the main issues to be addressed in the long term. These are described as; securing universal health insurance coverage, reducing the impact on health caused by epidemic diseases and infectious diseases, and ensuring a high level of availability of pharmaceuticals and medical devices. In addition, there is a target to expand the use of public-private partnerships, utilize alternative health finance, develop nationwide supply chains related to medical treatments, strengthen the involvement of local communities in insurance policies, and implement regular evaluations and reviews of medical policy.

The comprehensive development plan of the nation from 2011 to 2020 states that there should be improvements in public health programs to ensure the quality and safety of medical products and devices, and to improveme the quality of medical services and inspection services at hospitals, in addition to strengthening the medical system and improving the management ability of infectious diseases (HIV, tuberculosis, malaria, etc.) as part of the national economic plan.

In the national health care plan for 2017 to 2021, the main objective that the Myanmar government should work on is to build a foundation to achieve Universal Health Coverage (UHC) by 2030. Part of this effort includes providing basic medical equipment, ambulances, and other services in all 330 township's hospitals by 2021. The government plans to utilize a US$2 billion loan from the World Bank for an essential package of health services (EPHS), with the aim of achieving an expanded area of coverage for essential healthcare services focusing on the health of nursing mothers, infants and children.

2.2.4. International Support Overview

Official Development Assistance (ODA) from other countries and international institutions increased from US$75 million to US$234 million in funds for healthcare. This has played a huge role in achieving the government's targets in the fields of regenerative medicine, HIV, AIDS, malaria and other diseases, as well as achieving millennium development goals and the objectives listed in the Myanmar government's medical vision for 2030. Among the support from ODA and international institutions mentioned above, the Japanese government has allocated around US$500,000 to a number of projects in primary health care, disease management, basic medical infrastructure and disease in the medical sector since 2000.

The World Health Organization (WHO) and Non-Government Organizations (NGO) have strengthened financial and technological support nationally and locally. When looking at partnerships with NGOs, at the government level, we see that the Ministry of Public Health in Myanmar has signed a Memorandum of Understanding (MoU) regarding collaboration for medical development with 14 NGOs and 37 International Non-Government Organizations (INGOs). At the local level, NGOs have

also expanded liquidity, and are focusing on supplying funds and running operations in specific regions. Myanmar has recently had particular difficulties in 6 areas (malaria, tuberculosis, regenerative medicine, infant healthcare, vaccination and childhood diseases) for rural areas. Therefore WHO and NGO activities are forcusing on maternal and child health, hygiene, and management of infectious diseases (especially HIV, AIDS, tuberculosis).

Table 2 shows the priority areas and key initiatives of the National Cooperation Strategy from the WHO between 2014 and 2018.

Table 2 National Cooperation Strategy (2014 – 2018)

Priority Area	Key Initiatives
Strengthen medical system	Promote private investment, logistics, health finance, assistance and support for UHC, and ensure availability of medical equipment at all levels.
Progress towards the infectious disease countermeasure target	Cover 80% of people needing ART, decrease tuberculosis and malaria, and provide greater access to consultations at affordable prices.
Reduce the burden of non-communicable diseases	Promote education of health care, strengthen tobacco management, provide technical services for the early detection of cancer, CVD and CRD.
Promotion of health over the course of life	Improved water quality management, sanitation, healthcare education to improve health in women, children, and elderly persons.
Strengthen emergency response capabilities, risk management, and monitoring systems	Improve early detection through strengthened diagnostic abilities and services at laboratories, prevent diseases, and strengthen quick response.

(Reference: WHO)

2.3. Condition of People's Health in Myanmar

Average life expectancy is perhaps the most comprehensive measure of the condition of people's health. Average life expectancy in Myanmar is the lowest among neighboring ASEAN countries (Singapore, Malaysia, Indonesia, Thailand, Vietnam, Myanmar); as of 2016, average life expectancy is 67 years. This is a difference of about 10 years from other ASEAN countries, excluding Indonesia.

Compared with the neighbouring ASEAN countries, Myanmar has a very high pregnancy mortality rate, infant mortality rate, and mortality rate for child under 5 years of age, and as shown in Figure 15, all of these rates are about double those of the country with the second-highest rates, Indonesia. In addition, the infection rate of HIV and the number of cases of malaria infection are also the highest of the six ASEAN countries listed above.

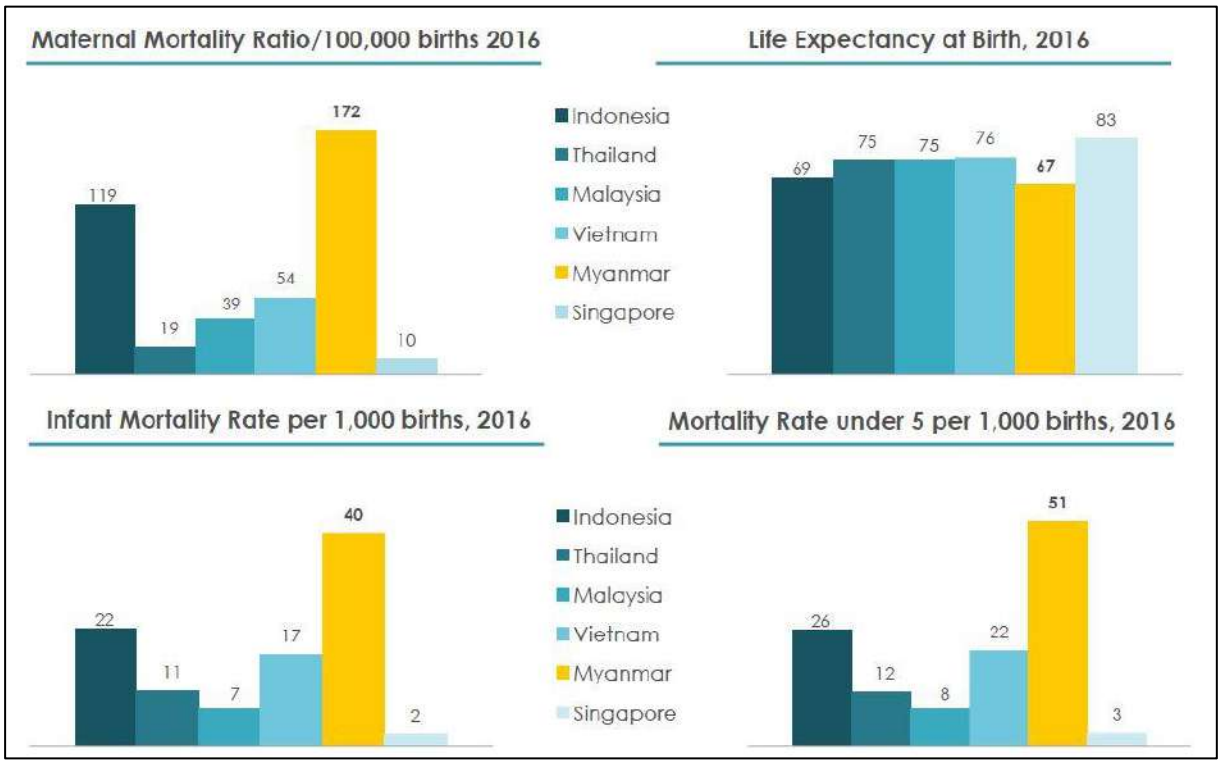


Figure 15 Average life expectancy and health indicators in ASEAN 6 countries

(Reference) Myanmar Ministry of Health and Sports, World Bank

In comparison with neighboring countries, while the high mortality rate is noticeable, the number of deaths from communicable diseases has decreased dramatically, particularly in the last few years, and as shown in Figure 16, between 2010 and 2015, the number of deaths from communicable diseases combined with other causes of death such as accidents and senility has decreased by half, from 368,000 to 181,000.

Meanwhile, the percentage of deaths from non-communicable diseases has been increasing, accounting for 59% of deaths in 2015, up from 41% of the total number of deaths in 2010. From the breakdown of causes of communicable diseases, shown in Figure 17, it is apparent that although there is a decrease in cardiovascular disease (CVD), there are increases in other categories – cancer,

cardiovascular disease, diabetes and other non-communicable diseases – thus government policies relating to non-communicable diseases are becoming more important.

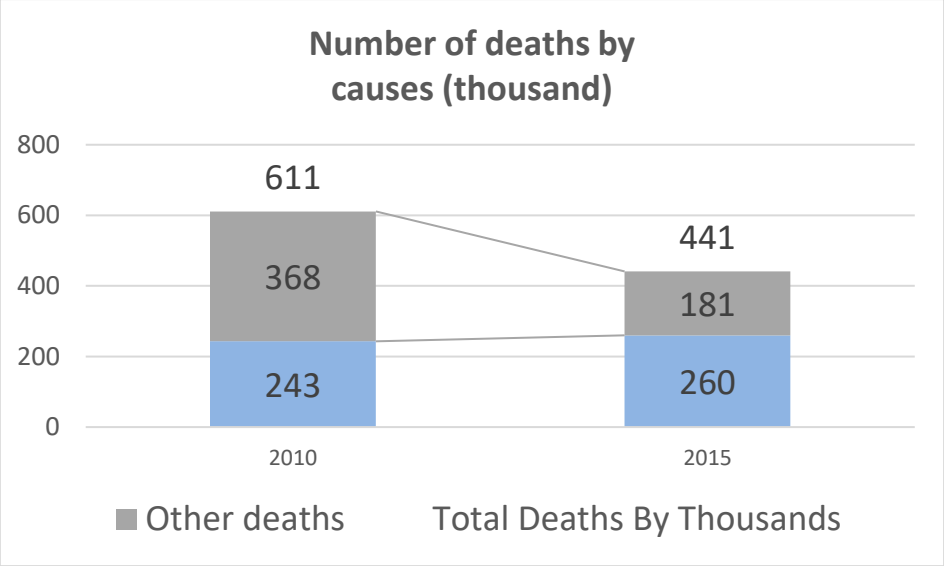


Figure 16 Classification of deaths in Myanmar

(Reference) Central Statistical Organization of Myanmar

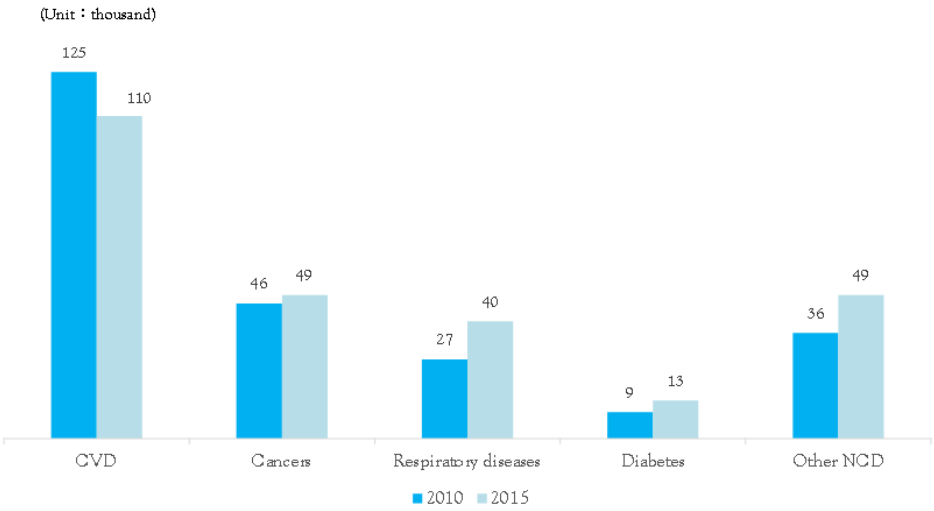


Figure 17 Comparison of the Number of Deaths caused by Non-Communicable Diseases (unit:thousands)

(Reference) Central Statistical Organization of Myanmar

Among deaths from non-communicable diseases, cardiovascular disease accounts for approximately 42% and diabetes accounts for approximately 5%, suggesting that lifestyle diseases such as hypertension and diabetes are prevalent in Myanmar. According to the WHO's 2014 survey, the rate people with diabetes & at-risk-of diabetes among Myanmar citizens is 35.9%, obesity rate is 27.9%, rate of high blood pressure is 26.4%, rate of high cholesterol is 36.7%, and more than 1 in 3 people have some kind of lifestyle-related disease, and are at risk of dying from it.

Among non-communicable diseases, besides cardiovascular disease, about 60,000 cancer cases are listed each year; mainly lung cancer, liver cancer, and stomach cancer. These cases have a very high mortality rate, and the number of deaths is about 50,000 each year. This is because routine health examinations and prevention management habits are not fully established yet in Myanmar, and the symptoms have often progressed to a certain extent or patients are only diagnosed after the cancer has become terminal.

In particular, it is assumed that the situation of non-communicable diseases will become more important due to increases in average life expectancy and and number of elderly people in Myanmar.

The percentage of population over 60 years old in Myanmar is expected to increase in the future, and as shown in Figure 18, the percentage of population over the age of 60, which was 8.9% of the total population in 2014 and increases about 0.2% each year, is expected to rise to 12.2% in 2030.

Looking at historical trends in Japan, the National Cancer Research Center reported that the number of deaths from cancer doubled from 1985 to 2015, according to population dynamics surveys from 1996 to 2016 by the Ministry of Health, Labor and Welfare. The number of deaths due to heart disease has increased by about 40%, and it has been pointed out that the aging of the population and the westernization of lifestyles have been potential causes of these diseases. Similarly in Myanmar, it is expected that the number of people suffering from non-communicable diseases, and the number of deaths resulting from non-communicable diseases, will increase in the future due to increasing life expectancy and changes in dietary habits.

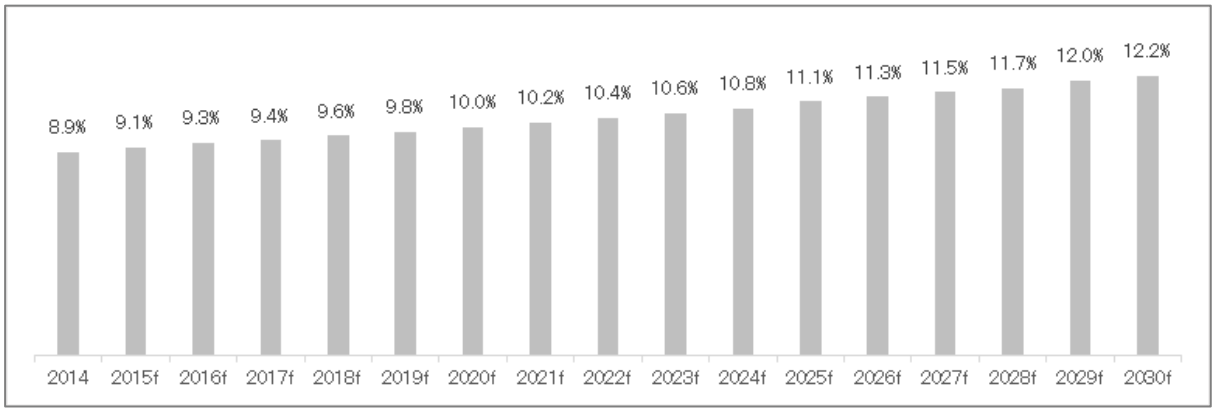


Figure 18 Percentage of Population Over 60 Years Old in Myanmar

(Reference: Ministry of Health of Myanmar)

2.4. Status of Development of Medical Institutions

2.4.1. Sufficiency and Local Condition for Doctors

Access to doctors in Myanmar is low compared to other ASEAN countries. The ratio of doctors to population in Myanmar is not so small in statistical terms compared to other ASEAN countries. Figure 19 shows that in Myanmar, the number of doctors per 1,000 people is the fourth highest of the 6 ASEAN countries (Singapore, Malaysia, Indonesia, Thailand, Vietnam, Myanmar). However, in Myanmar, procedures for renewing a doctor's license are easy and there are no exams for renewal, so the number of actively working doctors in Myanmar is much lower than the number of registered doctors. At public hospitals in particular, doctors' salaries are low, so some people who have a doctor's licence do not work as a doctor, and work instead in medical-related industries, for example as medical equipment / pharmaceutical agents, or for inspection service companies. Some people with doctor's licences work as doctors overseas, and there are quite a few who work at companies unrelated to the medical industry.

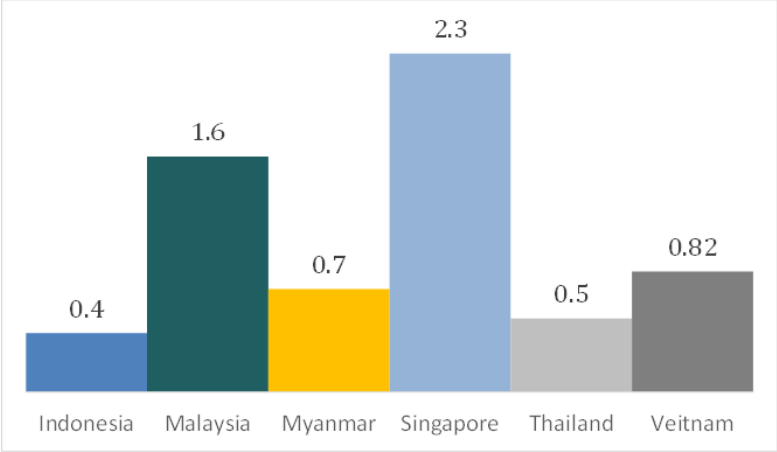


Figure 19 Number of Doctors per 1,000 people

(Reference) Central Statistical Organization of Myanmar

With regards to the academic background for doctors, Figure 20 shows that, among 32,861 doctors in 2015, 77% have a university degree, 22% have a master's degree, and 1% have a qualification from overseas. There are only public universities offering medical degrees, and no private universities for medicine in Myanmar, and there is a limited learning environment which does not allow the study of medical equipment in private hospitals for university students. Doctors who hope to obtain a master's degree are required to work at public hospitals for 2 years; specialists are required to work for 5 to 10 years.

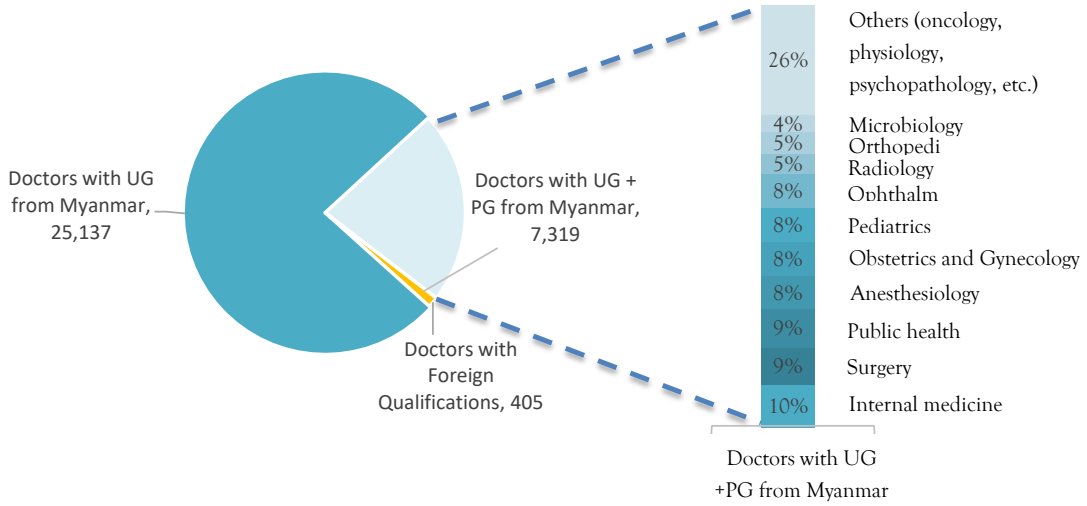


Figure 20 Academic Background for 32,861 Doctors in Myanmar (2015)

(Reference) Central Statistical Organization of Myanmar, Myanmar Ministry of Health

Generally, a doctor's career begins with training at a public hospital for 2 years, then subsequent work as a full-time doctor at a public or private hospital, or at their own private clinic, etc. A model career for doctors in Myanmar is as follows. For doctors in their thirties to forties, it is common to obtain specialist qualifications first, then work at public hospitals afterwards in order to obtain a certain status and reputation as a specialist in their department. Besides that, many doctors often work as a part-time doctor at a private hospital to compensate for insufficient salary at public hospitals, and often manage their private clinics at the same time. Doctors over 50 might aim to work as a professor at a university, or in an important post in a medical association or as a government official, but even in these cases, they often work as part-time doctors at private hospitals in their spare time. In addition, doctors over 60 might aim to work in management positions, such as on the board of a private hospital, or concentrating on the management of their own private clinic.

Thus, in the career of doctors in Myanmar, it is characteristic that experience and position at public hospitals and medical universities is important, and working as a part-time doctor at a private hospital as a side job is common.

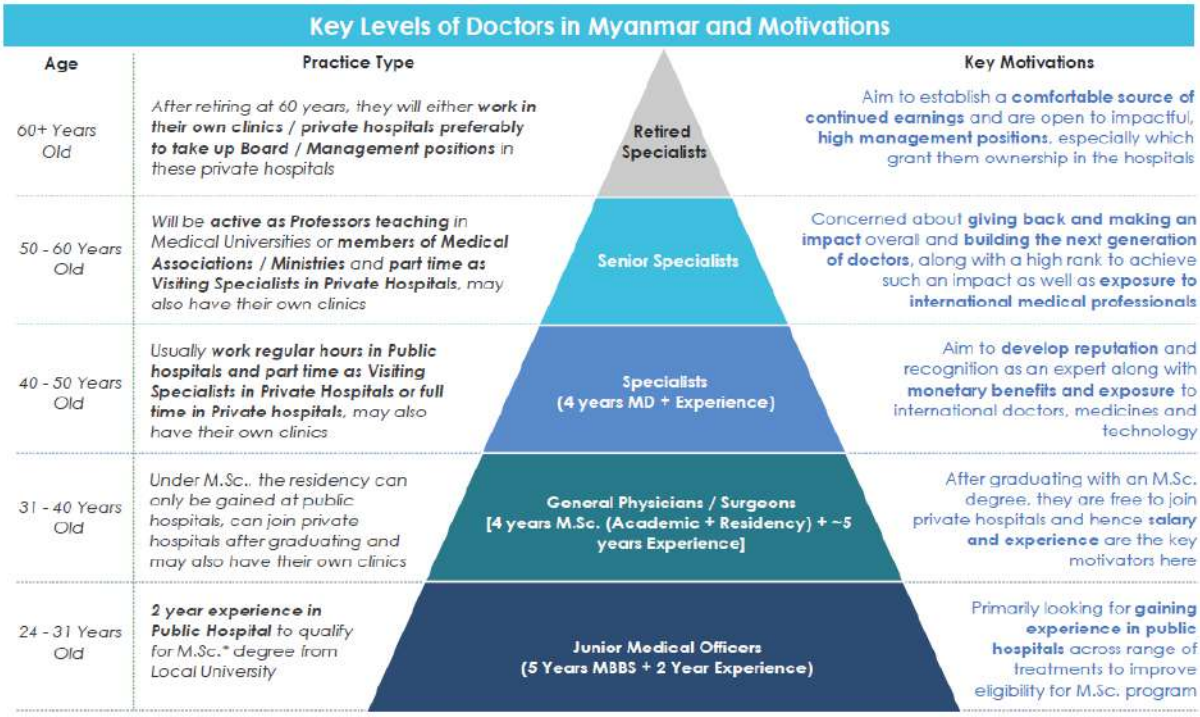


Figure 21 Myanmar's model career and motivation

(Reference) Solidiance

In Myanmar, the number of doctors on active service is small, and since working at public hospitals and public universities is desired, the market for part-time doctors is very large. It is common for doctors to work part-time for private hospitals and small practices like private clinics, and most doctors who work at private hospitals are only working part-time at those hospitals. As a result, there are few doctors in private hospitals during the weekdays, and, subsequently, patients are also scarce during these times. However, part-time doctors go to work at private hospitals in the evenings on weekdays, or on weekends, and so at these there are many patients, and it is very crowded. Private hospitals normally operate until around 10pm on weekdays.

This situation has the advantage that it is possible to operate a hospital with some flexibility, without paying fixed costs, and it is relatively easy to compensate for a lack of human resources, etc. On the other hand, almost all private hospitals are hardly operational during the day on weekdays, and some functions of the hospital are not sufficient – for example, continuous medical treatment is difficult for patients. There are also a lot of difficulties both in terms of medical care and management, such as challenges of long-term hospital branding. Some private hospitals have been actively promoting recruitment of full-time doctors, but only a few.

Below is a summary of work system and remuneration etc. for part-time / full-time doctors working in general private hospitals in Myanmar.

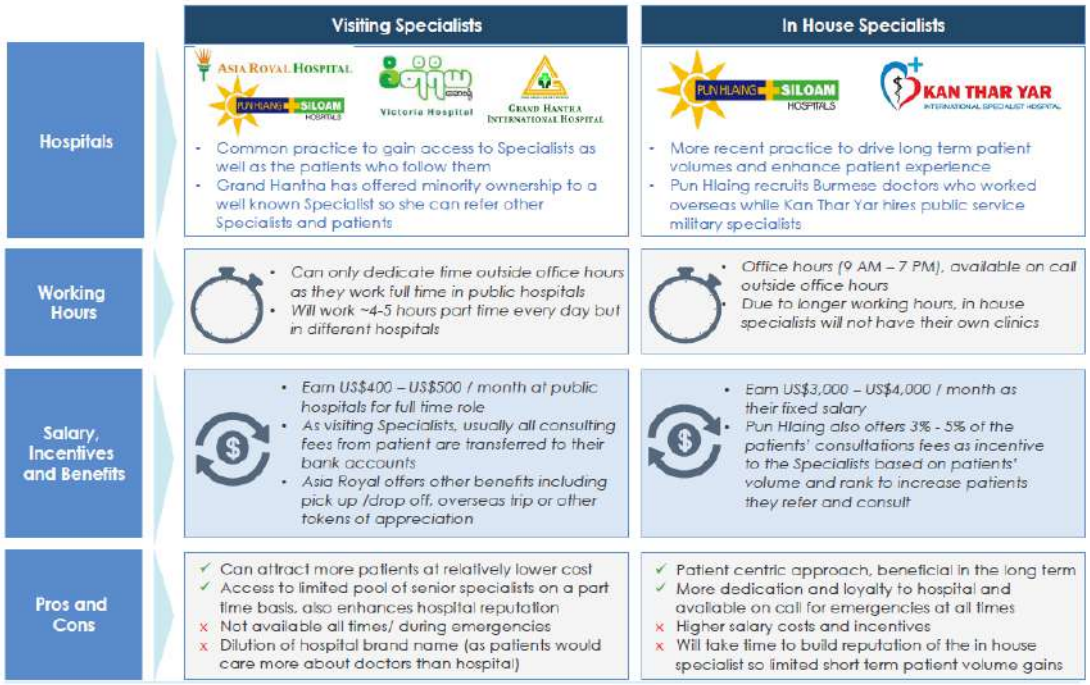


Figure 22 Comparison of part-time / full-time doctors working at private hospitals

(Reference) Solidiance

When selecting a hospital to work for, both full-time and part-time doctors places importance on renumeration, and the quality of equipment and medical expense (salary) at the hospital. The reputation of the hospital itself and the number of patients are relatively less important. Below are the results of Solidiance interviews with doctors.

Figure 23 Doctor's service hospital selection criteria

(Reference) Solidiance

2.4.2. Categorization, Availability, and Characteristics of Local Hospitals

There are 1,262 hospitals in Myanmar as of 2015, as shown in Figure 24. Public hospitals made up the largest portion, representing 77% of hospitals and 75% of hospital beds. Private hospitals accounted for 16% of hospitals and 8% of hospital beds, while government hospitals and military hospitals accounted for 5% of hospitals and 17% of hospital beds. Here, the government hospital refers to a hospital under the ministries other than the Ministry of Health and Sports, specifically, Workers' Hospital under Ministry of Labor, Universities Hospital under Ministry of Education, etc. are applicable.

Large public hospitals in the major cities of Yangon, Mandalay, Naypyitaw, etc provide professional medical treatment, and are used by both public officers and private citizens. Government ministry hospitals and military hospitals, however, only offer services to public officers. There were 205 private hospitals at the end of 2015, however most of them were in the large cities, and as evident from the fact that their portion of hospital beds is smaller than their portion of hospitals, they are small scale compared to public hospitals.

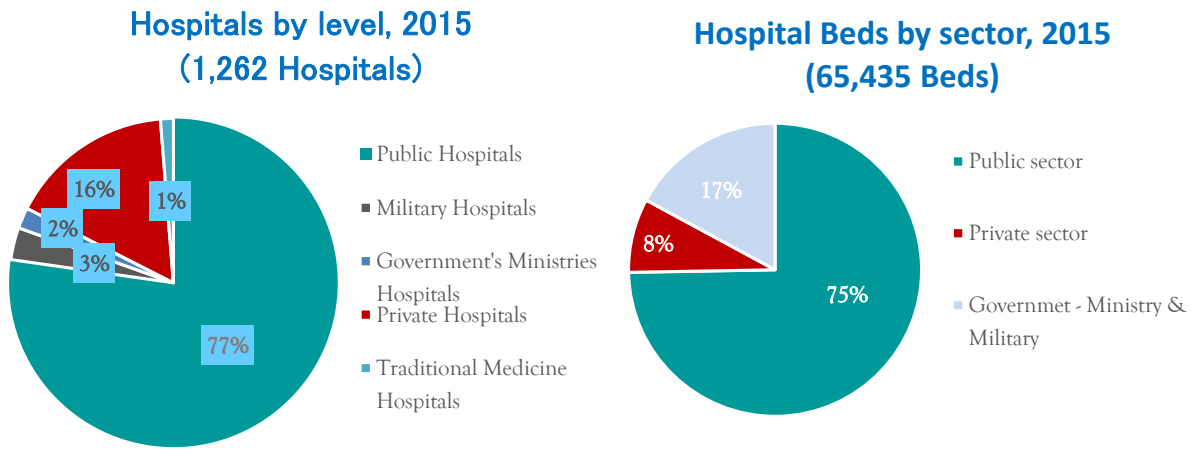


Figure 24 Ratio of Hospitals by Type

(Reference) Central Statistical Organization of Myanmar, Myanmar Ministry of Health, Health System Review 2014

Major cities have both public and private hospitals. Public hospitals are present in all regions listed in Figure 25, however some regions have no private hospitals. The majority of public and private hospitals are located in major cities, such as Ayeyarwady, Sagaing, Mandalay, and Shan.

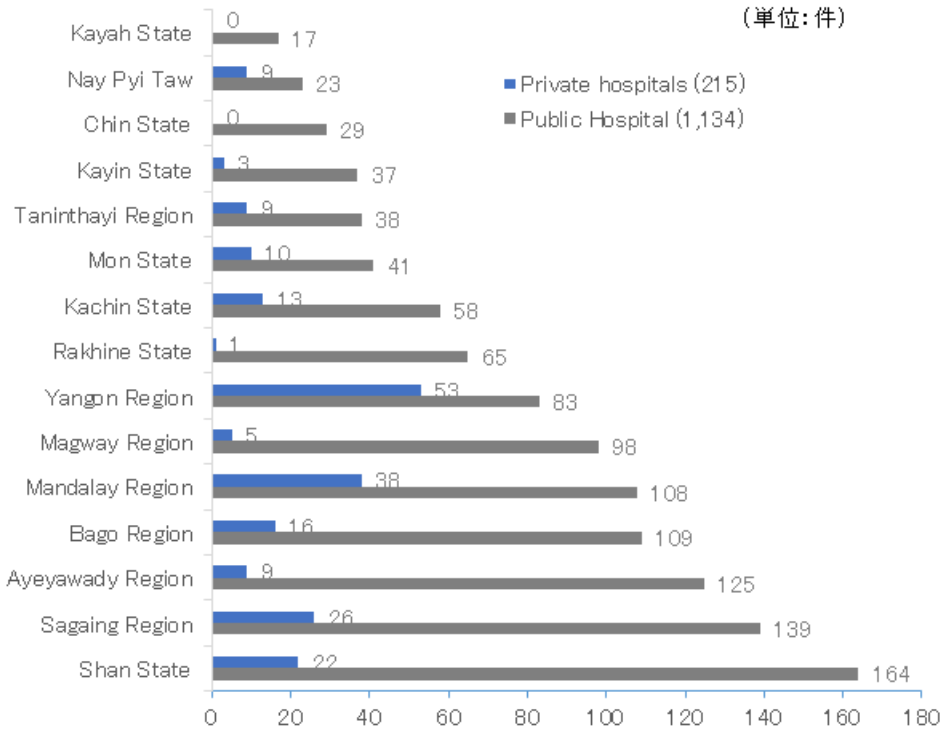


Figure 25 Regional Locations of Public and Private Hospitals (2017)

(Reference) Central Statistical Organization of Myanmar, Myanmar Ministry of Health

There are over 1,000 public hospitals in Myanmar; about 80% of these hospitals have 50 or fewer beds. Shan has the largest number of hospitals, and Sagaing, Mandalay, Ayeyarwady and Bago each have around 10% of the total public hospitals. On the other hand, there are 61 large hospitals which have 200 or more beds in Myanmar, and most of them are in Yangon, Sagaing and Mandalay.

Table 3 shows the distribution of public hospitals by number of beds and area.

There are 83 public hospitals in Yangon. Excepting the very small hospitals (25 or fewer beds), hospitals in Yangon are spread more-or-less evenly over the Number-of-beds ranges. 23 hospitals in total are large hospitals, and have 100 or more beds. These large hospitals account for about 30% of all hospitals. In Mandalay, there are 108 public hospitals. This is more hospitals than Yangon, however about half of the hospitals in Mandalay are small, and have only 25 or fewer beds. Large hospitals (having 100 or more beds) number 18, which is around 20% of all hospitals in Mandalay.The new administrative capital of Naypyitaw has one of the smallest numbers of public hospitals. Large hospitals (having 100 or more beds) account for only 17% of all hospitals; there are only 3 such hospitals. For the other cities (except for the major cities mentioned above), the majority of hospitals are small (having 25 beds or fewer) – these small hospitals account for more than 60% of all hospitals

.

Table 3 Number of Public Hospitals by Number of Beds and Area

Number of beds (bed)	Yangon	Mandalay	Naypyitaw	All Other Locations

25 or less	33	61	6	541
25 – 49	16	16	1	220
50 – 100	11	13	6	90
100 – 200	10	11	2	36
200 or more	13	7	3	38
Total	83	108	18	925

(Reference) Central Statistical Organization of Myanmar, Myanmar Ministry of Health

Concerning private hospitals, there are about 200 private hospitals in Myanmar, and more than half of them are small, having 25 or fewer beds. As for their location, about 70% of private hospitals are in major cities, such as Yangon, Sagaing, Mandalay, and Naypyitaw. In regards to location, it is similar to the distribution of public hospitals.

Table 4 shows the locations for private hospitals by numbers of beds and area.

There are 53 private hospitals – which is fewer than public hospitals – in Yangon. About 40% of the private hospitals have 25 or fewer beds. For Mandalay, there are 38 private hospitals, which is fewer private hospitals than in Yangon. However, as with Yangon, 40% of the private hospitals in Mandalay have 25 or fewer beds.

In Naypyitaw, there are only 10 private hospitals, and the situation is different to Yangon and Mandalay; there are not many hospitals which have 50 to 100 beds.

Lastly, in other areas, about 70% of private hospitals have 25 or fewer beds. Particularly in small cities, all of the private hospitals have only 25 or less beds.

Table 4 Number of Private Hospitals by Number of Beds and Area

Number of beds (bed)	Yangon	Mandalay	Naypyitaw	Others
25 or less	22	15	5	71
25 – 49	13	13	3	18
50 – 100	7	6	0	16
100 – 200	7	4	1	4
200 or more	4	0	1	0
Total	53	38	10	109

(Reference) Central Statistical Organization of Myanmar, Myanmar Ministry of Health

From the viewpoint of the quality of medical services, as shown in Figure 26, Myanmar's hospitals are divided into public hospitals and private hospitals, and private hospitals are further divided into low price and medium price.

In public hospitals, installed medical equipment is limited. Additionally, beds are squeezed in large rooms in the inpatient ward, and the families of inpatients are often present next to the patients' beds to look after them, hence the environment ·and sanitation for inpatients is unfavorable. For these reasons, people with income above a certain level tend to avoid attending public hospitals, and

because public hospitals do not bill patients for most medical treatments, they are normally used by patients with low income.Public hospitals in major cities, including the Yangon General Hospital which is the largest public hospital in Myanmar, have had major medical equipment installed, including support from overseas. However, due to the environment of the hospital and the degree of patient congestion, these hospitals are mainly used by patients with low income.

Private hospitals, particularly hospitals of a certain size, have installed equipment such as X-ray devices, CT scanners, ultrasonic inspection apparatus, etc. For hospital beds, there large rooms with many beds, but also 4-bed rooms, 2-bed rooms, and private rooms. In general, private hospitals have a cleaner environment than the public hospitals.

In Myanmar, even in private hospitals, hospitalization costs are mostly inexpensive, at less than US$30 per night on average. Private hospitals are mainly used by middle-income patients. In Yangon and Mandalay there are several private hospitals which charge a higher price, and are equipped with expensive and sophisticated medical equipment, such as MRI photography and angio equipment. Some private hospitals also have room options for over US$100 per night, catering to high-income patients. On the other hand, there are no hospitals offering high-value added services in price ranges over US$100 dollars a night, as in medically advanced countries such as Singapore and Thailand.

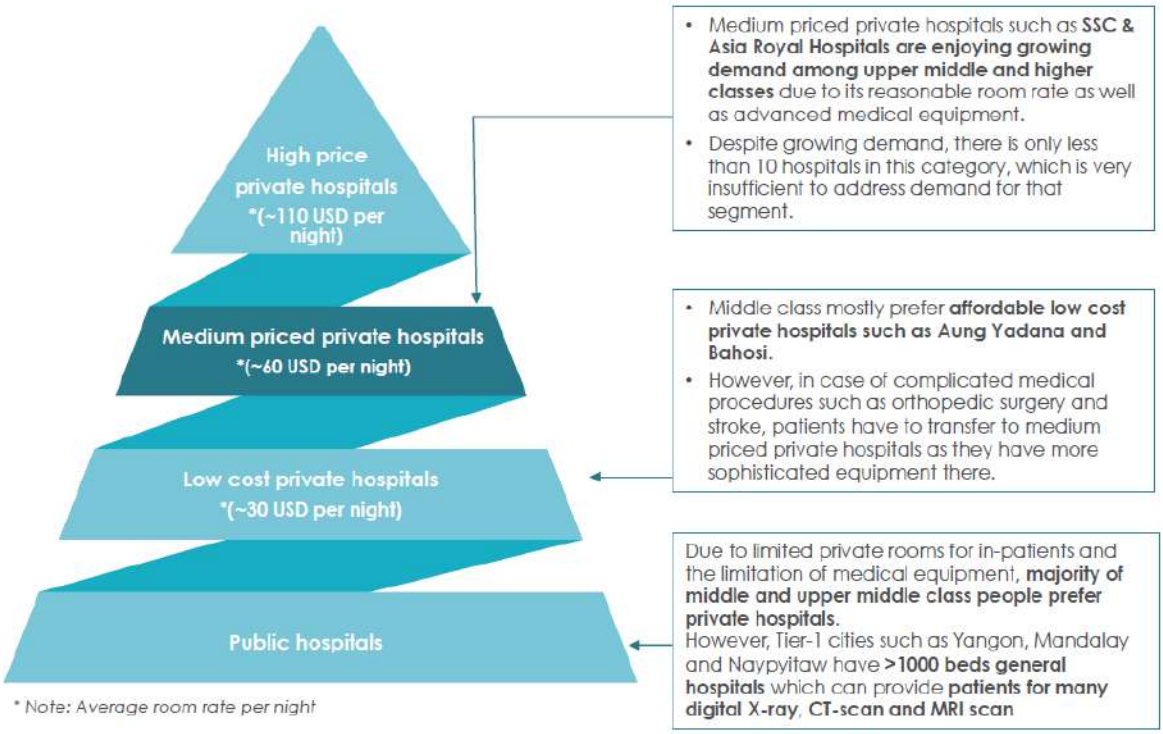


Figure 26 Hospital category and demand

(Reference) Solidiance

2.5. Outflow of Patients Overseas

As mentioned previously, Myanmar medical expenditure is at a lower level than other neighboring ASEAN countries. Corroborating this is the fact that there not enough doctors, and that many private hospitals rely on part-time work by doctors working in public hospitals and universities, and that three quarters of all public hospitals don't have sufficient facilities, and that most private hospitals also offer services at a low price, and hardly any hospitals have high-value added services.

As a result, in the hope of better medical services and care, patients with high incomes and patients requiring advanced treatments are presently flowing out of Myanmar. As shown in Figure 27, it is estimated that more than 200,000 Burmese citizens underwent medical treatment overseas in 2017, and the number has increased from 93,870 in 2011 to 164,802 in 2015 at a growth rate of 12%.

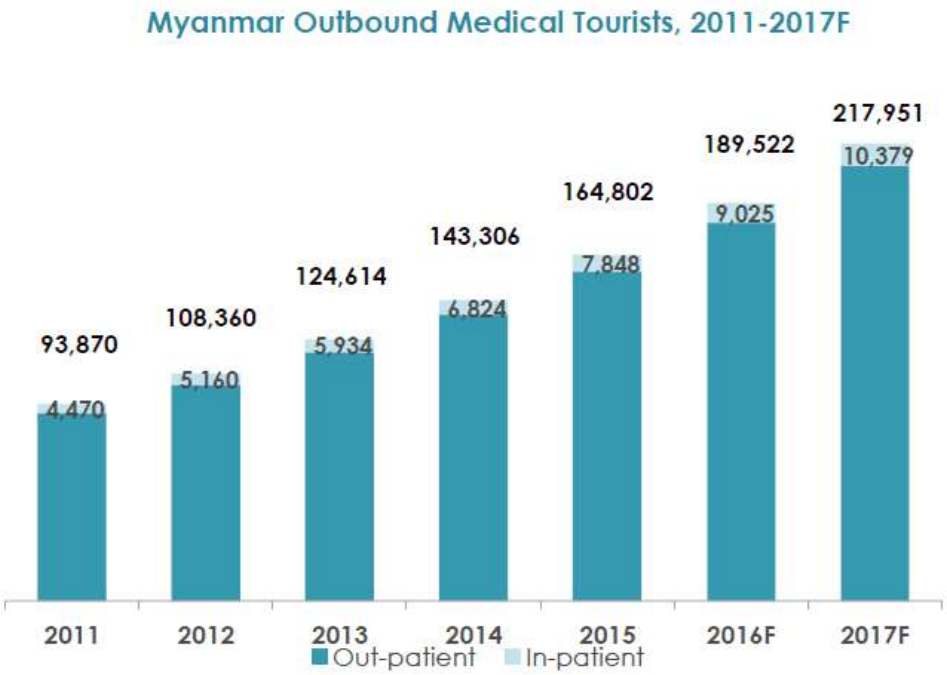


Figure 27 Trends in Outflow of Burmese Patients Overseas

(Reference) Solidiance

The main countries to which Burmese patients travelled for treatment in 2016 were Thailand (56%), India (19%), Singapore (11%), and Malaysia (5%). Thailand is an attractive destination for treatment for Burmese people, because Thailand is close to Myanmar, has high quality services, and reasonable prices for Medical Checkups. In Thailand's major private hospitals, Burmese people represent the largest proportion of foreign patients, and hospitals have been proactively serving Burmese patients with high levels of service as a business policy, although the hospitals are planning to acquire medical tourism patients from around the world. Specifically, in addition to employing many Myanmar doctors, nurses, and interpreters, they have also set up clinics and branch offices in major cities such as

Yangon and Mandalay in Myanmar to promote their hospitals to patients. Table 5 shows the major destination hospitals of Burmese patients.

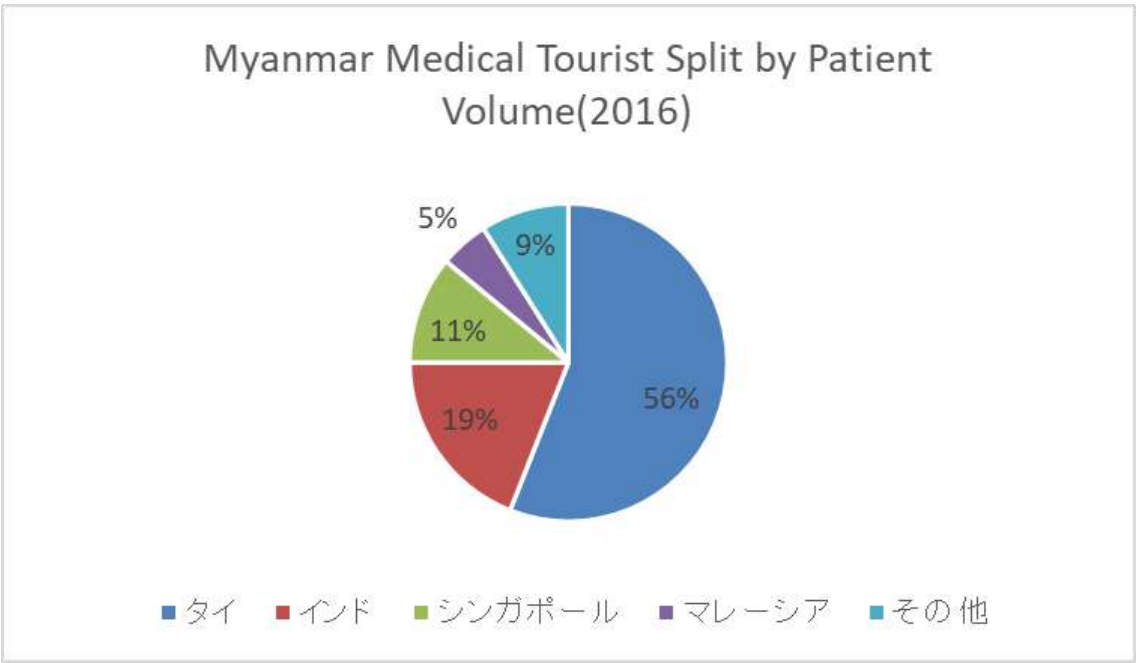


Figure 28 Destination Countries for Burmese Patients

(Reference) Solidiance

Table 5 Major Destination Hospitals for Burmese Patients

Countries	Hospitals
Thailand	• Bangkok Hospital Group (Bangkok Hospital, Samitivej Hospital) • Bumrungrad International Hospital
Singapore	• Raffles Hospital • Mount Elizabeth Hospital
India	• Fortis Hospital • Apollo Hospital • Medanta Hospital
Malaysia	• Mahkota Medical Centre • Regency Specialist Hospital
Indonesia	• Tan Tock Seng Hospital • Parkway Hospital • Singapore General Hospital

(Reference) Solidiance

2.6. Summary of Healthcare Environment in Myanmar

In Myanmar, medical expenditure remains low in both government and private sectors compared to neighboring ASEAN countries, resulting in low average life expectancy and high infant mortality rates, etc. domestic medical services are improving, though, as a result of medical policies introduced by the Myanmar government, and international support. However due to the issue of limited financial resources of the Myanmar government, the amount of government medical expenditure is not yet enough, and educational facilities for medical staff are not sufficient. In addition, private enterprises have only been allowed to operate hospital businesses relatively recently, and the number of private hospitals is still small, while both the quality and quantity of doctors and medical care are insufficient when compared with other countries. Doctors who work in private hospitals part-time are also often employed as doctors in public hospitals, and newly established private hospitals find it hard to provide full medical services. It can be said that the supply of medical services is very limited in Myanmar.

Demand for medical care in Myanmar is increasing, and is expected to continue to increase in the future. Under these circumstances, some Burmese people feel uneasy about healthcare in Myanmar, travel to foreign countries to undergo medical examination and treatment, and Burmese medical staff are also flowing overseas to work. The number is increasing year by year, so supply is not expected to keep up with the increase in demand for medical services. It is also a big economic loss for Myanmar. Hospitals in neighboring countries such as Singapore and Thailand are investing in medical tourism to attract overseas patients and medical staff, including Burmese people.

In view of this situation, the consortium believes that funding and human resources in healthcare is one of the problems to be solved. In a situation where non-trivial numbers of medical personnel leave to work overseas, even if we concentrate on education and training of doctors and enhancement of medical facilities there is a possibility that the positive effects of these improvements on medical development in Myanmar may be limited. This project aims to provide a hospital in Myanmar where patients can receive high quality medical services which are equivalent to Japan standarads of healthcare, and to provide medical staff the opportunity to learn about Japanese medical technology and services. It is believed that this will contribute to the resolution of the problem, by engaging with patients and medical professionals who have travelled overseas for treatment and employment, and with those potentially planning to do so. Also, by bringing medical staff from Japan, we would like to contribute to an increased supply of medical professionals in Myanmar.

3. Demand Forecast

3.1. Concept of Demand Forecast

In this study, forecasted demand was determined based on the following methodology.

First, we set up a target segment representing potential customers of this project, and carried out a survey of demand in FY 2017, which was the latest data available at the time, for this target segment.

Next, the future growth rate of the target segment was calculated based on the macro index, which is considered to be highly correlated with medical demand. We estimated future market size by multiplying current demand by the growth rate. Regarding the growth rate, we defined three scenarios, with a base scenario, optimistic scenario, and conservative scenario, with countries which have developed prior to Myanmar, such as Thailand and Vietnam, as benchmarks. The outline is as shown in Figure 29 below.

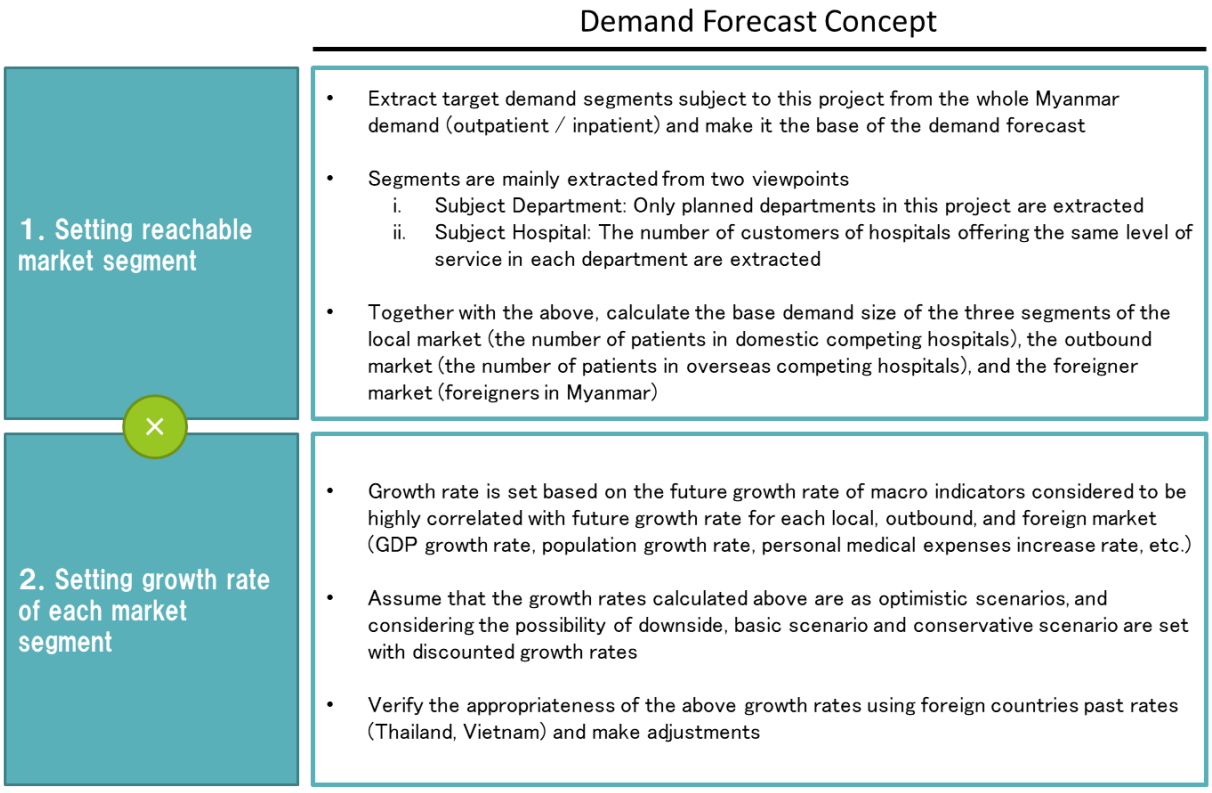


Figure 29 Methodology of Demand Forecast

Reference: Created by the research group

3.2. Demand Segment Definition

3.2.1. Outline of Methods for Defining Demand Segment

We define demand segments via two methods, to determine potential customers for this project.

The first method targets clinical departments, and demand investigation is carried out for clinical departments planned for inclusion in this project. The second method is to define target customer groups, where potential customers for the new hospital are (local market) patients currently attending Yangon's top class hospitals, patients who have flown overseas (outbound market), and overseas expatriate patients (foreign market). We surveyed the size scale of each of these customer groups.

The details of each defined demand segment will be described below.

3.2.2. Clinical Departments (dealt with by this project)

There are seven clinical departments planned for inclusion in this project;

- Physical Check-Up
- Internal Medicine department
- Orthopedic Surgery department
- Rehabilitation department
- Plastic Surgery department
- Dermatology department
- Obstetrics department

The reasons for selecting these clinical departments are as follows.

Firstly, Ishii hospital operates a majority of these clinical departments at a hospital clinics in Japan. Thus, when establishing the hospital business in Myanmar, Ishii hospital can offer medical training for Burmese doctors and medical staff in Japan, and can provide a wide range of support, such as dispatching doctors and medical staff on business trips from Japan as needed. This way it will be possible to secure advanced medical care of a Japanese standard in Myanmar.

Secondly, as ascertained from various interviews conducted prior to this research work, it is expected that there will be a certain degree of demand in Myanmar for the above-mentioned clinical departments. We confirm this point in detail in the demand investigation in this study.

Thirdly, as ascertained from interviews, the full services offered by the above-mentioned clinical departments are not widely offered in Myanmar, and operating these departments could improve technology and services, and introduce new medical services through the expansion Japanese medical corperations into Myanmar. As a result, it is thought that these departments can offer services that can contribute to the solution of medical issues in Myanmar. We expand on this point in Section 8.

3.2.3. Target Customers

The target customers for this project are patients potentially desiring advanced medical treatments at the standards of Japanese medical services, and people able to afford a certain level of payment. We

believe that the healthcare market representing these target customesr can be broadly classified into the following three categories.

i. Local market
Burmese patients who attend hospitals offering the highest standards of medical service in Myanmar. They are people who are already choosing a hospital where they can receive good treatment and good service. Therefore if our facility has medical services equivalent to or better than the hospitals they currently attend, they could potential customers for our new hospital.

ii. Outbound market
Burmese patients who have already received medical services at hospitals outside Myanmar in pursuit of more advanced medical technology and better service. If these patients can receive equivalent medical services in Myanmar, there could be many customers who would prefer to be treated in Myanmar, to avoid the time and expense of going abroad for treatment.

iii. Foreigners market
These patients are foreign expatriates in Myanmar, and their families. They receive a high quality of healthcare in their home countries, and usually have overseas travel insurance. Thus they usually go to the top class hospitals in Myanmar, or to facilities in neighboring countries with higher standards of healthcare, or they return to their home countries to receive medical treatment. Therefore, if we can establish a facility that can offer medical services at a high Japanese standard, many of these patients could attend our hospital.

Although it will be possible to provide services to patients who are not included in the above three markets, we initially conducted a study focusing on these three markets that are considered to have high payment capacity. This is because the objective of forecasting is to confirm the viability and profitability of this project, and so we should prioritize investigating the markets with a high probability of supplying our customers. It is not the intension of the business management to limit the category of patients.

Specific subjects to be investigated in each market are described below.

3.2.4. Customer Segment (i): Local Market

For the local market, we conducted studies on the numbers of Myanmar patients in target clinical departments, specifically at the following 5 hospitals located in Yangon city, as the hospitals offering the highest standard of medical services in Myanmar;

- Asia Royal Hospital
- Pun Hlaing Hospital
- Victoria Hospital
- Grand Hantha Hospital
- Kan Thar Yar Hospital

The criteria and reasons for selecting each hospital are as follows. For these following reasons, we believe that the above five hospitals share the customer segments of our new hospital;

- Hospitals located in the center of Yangon city (between downtown and the airport) or in the vicinity.
- Hospitals with the highest price level among private hospitals in Yangon and Myanmar, and targeting the middle and high income groups.
- Hospitals which provide Medical Checkups, internal medicine and orthopedic surgery, which will be the main clinical departments at our new hospital, and with a composition of clinical departments which is similar.
- Hospitals which have medical devices that are generally provided in Japanese hospitals, such as CT and MRI, and which provide most of the examinations and treatments which will be available at our new hospital.
- As Asia Royal Hospital, Pun Hlaing Hospital, Victoria Hospital have a relatively long history as private hospitals, and they are recognized as high level medical institutions.
- Grand Hanthar Hospital and Kan Thar Yar Hospital have not been established for very long, but they have installed higher quality medical devices than the three aforementioned hospitals. In addition to introducing high grade private rooms for high income groups , they have similalities with our new hospital with regards to physical design, such as lobbys and a waiting spaces designed with a feeling of luxury and openness, similar to hospitals in Thailand.

We conservatively regarded only patients at these 5 hospitals as our set of potential customers in the local market at present, and used this total number in predicting the number of customers for the new hospital, and in calculating revenue.

3.2.5. Customer Segment (ii): Outbound Market

For the outbound market, we picked five hospitals in Thailand and Singapore as representative hospitals for those attended by Burmese people receiving treatment overseas, as described in *2.5 Outflow of Patients Overseas*. We investigated the number of Burmese patients at targeted clinical departments in these hospitals;

- Bangkok Hospital
- Bumrungrad Hospital
- Samitivej Hospital
- Raffles Hospital
- Mount Elizabeth Novena Hospital

The criteria and reasons for selecting each hospital are as follows. For these reasons, it seems that the above five hospitals are sufficiently representative of destination hospitals for Burmese people;

- Overseas hospitals attended by Burmese people are basically large-scale general hospitals, with services such as an availablility of Burmese doctors and Burmese interpreters, and with clinical departments which we will provide at our new hospital. In addition, these hospitals have SPECT / PET-CT and Angiography as well as CT / MRI, which is almost to the same standard as Japanese hospitals in terms of medical equipment. Therefore, it is considered that

these overseas hospitals, which are destinations of Burmese people seeking treatment, are basically competitors with the new hospital

- Therefore, we selected hospitals which accept a certain number of Burmese patients, as subjects of the investigation.
- As described in section *2.5 Outflow of Patients Overseas*, the main countries to which Burmese patients travelled for treatment are; Thailand with the largest number (56%), followed by India (19%), Singapore (11%).
- Bangkok Hospital, Bumrungrad Hospital, and Samitivej Hospital are the top 3 hospitals in Thailand to which Burmese people travel for treatment. Information from these three hospitals provides details of more than half the number of Burmese patients travelling to Thailand for treatment.
- India is the next biggest destination for medical treatment for Burmese people, however hospitals there are distributed separately in large cities such as Delhi, Mumbai, Kolkata, Chennai. It is therefore considered difficult to properly investigate information from one hospital in one city.
- Singapore is the next most-frequented country; Raffles Hospital and Mount Elizabeth Novena Hospital are the 2 hospitals with the highest number of Burmese patients, and represent about 30% of Burmese patients receiving treatment in Singapore.

In forecasting customer numbers and calculating revenue, we apply the survey results of these 5 hospitals by the ratio of the number of the hospitals' patients to the total number of outbound patients, to calculate the demand for each clinical department in outbound markets including Thailand and Singapore.

3.2.6. Customer Segment (iii): Foreigners Market

Regarding the foreigners market, it is supposed that foreigners living in Myanmar go to neighbouring countries or to their home countries for treatment, in many cases, but it is difficult to investigate how many are going to each country. We could not acquire information relating to "foreigners living in Myanmar" when we conducted interviews at hospitals outside of Myanmar while investigating the outbound market. Therefore, unlike markets (i) & (ii) above, we cannot conduct a real number survey, and instead investigate the number of foreigners living in Myanmar, then estimate the number of potential customers by multiplying the number of foreigners by the rate of treatment in each clinical department for one year.

3.3. Demand Study of Target Markets

3.3.1. Study Method and Evaluation

In this demand study, we directly interviewed the management, sales and public relations officers of the five local market hospitals, and the five outbound market hospitals, and acquired the number of patients in each clinical department. We have done 110 interviews in pre-study of 2017, and 44 interviews in this study of 2018, and the major personnel interviewed are listed in Table 6.

Table 6 Interviewees at Each Hospital

Market	Name of Hospital	Interviewee (position)
Local Market	Asia Royal Hospital	Marketing Exective
	Pun Hlaing Hospital	Exective Management Associate
	Victoria Hospital	Sales & Marketing Exective
	Grand Hantha Hospital	Head of Internal Relations
	Kan Thar Yar Hospital	Marketing Manager
Outbound Market	Bangkok Hospital	Representative of Myanmar Office, Hospital Director
	Bumrungrad Hospital	Head of Burmese Desk, Marketing Executive
	Samitivej Hospital	Representative of Myanmar Office, Customer Relations Officer
	Raffles Hospital	Supervisor, Assistant Marketing Manager
	Mount Elizabeth Novena Hospital	Medical Coordinator

Reference: Created by the research group

We have verified the data on demand through following process. While the statistics from local government may not be highly credible and estimate from macro data may be misleading, we have collected actual micro data, which we believe is more robust and credible.

- The research firm has conducted interviews to multiple persons in each hospital and checked consistency with past data.
- The research firm has conducted interviews not only to hospitals but also to governmental organizations, medical related associations, doctors in order to verity the data.
- The research team also visited the hospitals to confirm the patient volume. For example, according to the data from Solidiance, daily average outpatient of Victoria hospital is about 300 to 350, which is slightly less than Ishii hospital in Japan. In that case, average number of people waiting in the hospital should be around 40. The research team has visited dozens of times to the competitor hospitals including Victoria hospital and confirmed that the number of people waiting in the hospitals is not off. Also the research team has verified the data through interviews with local doctors. It is confirmed that on weekday evening, which is the peak time, an orthopaedic doctor sees 6 to 7 patients in one hour. Grand Hantha International Hospital has 40 hours of orthopaedic outpatient time for one week in total. Therefore the hospital should have 240 to 280 patients in one week. The data from Solidiance shows about 260 patients in one week (about 13,000 in one year), so we believe the data is accurate and credible.

- Major hospitals in Bangkok and Singapore are listed in the stock exchange and have published their financial information, which include the number of foreign patients. The Research firm has verified the data from interviews through checking the IR information.

Regarding the overall population parameters of the outbound market, we used as a reference WHO analysis based on World Bank statistical data (Reference: https://data.worldbank.org/country/myanmar), and for the foreigners market, we obtained information from statistical data from the Ministry of Foreign Affairs of Japan, and the Myanmar Ministry of Hotels and Tourism.

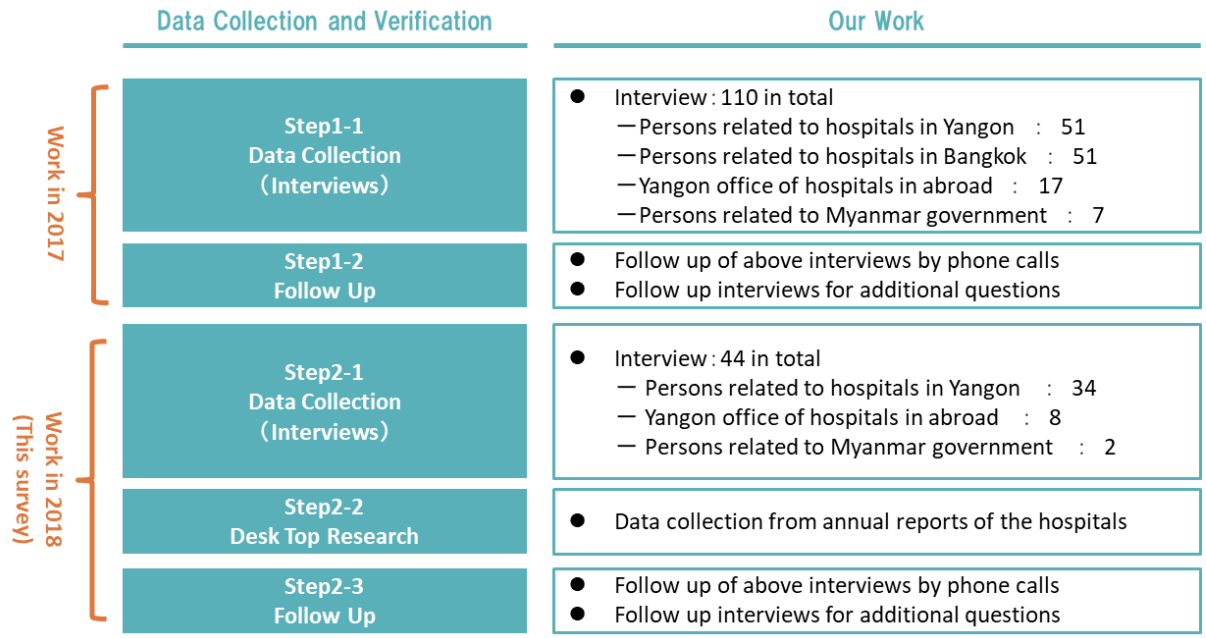


Figure 30 Demand Forecast Research Steps

Reference: Created by the research group

3.4. Evaluation for proposed project sites

As part of the demand investigation, we conducted location evaluations of candidate sites for the project. The intention of site assessment was to evaluate project candidate sites which were owned by the project's partner candidate from multiple viewpoints, to confirm whether the chosen project site is sufficiently appropriate, and if it was not sufficiently appropriate, we would be factoring this into the profit model.

We assume that the chosen project candidate site will be land possessed by the partner candidate in Mayangone township; details of the candidate site are described in section 5.

(Locations for Evaluation)

There are 5 areas to evaluate; Mayangone, Thingangyun, Insein, North Okkalapa, and Mingalardon. They have many middle income citizens and foreigners as residents. They are also roughly equivalent in terms of land and real estate prices.

For townships closer to the center of Yangon – for example; Kyauktada Township & Bothataung Township located downtown, and Bahan Township which contains Golden Valley and is in the high-class residential area – these townships have already been extensively developed, or housing is dense. As these townships have few plots of land available for our project, and price is very different, these townships are excluded from our comparisons.

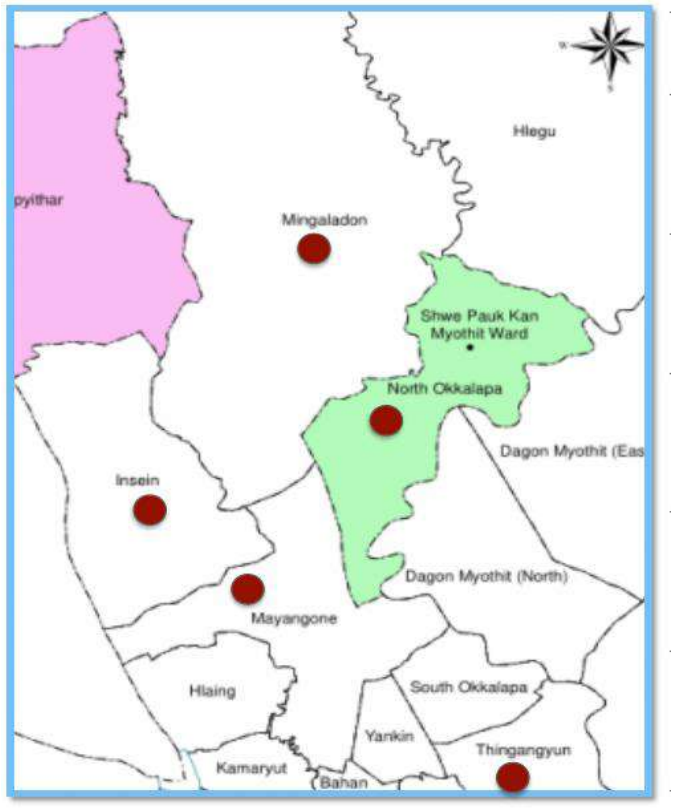


Figure 31 Locations for Evaluation

(Reference) Created by the research group

(Evaluation point (1) : Demographic Attractiveness)

Population density in the west part of Yangon is 13,000 per square km. It is the highest density in Yangon. The percent of foreigners in the population is 0.93%, and the percent of modern housing is the highest in the city at 65%, followed by east, north and south areas. The percentage of modern housing in the west part of Yangon is more than twice that of the east part of Yangon (which has the second highest population density). The west part of Yangon could be an ideal site, as it has the highest population density, and also has lots of middle or higher income groups, and foreigners which have high income. Areas around the west part of Yangon could be ideal to establish a hospital, as outpatients are expected to visit hospitals close to where they live.

Based on the above ideas, we evaluated demographic attractiveness based on 3 indexes. We used residential lease price as a proxy variable for spending propensity, population per square kilometer for population density, and the percent of the residents living in condominiums and apartments as a proxy variable for population wealth profile. In calculating the evaluation value, we set weightages of 50% for a, 30% for b, and 20% for c;

a. Population Spending Propensity : Residential lease cost per square meter
b. Population Density : Population per square kilometre
c. Population Wealth Profile : Percentage of people living in condominiums and apartments

Figure 45 shows the resulting scores for evaluations by the 3 indexes. They are population spending propensity, population density, and population wealth profile.

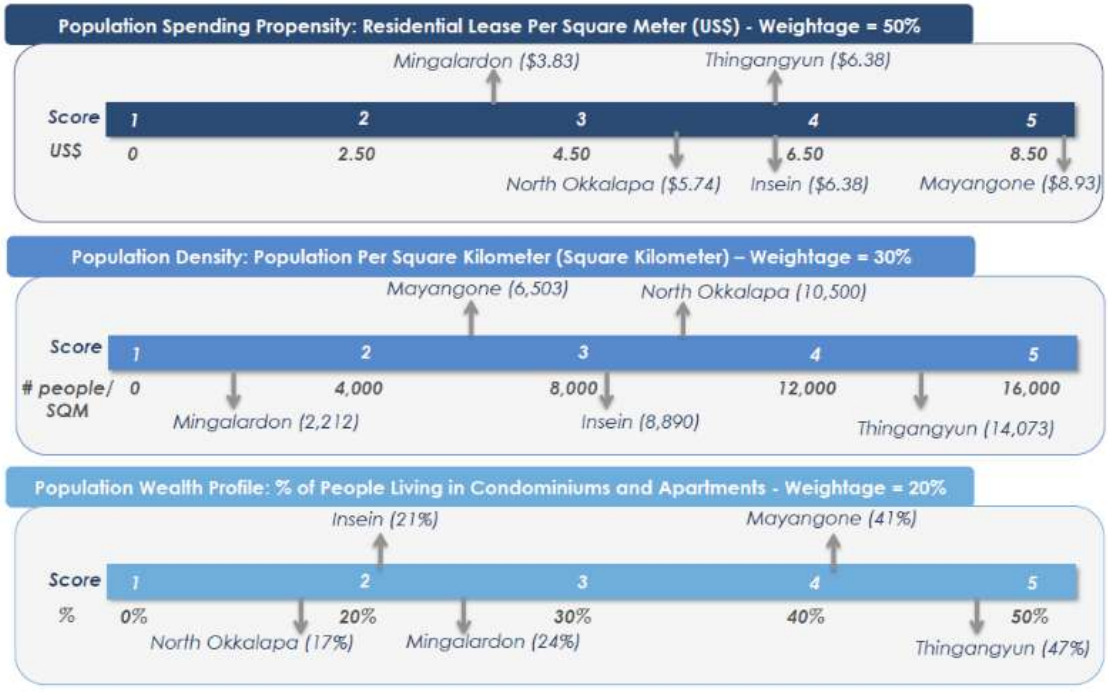


Figure 32 Evaluation of Geographic Attractiveness

(Reference) Created by the research group

(Evaluation point (2): Geographic Attractiveness)

Transportation and city planning are underdeveloped in Yangon. Therefore transportation relies on 3 main roads crossing north to south (Pyay Road, Insein Road, and Kabar Aya Pagoda Road). The west part of Yangon city is a convenient area due to these three main roads running through it. There are also many residential areas for middle income or higher groups, and major commercial complexes such as hotels and shopping malls. Proximity to areas containing many potential customers is an important factor. On the other hand, the west part of Yangon already has lots of competing private hospitals, such as Asia Royal Hospital, etc. To maximize the number of customers, we need a decent distance between competitors, and minimal competition.

We evaluated geographic attractiveness based on three indexes. For convenience of location with regards to affluent areas, we used distance from affluent areas like the Golden Valley, located in the central part of Yangon city, as a proxy variable. For intensity of competition, we used the distance from the closest competing hospital as a proxy variable. In calculating the evaluation value, we set 75% weightage for a, and 25% for b;

a. Proximity To Affluent Area Like Golden Valley (Distance in Kilometers)
b. Intensity of Competition: Distance from Key Competitor Hospitals (Distance in Kilometers)

Figure 46 shows the resulting scores for evaluation by 2 indexes. They are proximity to affluent area like Golden Valley, and intensity of competition.

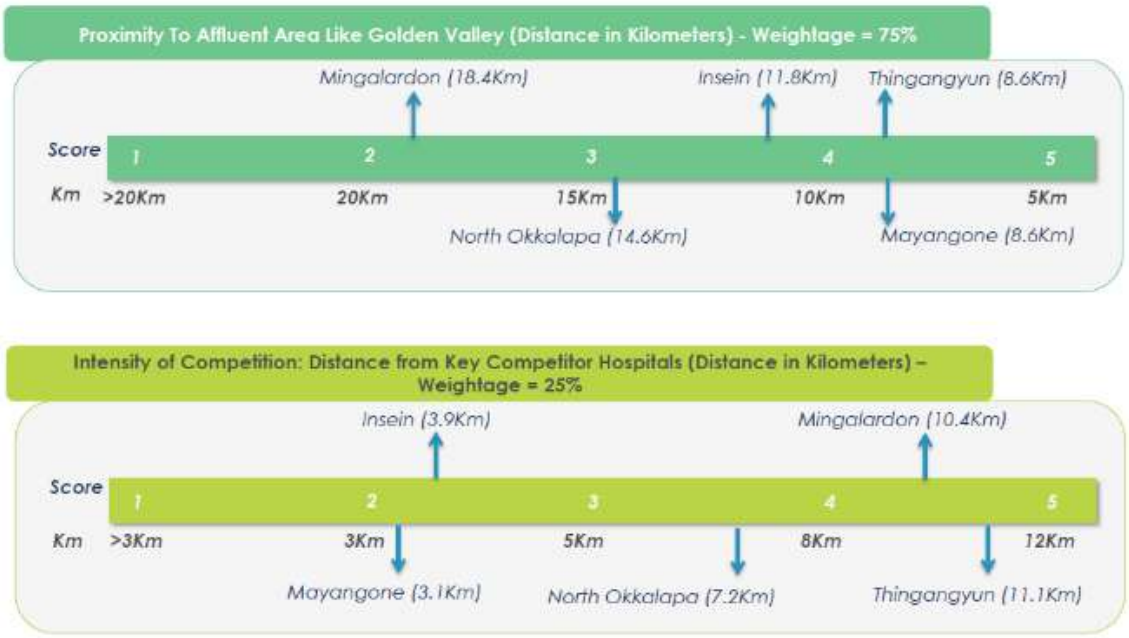


Figure 33 Evaluation of Geographic Attractiveness

(Reference) Created by the research group

From the Demographic and Geographic evaluations above, the most promising potential sites are Mayangone and Thingangyun townships, and the least promising potential sites are North Okkalappa, Insein and Mingalardon.

Mayangone Township is slightly closer to Victoria hospital, which is assumed to be one of competing hospitals; about 3.1 km, and about 20 minutes by car. However among the five townships to be considered, it has been developed, and it is assumed that the percentage of affluent people, and population spending propensity, are high. As it is also close to the Golden Valley, where the affluent residential area is located, and close to the Inyar Lake area which has recently been developed, it is thought that the towhship has sufficient potential as the project candidate site.

In addition, if a similar study and evaluation is carried out for the above-mentioned more central township, such as Kyauktada, Bothataung, and Bahan, the development of these areas is advanced, so the residents' economic level is higher, and the population is also dense, so the evaluation score would be presumed to be higher than that for Thingangyun and Mayangone. On the other hand, when compared to the candidate sites mentioned so far, the price of land in these central townships differs greatly from the current candidate site of Mayangone Township, being several times more expensive. As total cost of the project would be about twice as much as for the current candidate site, yet the capacity of the hospital would not change, it is assumed that locating the project in these central townships will be very bad for profitability, even without conducting a comparison study, and from this fact, we consider Mayangone will have high validity as a location.

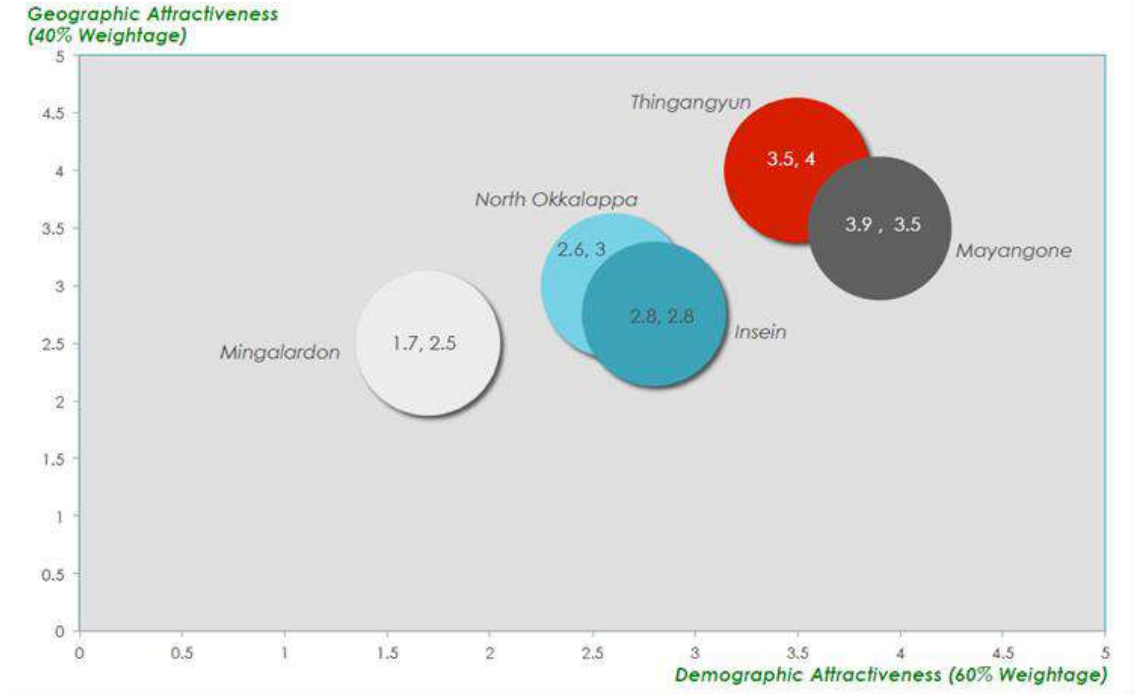


Figure 34 Evaluated Scores of Proposed Project Sites

(Reference) Created by the research group

3.5. Summary (Demand Forecast)

In this section, we defined the customer target markets for this project for the purposes of demand prediction, and divided the market size and growth rate into local market,outbound market and foreign market, and investigated segment. As a result, the market size at present is found to be 880,000 patients in total; 850,000 outpatients , and about 30,000 inpatients, annually. Regarding growth rate, it was concluded from actual performance, etc, that the growth rate will be in the range of 6% to 10%, and the validity of this range was confirmed in that the rate of growth is roughly the same or slightly lower than historical growth rates in Thailand and Vietnam, meaning that the predicted growth rate is not too optimistic a figure. From these facts, it is considered that the scale and future potential of the market is sufficient for carrying out this project. Moreover, in evaluating the candidate project sites, it was confirmed that Mayangone Township, which is the present candidate site, is a location with sufficient competitiveness, compared with other candidate sites. In the latter part of this report, we use these numbers in revenue forecasting.

4. Competitive Hospital Benchmark

4.1. Overview of Major Hospitals in Yangon

4.1.1. Asia Royal Hospital

Asia Royal Hospital is a private hospital located in Sanchaung, the west part of Yangon. It was established in 2000, and is run by Taw Win & Shwe Taung Group. They have 232 beds and 90% occupancy. There are 150 doctors. They offer not only outpatient and inpatient treatment, but also health checkups for staff at private companies such as Hitachi. Recently they are planning to open a new building (in 2020) due to the increased of the number of patients. They are also willing to improve treatment methods by installing the latest technology.

In terms of clinical departments, Asia Royal Hospital focuses on internal medicine (heart, liver, and kidney-related) and orthopedic surgery as their strenghts, and due to the long history as a private company, there is a large number of staff, including 150 doctors and 150 trainee doctors. In addition, there is the Asia Royal Clinic close to the hospital, which focuses on rehabilitation, and the hospital is highly valued for its collaboration with the clinic.

Table7 Overview for Asia Royal Hospital

Overview	
Head office	• Address: 14, Baho Road, Sanchaung, Township, Yangon • 15 minutes from downtown • 35 minutes drive from airport
Established	2000
Ownership	Local private company, Taw Win and Shwe Taung Group
Details	• Number of hospital rooms: 180 • Number of beds: 232 • Number of operating theatres: 5 • Capacity utilization: ~80%
Staff	• Number of doctors: 150 • Number of nurses: 450 • Number of assistants: 493
Corporate Contracts	
Insurance	• Vanbreda • Cigna • Bupa
Clinical Laboratory Test	• Approved by external quality assurance agencies • Assurance program from 2003 (Australia)
Private Company contracts	MOU contracts for health checkups with Giordano, Moon Bakery, Blazon Inya Lake Hotel, Nokia, and Hitachi

(Reference) Created by Solidance Based on Interviews at Asia Royal Hospital

Ratio of foreign patients for both outpatients and inpatients is 2% or less. There is no corresponding department for foreigners at the hospital, so foreigners have language difficulties there. Income groups

for patients are: 20% for US$1,500 monthly salary or more, 45% for US$500-1,500, 35% for US$500 or less. Most patients are outpatients, but their composition is mostly dominated by internal medicine (72%) and orthopedic surgery (19%). In our project, both of these departments are our strength. Inpatient composition is nearly the same.

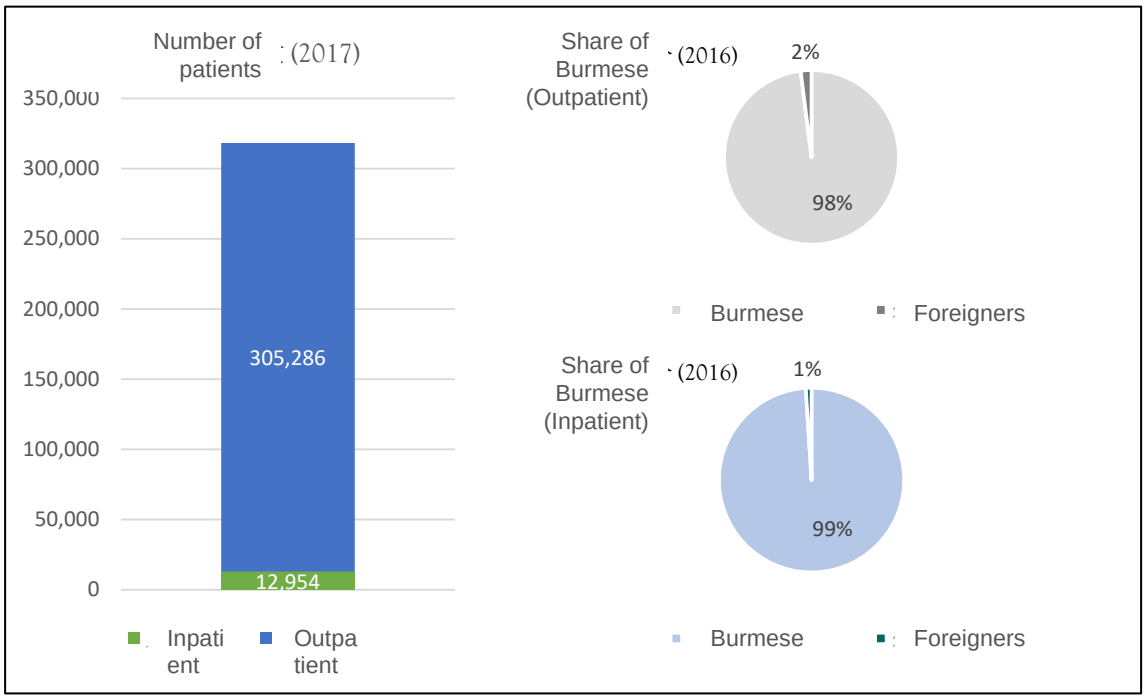


Figure 35 Number of Patients and Patient Types at Asia Royal Hospital

(Reference) Created by Solidance Based on Interviews at Asia Royal Hospital

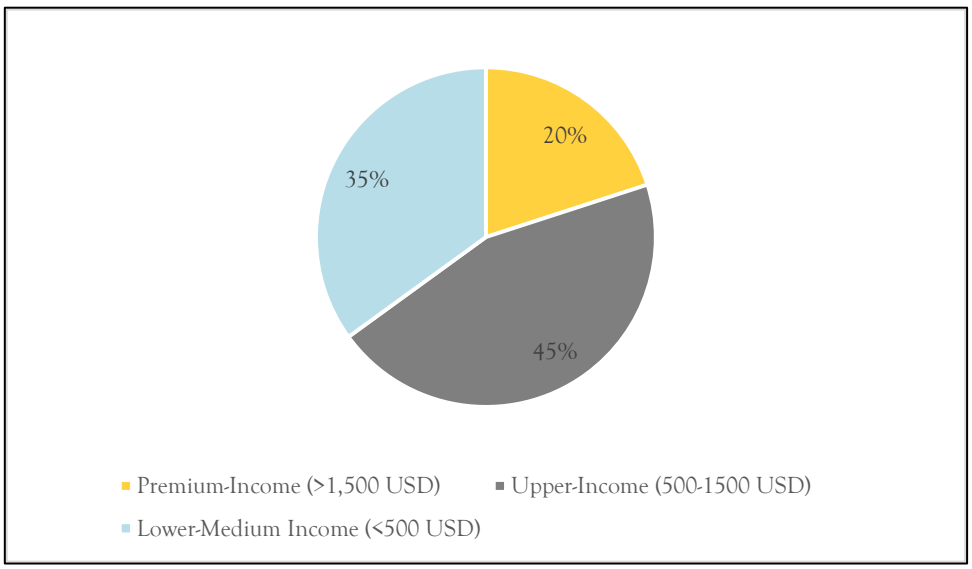


Figure 36 Percentage of Patients by Income (Monthly) (2016)

(Reference) Created by Solidance Based on Interviews with Patients at Asia Royal Hospital

Compared to other competing hospitals, Asia Royal Hospital offers various reasonably-priced pharmaceuticals, and their services are highly regarded. Internal medicine and orthopedic surgery are popular here due to the hospital's location close to downtown. 100% of outpatients from internal medicine, orthopedic surgery, obstetric and dermatology departments come for medical examinations.

Table8 Details of Treatment for Outpatients at Asia Royal Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 11,800)	Prior to employment	32%	22
	Age 40 or older	24%	98
	Age 40 or younger	14%	60
	Prior to marriage	12%	57
	Others	18%	60
Internal (Total: 219,501)	Medical examination: Heart disease	33%	30
	Medical examination: High blood pressure, diabetes	24%	22
	Medical examination: Liver disease	14%	27
	Medical examination: Kidney disease	10%	27
	Dialysis treatment	2%	58
	Others	17%	25
Orthopedic surgery (Total: 55,700)	Medical examination: Osteoporosis	27%	35
	Medical examination: Joint pain	29%	32
	Medical examination: Bone disability	18%	40
	Medical examination: Post-fracture medical treatment	14%	40
	Medical examination: Spondylosis Medical examination: Ligament damage repair	10% 2%	30 35
Rihabilitation (Total: 2,200)	Fracture, hip	27%	10
	Stroke related	24%	11
	Joint pain	23%	5
	Spondylosis	17%	8
	Others	9%	10
Obstetrics (Total: 10,612)	Medical examination	100%	30
Dermatology (Total: 5,250)	Medical examination: Infection	50%	25
	Medical examination: Skin allergy	36%	20
	Medical examination: Contusion	14%	25

(Reference) Created by Solidance Based on Interviews at Asia Royal Hospital

Among inpatients for the Internal Medicine department, 33% are treated for heart disease, 25% for stroke, 29% for liver related diseases. In the orthopedic surgery department, 35% are treated for bone fractures, 30% for knee and hip-joint replacement, and 20% for spinal dislocation. Inpatient treatment

costs depend on the treatment; the most expensive treatment is US$6,300 for knee and hip-joint replacement.

Table9 Details for Treatment for Inpatients at Asia Royal Hospital

Department	Treatment	Inpatient	Average treatment cost (USD)
Internal (Total: 9,060)	Heart-disease related	33%	905
	Liver-related	29%	795
	Stroke-related	25%	1,194
	Angiogenesis / stem cells	3%	5,164
	Kidney-related	2%	746
	Others	8%	596
Orthopedic surgery (Total: 1,945)	Fracture	35%	3,000
	Knee and hip-joint replacement	30%	6,300
	Spinal dislocation	20%	2,500
	Others	15%	1,500

(Reference) Created by Solidance Based on Interviews at Asia Royal Hospital

The income structure and accommodation fees of Asia Royal Hospital are as follows;

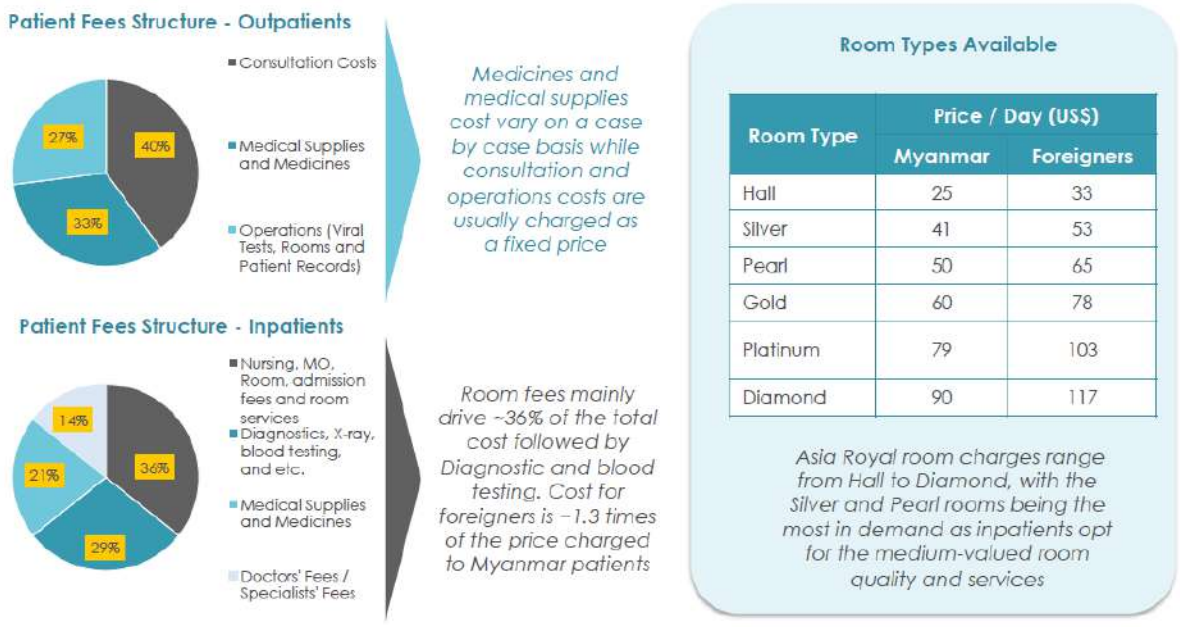


Figure 37 Income Structure of Asia Royal Hospital

(Reference) Created by Solidance Based on Interviews at Asia Royal Hospital

Asia Royal Hospital has introduced a loyalty card program to increase repeat business, and has 5-15% discounts according to membership status. Other discount services include; a 10% discount on Mother's Day, 30% off for the rehabilitation center opening ceremony, a free health checkup service

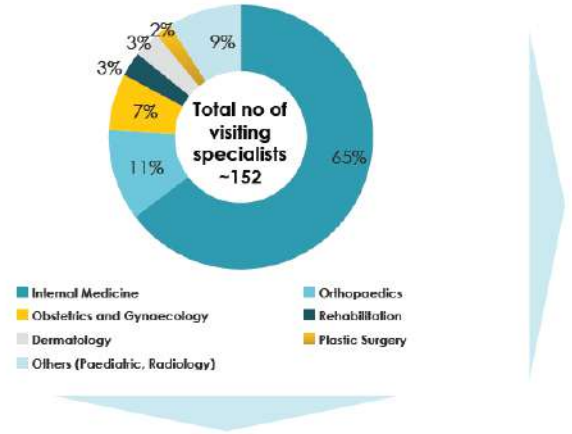
for customers who click 'like' on their Facebook page, and also gift cards valued from 5,000 to 10,000 kyat.

In addition, they are active in educating internal human resources, and organise lectures and training, etc. They run lectures and training, inviting Dr. Madana and Professor Dr. Khin Myo Hla, who are cardiovascular specialists from Fortis Hospital in India, and organize joint events with the Ministry of Health and Sports, and with Zifam Pharmaceutical. They hold events with various collaborations with external organizations and experts.

Figure 38 Marketing Programs at Asia Royal Hospital
(Left: Images of Various Events; Right: Leaflets for Discount Programs)

(Reference) Solidiance

In addition, Asia Royal Hospital utilizes a network of prominent external doctors, to add appeal for inpatients and outpatients.



Key Departments	Name of Specialists
Internal Medicine	Prof. Myint Soe Win (Cardiologist)
	Prof. Tin Latt (Cardiologist)
	Prof. Khin May San (Cardiologist)
	Prof. Khin Maung Aye (Cardiologist)
	Prof. Tin May Nyunt (Hepatologist)
	Prof. Aung Cho Myint (GP)
	Prof. Nwe Nwe Win (Neurologist)
Orthopaedic	Prof. Zaw Wai Soe
	Prof. Thin Myint Tun
	Prof. Nay Win
Rehabilitation	Prof. Than Than Htay
Obstetrics and Gynaecology	Prof. Khin Myint Myint Than
	Prof. Win Win Mya
	Prof. Khin Than Tin
	Prof. San San Myint
Dermatology	Prof. Khine Khine Zaw
	Dr. Than Maung Han
Plastic Surgery	Dr. Tin Zaw Maung

Other Departments	Name of Specialists
Paediatric	Prof. Hla Myint Htun
	Prof. Ye Myint Kyaw
	Prof. Aye Aye Myint
Radiology	Prof. Than Than Sint
	Prof. Toe Win

Figure 39 Percentage of External Specialists and Well-known Specialists Working at Asia Royal Hospital

(Reference) Solidiance

Patients at Asia Royal Hospital are conscious of price, and do not place importance on value-added services. As a result, Asia Royal Hospital does not manage with an emphasis on additional services. To quote from interviews from the study of actual customers conducted by the research group: "To book a diagnosis with a famous doctor such as Dr. Zaw Wai Soe, it is necessary to make a reservation by phone at least one week in advance, and diagnosis time is only 15-20 minutes ", "Asia Royal has no attached facilities such as a restaurant, but as the surrounding environment is good, there is no inconvenience ", "Asia Royal has cardiac medical equipment in place, so I was able to receive sufficient angioplasty surgery even under budget constraints."

The below table shows the degree of satisfaction in the customer experience by customer journey type at Asia Royal Hospital.

Table10 The Degree of Satisfaction by Customer Journey Type at Asia Royal Hospital

	Typical Patient Journey	Patient's experience
1	**Appointment/First Contact Point**	
	Online Booking System and response	✗
	Email appointment request and response	✗
2	**Efficiency and Services**	
	Facilities (enough car parking spaces/waiting area)	✗
	Sanitizer or Specialist directory	✓
	Discussion about specialists/ Rooms for IPD?	✓
	Walked with patients to next level	✗
	International Relations desk/Medical translators	✗
	Issuing booking number and call by dedicated person	✗
3	**Consultation with specialists**	
	Electronic medical records (EMR) by doctors	✗
	Enough consulting time/ well-explanation by doctors	✗
4	**Admission/Hospitalization**	
	Food catering/laundry services to Patients	✗
	24/7 in-house specialists	✗
	Availability of treatment packages for IPD	✗
5	**Non-Medical Services**	
	ATM machines	✓
	Restaurants/Convenience stores in hospital	✗
6	**Exit/ Discharge**	
	Payment by International Insurance	✗
	Clear Instructions from doctors and nurses post visit and proactive follow up	✗

(Reference) Created by Solidance Based on Interviews at Asia Royal Hospital

4.1.2. Victoria Hospital

Victoria hospital is a private hospital located in Mayangon area in the north part of Yangon. It was established in 2011. The hospital is run by Thukha Zaytanar Private Company. They have 100 beds, and occupancy is 60% or less. Occupancy is a lower percentage than that of Asian Royal Hospital, and the number of doctors is also less, at 70. On the other hand, because they can provide a wide range of clinical services utilizing part-time lecturers and partners, they provide services for about 300 outpatients a day. Unlike the Asian Royal and Pun Hlaing Hospitals, Victoria Hospital focuses on increasing occupancy percentage, rather than upscaling. They are planning to increase the number of beds to 150, and to construct a catheterization laboratory to attract inpatients and outpatients in addition to 4 ICU beds at the Heart Center ICU, even though they just recently extended the emergency department.

In terms of clinical departments, Victoria Hospital focuses mainly on internal medicine, orthopedic surgery, obstetrics, and Medical Checkups, with services provided by 215 support staff, as their strengths. Services provided in cooperation with external partners such as Leo Medicare, Innovative Diagnostic, Pepsodent, Dr Derma Care and Heart Vascular Center are also popular.

Table11 Overview for Victoria Hospital

Overview	
Head office	Address: No.68, Taw Win Street, 9 Mile, Mayangone Township, Yangon • About 10 minutes from the airport • About 45 minutes drive from downtown
Established	2011
Ownership	Thukha Zaytanar Private Company
Details	Number of hospital rooms: 73 Number of beds: 100 Number of operating rooms: 5 Capacity utilization: ~60%
Staff	Number of doctors: 70 Number of nurses: 130 Number of medical staff: 65 Number of assistants: 215
Corporate Contracts	
Insurance	• Cigna • Concorde
Clinical Laboratory Test	• Referral services and partnership for outpatients (Samitivej Hospital) • LEO Medicare (International Clinic) • Diagnostic centre (Innovative Lab) • Beauty clinic (Dr. Derma Care) • Chemotherapy services (MCOC)

(Reference) Created by Solidance Based on Interviews at Victoria Hospital

Ratio of foreigners for both inpatients and outpatients is 4% or less. The hospital has partnerships with some other hospitals and GPs. Some of them offer more outpatient care than inpatient care. Outpatients utilize departments in the following percnetages; internal medicine (33%), orthopedic (28%), obstetrics (25%), others (17%). Inpatients also primarily deal with these clinical departments.

When patients are categorized by income group, patients with more than US$1,500 monthly salary constitute 35%, US$500-1,500 constitute 45%, and those with US$500 or less constitute 20%. Cost for treatments and examinations are more expensive than other hospitals, so the majority of patients are from income groups who make more than US$500 annually.

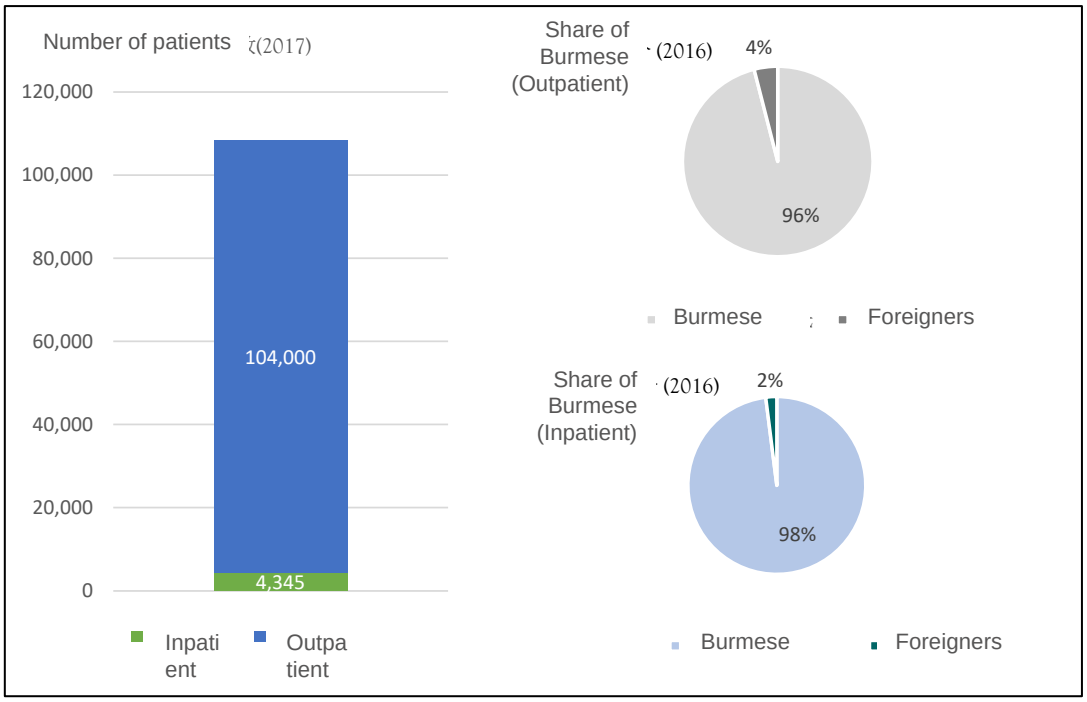


Figure 40 Number of Patients and Patient Types at Victoria Hospital

(Reference) Created by Solidance Based on Interviews at Victoria Hospital

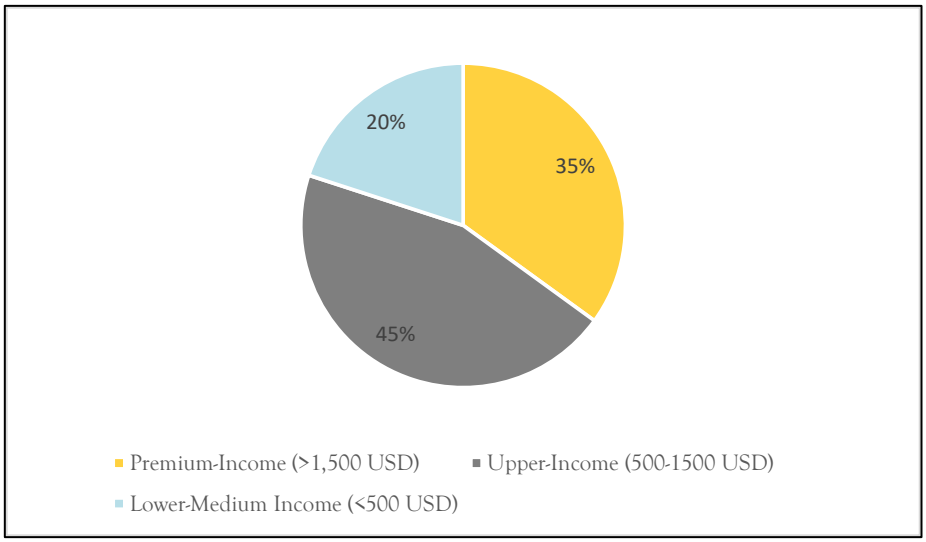


Figure 41 Percentage of Patients by Income (Monthly) (2016)

(Reference) Created by Solidance Based on Interviews with Patients at Victoria Hospital

Victoria hospital is ranked in the top 3 most expensive hospitals in Yangon, in terms of treatment costs, compared to middle level hospitals such as SSC and Bahost Hospitals. For outpatients, the hospital carries out various treatments in each department, whereas the Asian Royal Hospital provides mainly examinations. The cost for each visit is between US$20 – 245. The cheapest treatments are for plastic surgery, the most expensive are for packaged Medical Checkups.

Table12 Details for Treatment for Outpatients at Victoria Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 6,352)	Prior to employment	26%	40
	Age 40 or older	35%	245
	Age 40 or younger	20%	172
	Prior to marriage	8%	60
	Others	11%	129
Internal (Total: 32,838)	Medical examination: Heart disease	32%	26
	Medical examination: High blood pressure, diabetes	28%	32
	Medical examination: Liver disease	20%	34
	Medical examination: Kidney disease	5%	52
	Dialysis treatment	4%	26
	Others	11%	30
Orthopedic surgery (Total: 28,470)	Medical examination: Osteoporosis	28%	45
	Medical examination: Joint pain	20%	35
	Medical examination: Bone disability	14%	30
	Medical examination: Post-fracture medical treatment	10%	30
	Medical examination: Spondylosis Medical examination: Ligament damage repair	10% 2%	30 38
Rehablitation (Total: 3,650)	Fracture, hip	27%	12
	Stroke-related	24%	7
	Joint pain	23%	11
	Spondylosis	17%	5
	Others	9%	12
Plastic surgery (Total: 730)	Medical examination: Rhinoplasty	30%	20
	Medical examination: Chronic surgery	20%	20
	Medical examination: Silicon	20%	20
	Medical examination: Eyelid	15%	20
	Others	15%	20
Obstetrics (Total: 25,519)	Medical examination	96%	40
	IVF treatment	4%	80
Dermatology (Total: 2,455)	Medical examination: Infection	42%	25
	Medical examination: Skin allergy	41%	25
	Medical examination: Contusion	17%	30

(Reference) Created by Solidance Based on Interviews at Victoria Hospital

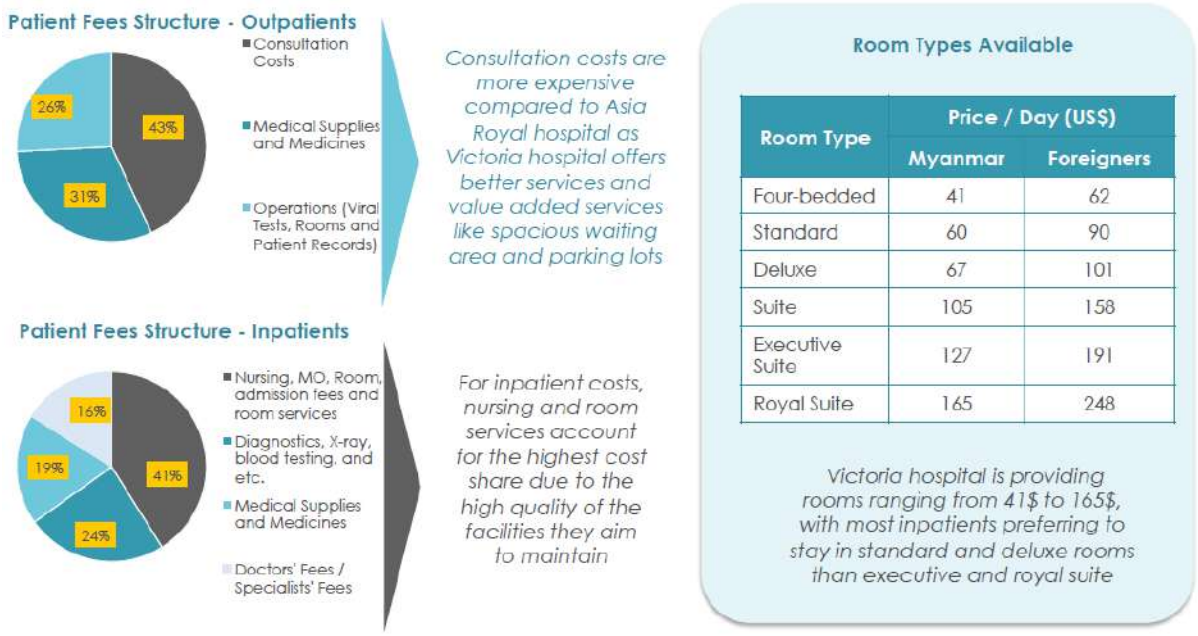
For inpatients, the most common treatments in each department are 30% for heart disease at the Internal Medicine department, 34% for knee and hip-joint replacement at Orthopedic surgery department, 70% for LSCS delivery at the Obstetrics department. The cost for inpatient treatments varies between US$507 and US$8,000, and the most expensive items are IVF treatments.

Table13 Details for Treatment for Inpatients at Victoria Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total : 1,450)	Heart-disease related	30%	947
	Liver- related	25%	848
	Stroke-related	24%	1,391
	Angiogenesis / stem cells	4%	5,888
	Kidney related	8%	612
	Others	9%	612
Orthopedic surgery (Total : 675)	Fracture	25%	2,900
	Knee and hip-joint replacement	34%	6,800
	Spinal dislocation	20%	2,500
	Others	21%	1,900
Obstetrics (Total : 1,690)	Delivery (LSCS)	70%	874
	Delivery (Standard delivery)	27%	507
	IVF treatment	3%	8,000

(Reference) Created by Solidance Based on Interviews at Victoria Hospital

Hospital rooms are divided into 6 categories, based on price. The most expensive rooms are US$165 for Burmese people, which is twice as much as the Asian Royal Hospital, and US$248 for foreigners, which is 1.5 to 2 times the cost for Burmese people. Victoria hospital is an expensive hospital, as we can see from the room costs.



Room Type	Price / Day (US$)	
	Myanmar	Foreigners
Four-bedded	41	62
Standard	60	90
Deluxe	67	101
Suite	105	158
Executive Suite	127	191
Royal Suite	165	248

Figure 42 Income Structure of Victoria Hospital

(Reference) Created by Solidance Based on Interviews at Victoria Hospital

Victoria Hospital is promoting obstetrics and gynecology in particular, through intensive event management and discount promotions. For events, they invite Dr. Hoo Mei Lin – an authority in plastic surgery and obstetrics – from Tropicana Medical Center in Malaysia, to give lectures on IVF. In addition, they offer a 25% discount for Medical Checkups at the water festival, and package plans for pregnant women, etc.

Figure 43 Marketing Programs at Victoria Hospital
(Left: Images of Various Events; Right: Leaflets for Discount Programs)

(Reference) Solidiance

Although Victoria Hospital is capable of providing various services and equipment, it has not yet introduced standards systems, such as an online reservation system. The following table shows the degree of satisfaction with Victoria Hospital by customer journey type. Additionally, quotes from interviews with patients (which were also the background of the following evaluations) included; "I'm

satisfied with the facilities and services of the hospital, correspondence with nurses and medical professionals, meals and laundry services, etc, for my baby's delivery", "Victoria Hospital needs to improve their call center system, and needs an online booking system", "Victoria has a large and clean waiting room, as well as enough parking space, so it is very comfortable to be treated there, and overall it's a good experience with good value-service."

Table14 The Degree of Satisfaction by Customer Journey Type at Victoria Hospital

	Typical Patient Journey	Patient's experience
1	**Appointment/First Contact Point**	
	Online Booking System and response	✗
	Email appointment request and response	✗
2	**Efficiency and Services**	
	Facilities (enough car parking spaces/waiting area)	✓
	Sanitizer or Specialist directory	✓
	Discussion about specialists/ Rooms for IPD?	✓
	Walked with patients to next level	✗
	International Relations desk/Medical translators	✓
	Issuing booking number and call by dedicated person	✓
3	**Consultation with specialists**	
	Electronic medical records (EMR) by doctors	✗
	Enough consulting time/ well-explanation by doctors	✗
4	**Admission/Hospitalization**	
	Food catering/laundry services to Patients	✓
	24/7 in-house specialists	✗
	Availability of treatment packages for IPD	✗
5	**Non-Medical Services**	
	ATM machines	✓
	Restaurants/Convenience stores in hospital	✓
6	**Exit/ Discharge**	
	Payment by International Insurance	✓
	Clear Instructions from doctors and nurses post visit and proactive follow up	✗

(Reference) Created by Solidance Based on Interviews at Victoria Hospital

4.1.3. Pun Hlaing Hospital

Pun Hlaing private hospital is located in Haling Thar Yar, the west side of Yangon. It was established in 2005, and is run by FMI (60%) and Lippo (40%) joint venture enterprise. At present, it is the only hospital in Myanmar that has acquired JCI certification, which is an international certification for medical institutions.

They have 174 beds, and 35% occupancy, which is the lowest of the three hospitals researched. They have a clinic in Bota township, located in east downtown. They are planning to open their first Express Hospital, located on Pyi Htaung Su Yeik Thar Street, which will have around 40 beds. They are also planning to open more general practices in other areas including Bagan and Mandalay. Their target is to establish a further 20 hospitals in Myanmar over the next 10 years, with the first 12 hospitals to be completed in 3 to 5 years, however so far only the main hoslital, and one clinic in Mandalay, are operating.

Table15 Overview for Pun Hlaing Hospital

Overview	
Head office	• Address: Pun Hlaing Golf Estate Avenue, Haling Thar Yar Township • 30 minutes from Yangon International airport • More than 1 hour drive from downtown (Kyauktada township)
Established	2005
Ownership	FMI (60%) and Lippo (40%) joint enterprise
Details	• Number of hospital rooms: 73 • Number of beds: 174 • Number of operating rooms: 6 • Capacity utilization rate: < 45%
Staff	• Number of doctors: 56 • Number of nurses: 126 • Number of assistants: 304
Corporate Contracts	
Insurance	• Signa
Clinical Laboratory Test	• Partnership with Roche • Partnership with Care Hospital and Care Foundation in India • Partnership with Heart Association • Visits from international specialists from South Korea, Singapore and Italy

(Reference) Created by Solidance Based on Interviews at Pun Hlaing Hospital

Ratio of foreigners for both inpatients and outpatients is about 2%. The hospital offers patients medical services of international standards and quality. Therefore there are more foreign patients compared to other hospitals, however the total number of outpatients and inpatients is small.

When patients are categorized by income group, patients with more than US$1,500 annual salary constitute 50%, patients with $500 to $1,500 constitute 35%, and patients with less than US$500 constitute 15%.

Prices at this hospital are generally expensive, especially for the income group of US$500 / month or less, however the healthcare spending behaviour of the common population is not to use monthly disposable income, but to use savings to pay for consultations with doctors and treatments. They often withdraw treatment expenses from their bank accounts. Therefore, ATMs of various banks are installed in private hospitals in Myanmar, almost without exception.

Outpatients utilize clinical departments in the following percnetages (in order); internal medicine (30%), obstetrics (30%), orthopedic surgery (18%), and dermatology (10%). Outpatinets visit a wide range of clinical deparments. For inpatients, clinical department utilization is similar to that of outpatients; internal medicine (40%), obstetrics (44%), orthopedic surgery (14%). In particular, the number of obstetrics patients has been increasing, due to the quiet location and reputation of prominent doctors.

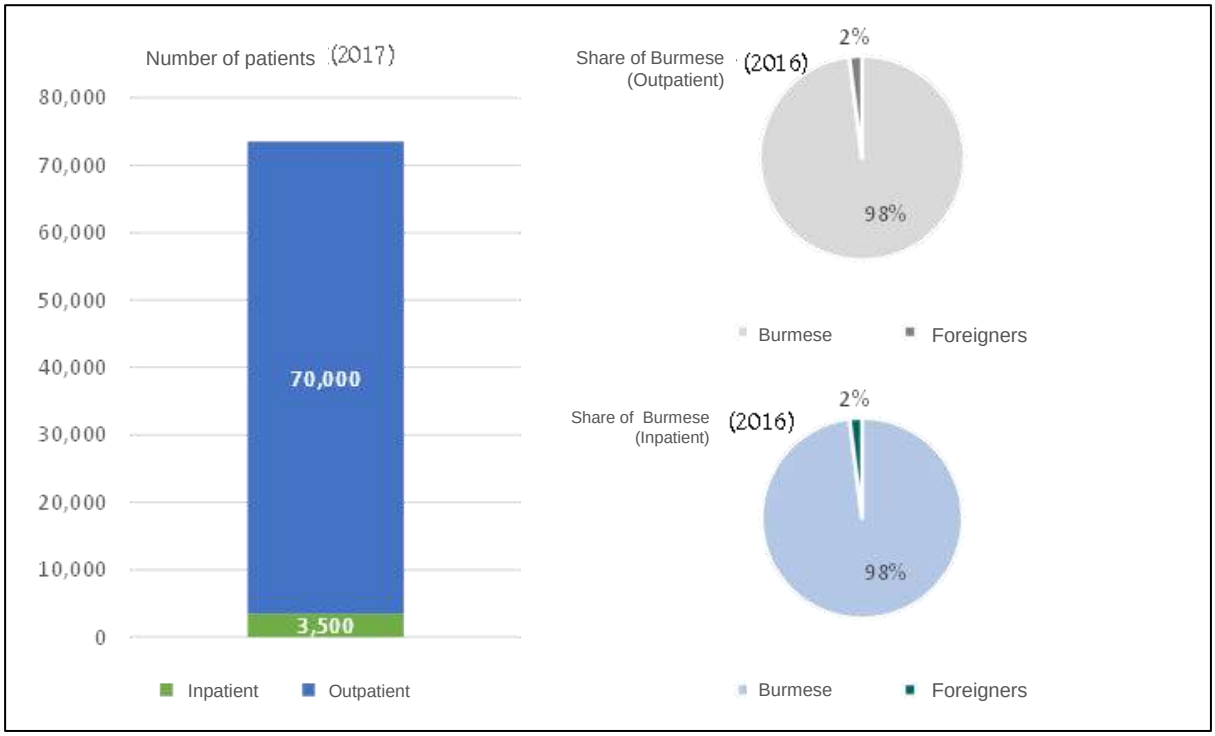


Figure 44 Number of Patients and Patient Types at Pun Hlaing Hospital

(Reference) Created by Solidance Based on Interviews at Pun Hlaing Hospital

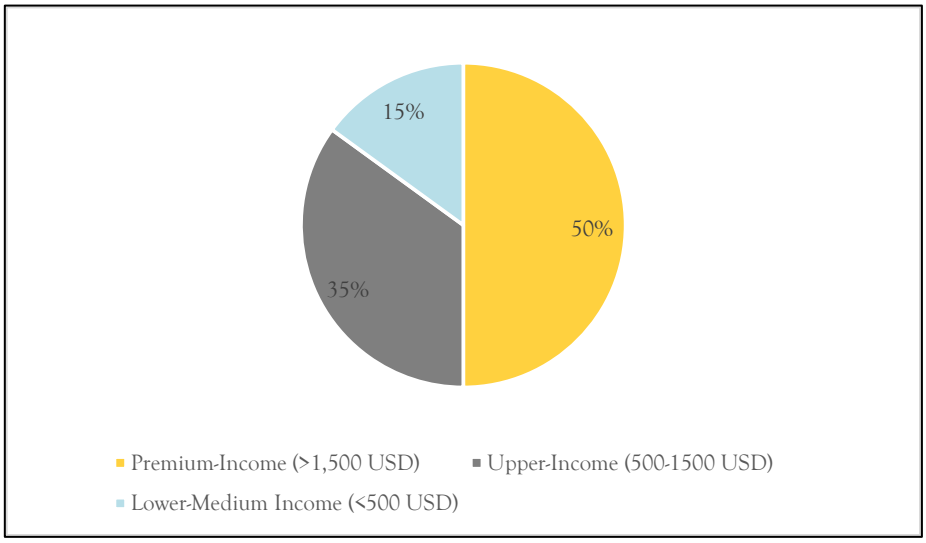


Figure 45 Percentage of Patients by Income (Monthly) (2016)

(Reference) Created by Solidance Based on Interviews with Patients at Pun Hlaing Hospital

Pun Hlaing Hospital is recognized as an excellent hospital, offering better medical services and facilities compared to the other 2 hospitals above. Therefore, even though it is located in a remote location, high income groups still use hospital. The hospital has come into the market for plastic surgery, which no other hospital specializes in. For outpatients, medical examinations constitute 100% of visits in departments of Internal medicine, orthopedic, obstetrics, dermatology, and plastic surgery. The cost for treatment per visit ranges from US$30-245, which is almost as high as Victoria Hospital.

Table16 Details for Treatment for Outpatients at Pun Hlaing Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 5,800)	Prior to employment	24%	40
	Age 40 or older	33%	245
	Age 40 or younger	16%	172
	Prior to marriage	10%	60
	Others	17%	129
Internal (Total: 20,935)	Medical examination: Heart disease	10%	31
	Medical examination: High blood pressure, diabetes	36%	24
	Medical examination: Liver disease	10%	33
	Medical examination: Kidney disease	28%	30
	Dialysis treatment	7%	56
	Others	9%	30
Orthopedic surgery (Total: 12,775)	Medical examination: Osteoporosis	15%	40
	Medical examination: Joint pain	31%	32
	Medical examination: Bone disability	10%	42
	Medical examination: Post-fracture medical treatment	26%	45
	Medical examination: Spondylosis	16%	30

	Medical examination: Ligament damage	2%	38
Rihabilitation (Total: 3,650)	Fracture, hip	23%	10
	Stroke-related	25%	11
	Joint pain	20%	5
	Spondylosis	18%	8
	Others	14%	10
Plastic surgery (Total: 730)	Medical examination: Rhinoplasty	30%	20
	Medical examination: Chronic surgery	20%	20
	Medical examination: Silicon	20%	20
	Medical examination: Eyelid	15%	20
	Others	15%	20
Obstetrics (Total: 21,000)	Medical examination	100%	40
Dermatology (Total: 6,750)	Medical examination: Infection	35%	35
	Medical examination: Skin allergy	10%	30
	Medical examination: Contusion	55%	30

(Reference) Created by Solidance Based on Interviews at Pun Hlaing Hospital

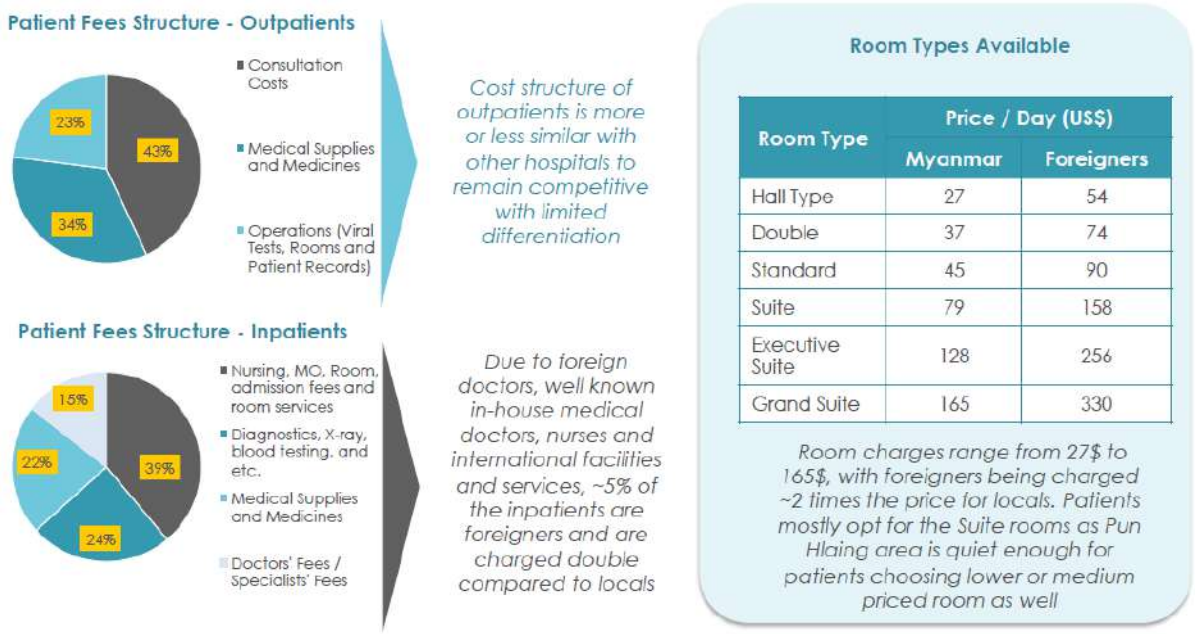
For inpatients, the most common treatments in each department are 50% for heart disease at the Internal Medicine department, 31% for fracture treatment at Orthopedic surgery department, 60% for LSCS delivery at the Obstetrics department, and 39% for Liposuction at the plastic surgery department. The cost for inpatient treatments varies between US$444 and US$7,500.

Table17 Details for Treatment for Inpatients at Pun Hlaing Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 1,225)	Heart-disease related	50%	1,047
	Stroke-related	15%	1,345
	Angiogenesis / stem cells	2%	6,494
	Kidney-related	8%	895
	Others	25%	699
Orthopedic surgery (Total: 410)	Fracture	31%	3,300
	Knee and hip-joint replacement	26%	7,500
	Spinal dislocation	16%	2,750
	Others	27%	1,800
Plastic surgery (Total: 63)	Liposuction - Abdominal Combination	39%	4,667
	Chest silicon	32%	3,982
	Rhinoplasty	16%	2,981
	Buttock enhancement	27%	4,185
Obstetrics (Total: 1,350)	Delivery (LSCS)	60%	790
	Delivery (Standard delivery)	40%	444

(Reference) Created by Solidance Based on Interviews at Pun Hlaing Hospital

Hospital rooms are divided into 6 categories, based on price. The most expensive rooms at the hospital are US$165 for Burmese people, and about US$248 for foreigners, which is 1.5 times as much.

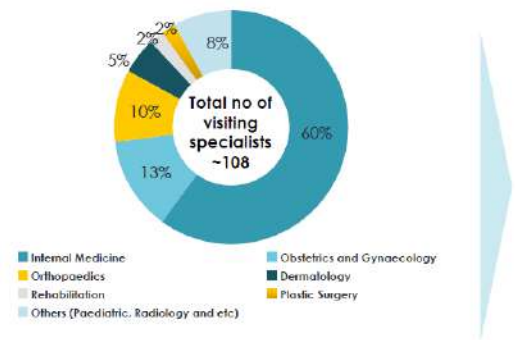


Room Type	Price / Day (US$)	
	Myanmar	Foreigners
Hall Type	27	54
Double	37	74
Standard	45	90
Suite	79	158
Executive Suite	128	256
Grand Suite	165	330

Figure 46 Income Structure of Pun Hlaing Hospital

(Reference) Created by Solidance Based on Interviews at Pun Hlaing Hospital

Pun Hlaing Hospital particularly runs large scale events, offers monthly programs and free information sessions to maintain existing customers and acquire new customers. Pun Hlaing Hospital employs external experts part time, similar to Asia Royal Hospital, and it is recognized that they have many in-house experts to provide high-quality services, such as adequate diagnosis time and shorter waiting times.



Other Departments	Name of Specialists
Paediatric	Prof. Mya Mya Ohn
	Prof. Hla Myat Nwe
Radiology	Prof. Myint Kyu
	Dr. Kyaw Zay Ya
Ear Nose & Throat (ENT)	Asso. Prof Myat Htun
Ophthalmology	Dr. Khin Thandar Myint

Key Departments	Name of Specialists
Internal Medicine	Dr. Nyein Nyein Maw (GP)
	Dr. Than Win (GP)
	Prof. Htun Lwin Nyein (Haematologist)
	Prof. Chit Soe (Rheumatologist)
	Prof. Mya Thaung (Urologist)
	Prof. Kyaw Soe Tun (Hepatologist)
	Prof. Tint Swe Latt (Endocrinologist)
	Prof. Win Min Thit (Neurologist)
Orthopaedic	Dr. Thein Myint Tun
	Prof. Kyaw Myint Naing
	Asso. Prof. Khin Maung Lay
Rehabilitation	Prof. Khin Maung Myint
Obstetrics and Gynaecology	Prof. Myint Maung Maung
	Prof. Sann Thi
Dermatology	**Prof. Khine Khine Zaw**
	Dr. Myi Thant
	Dr. Dwe Zin Win
Plastic Surgery	Dr. Kim Bom Jin

Figure 47　Percentage of External Specialists and Well-known Specialists Working at Pun Hlaing Hospital

(Reference) Created by Solidance Based on Interviews at Pun Hlaing Hospital

Despite Pun Hlaing Hospital being the only hospital offering international standard facilities and services, they have not established a position as a premium hospital. However, most patients of Pun Hlaing Hospital gave positive evaluations in interviews conducted by the research group. Below are the some quotes from these customers;

"I am very pleased with the service at Pun Hlaing Hospital. There was a short waiting time, and I was able to receive clear explanations and guidance."

"As in an international hospital, ID cards and electronic medical charts etc are provided, and I'm able to receive smooth communication when doctors and medical conditions are changed"

"We were able to receive nursing care from highly specialized doctors and nurses. If there was something needing to be improved, it would be waiting times, and the complication of the discharge procedure"

The following table shows the satisfaction evaluations of Pun Hlaing Hospital by customer journey.

Table 18　The Degree of Satisfaction by Customer Journey Type at at Pun Hlaing Hospital

	Typical Patient Journey	Patient's experience
1	**Appointment/First Contact Point**	
	Online Booking System and response	✓
	Email appointment request and response	✗
2	**Efficiency and Services**	
	Facilities (enough car parking spaces/waiting area)	✓
	Sanitizer or Specialist directory	✓
	Discussion about specialists/ Rooms for IPD?	✓
	Walked with patients to next level	✗
	International Relations desk/Medical translators	✓
	Issuing booking number and call by dedicated person	✓
3	**Consultation with specialists**	
	Electronic medical records (EMR) by doctors	✓
	Enough consulting time/ well-explanation by doctors	✓
4	**Admission/Hospitalization**	
	Food catering/laundry services to Patients	✓
	24/7 in-house specialists	✓
	Availability of treatment packages for IPD	✓
5	**Non-Medical Services**	
	ATM machines	✓
	Restaurants/Convenience stores in hospital	✓
6	**Exit/ Discharge**	
	Payment by International Insurance	✓
	Clear Instructions from doctors and nurses post visit and proactive follow up	✗

(Reference) Created by Solidance Based on Interviews at Pun Hlaing Hospital

4.1.4. New Competitive Hospitals in Yangon

Two hospitals which are possible competitors opened in 2017. Their owners are a financial group and a military clique. They have been open for around 1 year, and already have close to the same number of outpatients and inpatients as PUN HLAING and Victoria hospitals, although this is still low utilization of the capacity of their facilities. In November 2018, Ar Yu International Hospital, which is funded by Thonburi Healthcare Group, a hospital group in Thailand, was opened. The hospital has just started operating their business, and there is no information about their operational situation, but available information is included.

Table 19 Overview of New Competitive Hospitals

	Grand HANTHA International Hospital	Kan Thar Yar
Owner	Yuzana Group	Myanmar Economic Corporation
Location	Kamaryut Township －40 minutes from downtown (Kyauktada Township) －45 minutes from Yangon International airport	Hlaing Township －45 minutes from downtown (Kyauktada Township) －30 minutes from Yangon International airport
Number of Beds	700	100(Phase1) 300(Target)
Capacity Utilization	~10%	~20%
Number of Operating Rooms	17	6
Capacity Utilization for Outpatients	~20%	~5%
Number of Doctors	140	100
Number of Nurses	260	100
Number of Assistants	300	200
Number of Engineers	347	-
Number of Outpatients	85,000	24,090
Number of Inpatients	4,171	1,602
Future Plans	－ (Improvement of capacity utilization for existing facilities)	Use third to fifth floors as inpatient floors. Plan to open neurology

	Ar Yu International Hospital
Owner	Ga Mone Pwint Group Thonburi Healthcare Group
Location	Tamwe Township －30 minutes from downtown (Kyauktada Township) －60 minutes from Yangon International airport
Number of Beds	200
Number of Operating Rooms	6
Number of Doctors	100

Number of Nurses	300

(Reference) Created by Solidance Based on Interviews at Grand Hanthar Hospital, Kan Thar Yar Hospital and Ar Yu International Hospital

4.1.4.1. Grand Hantha International Hospital

At Grand Hantha Hospital, internal medicine, orthopedic surgery, and obstetrics are regarded as the main clinical departments, and their network of part-time doctors who are familiar with international medicine and the field of orthopedic surgery, is their strength. They also feature well-equipped facilities, including robotic arms, Myanmar's most advanced rehabilitation medical facilities.

The breakdown of clinical departments visited by outpatients is; internal medicine (36%), obstetrics (21%), orthopedic surgeory (19%), rehabilitation (11%). For inpatients, the departments of internal medicine (49%), obstetrics (40%) and orthopedic surgery (11%) are major departments. By utilizing external doctors in the above departments from the first year of their practice, they have treated about the same number of patients as Pun Hlaing Hospital.

Regarding medical conditions treated in each department, there are many types of medical treatments, such as for hypertension / diabetes (28%) in internal medicine, and knee and hip joint replacement (45%) in orthopedic surgery. Outpatient treatment costs are roughly the equivalent to those at Pun Haing Hospital, but due to the introduction of state-of-the-art facilities and packages deals, there are some treatments which are more expensive than those at Pun Hlaing Hospital, especially for Medical Checkups and rehabilitation.

Table 20 Details for Treatment of Outpatients at Grand Hanthar Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 4,180)	Prior to employment	22%	86
	Age 40 or older	34%	344
	Age 40 or younger	16%	172
	Prior to marriage	10%	86
	Others	17%	118
Internal (Total: 23,400)	Medical examination: Heart disease	26%	33
	Medical examination: High blood pressure, diabetes	28%	29
	Medical examination: Liver disease	16%	33
	Medical examination: Kidney disease	8%	30
	Dialysis treatment	7%	70
	Others	16%	33
Orthopedic surgery (Total: 12,400)	Medical examination: Osteoporosis	12%	35
	Medical examination: Joint pain	45%	36
	Medical examination: Bone disability	11%	46
	Medical examination: Post-fracture medical treatment	21%	50
	Medical examination: Spondylosis	9% 2%	33 42

	Medical examination: Ligament damage repair		
Rehabilitation (Total: 7,300)	Fracture, hip	22%	25
	Stroke-related	27%	35
	Joint pain	20%	20
	Spondylosis	24%	25
	Others	7%	30
Plastic surgery (Total: 520)	Medical examination: Rhinoplasty	30%	30
	Medical examination: Jaw surgery	20%	30
	Medical examination: Silicon	20%	30
	Medical examination: Eyelid	15%	30
	Others	15%	30
Obstetrics (Total: 13,140)	Medical examination	100%	45
Dermatology (Total: 3,286)	Medical examination: Infection	20%	40
	Medical examination: Skin allergy	30%	30
	Medical examination: Contusion	50%	40

(Reference) Created by Solidance Based on Interviews at Grand Hanthar Hospital

For inpatients, the most common treatments in each department are 39% for heart disease at the Internal Medicine department, 30% for knee and hip-joint replacement at the Orthopedic Surgery department, and 70% for LSCS delivery at the Obstetrics department. The cost for inpatient treatments is about the same as that at Pun Hlaing Hospital, which has the highest costs in Myanmar.

Table 21 Details for Treatment for Inpatients at Grand Hanthar Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 1,800)	Heart-disease related	39%	1,188
	Stroke-related	8%	1,048
	Angiogenesis / stem cells	7%	7,097
	Kidney related	5%	994
	Others	17%	791
Orthopedic surgery (Total: 390)	Fracture	20%	3,500
	Knee and hip-joint replacement	30%	9,100
	Spinal dislocation	20%	2,900
	Others	30%	2,500
Obstetrics (Total: 1,450)	Delivery (LSCS)	70%	881
	Delivery (Standard delivery)	30%	541

(Reference) Created by Solidance Based on Interviews at Grand Hanthar Hospital

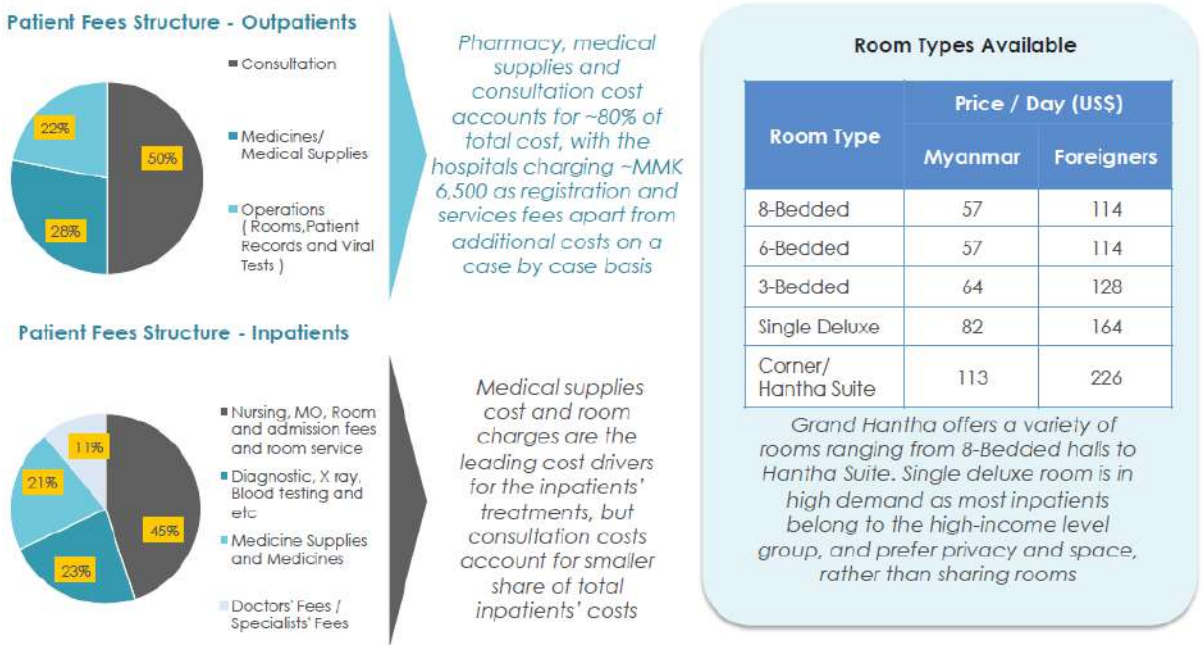


Figure 48 Income Structure of Grand Hantha Hospital

(Reference) Created by Solidance Based on Interviews at Grand Hanthar Hospital

Grand Hantha Hospital regularly conducts marketing-related activities, talk shows, events with invited foreign experts, and distributing of gift vouchers, etc. For events, they invite doctors and celebrities once per quarter to appear on a popular TV channel to discuss health trends, and host weekly health seminars at their hospital. For gift vouchers, they offer 20% discounts for Medical Checkups / diagnostic imaging each season, and issues gift cards worth 320,000 to 520,000 kyat.

Figure 49 Marketing Programs at Grand Hantha
(Left: Images of Various Events; Right: Leaflets for Discount Programs)

(Reference) Solidiance

Regarding their customer experience ratings, there are aspects to be improved, however they receive high evaluations regarding their facilities and the efficiency of their services. Quotes from actual customers, and a table of evaluations by each customer journey type are below.

"It would be great if they had an online reservation system, it will be easier than booking by phone"

"The staff's support for registrations and preparations for treatment is wonderful, and the explanation of each step is also clear"

"There are meal services, ATMs, and convenience stores, so myself and my family members didn't need to worry about most things at the time of hospitalization."

Table 22 The Degree of Satisfaction by Customer Journey Type at Grand Hantha Hospital

	Criteria	Patient's experience
1	**Appointment/First Contact Point**	
	Online Booking System and response	✗
	Email appointment request and response	✗
2	**Efficiency and Services**	
	Facilities (enough car parking spaces/waiting area)	✓
	Welcoming sweets/Sanitizer or Specialist directory	✓
	Discussion about specialists/ Rooms for IPD?	✓
	Direction Support/help patients to next level	✗
	International Relations desk/Medical translators	✗
	Issuing booking number and call by dedicated person	✓
3	**Consultation with specialists**	
	Electronic medical records (EMR) by doctors	✓
	Enough consulting time/ well-explanation by doctors	✓
4	**Admission/Hospitalization**	
	Food catering/laundry services to Patients	✓
	24/7 in-house specialists	✓
	Availability of treatment packages for IPD	✓
5	**Non-Medical Services**	
	ATM machines	✓
	Restaurants/Convenience stores in hospital	✓
6	**Exit/ Discharge**	
	Payment by International Insurance	✓
	Clear Instructions from doctors and nurses post visit and proactive follow up	✓

(Reference) Created by Solidance Based on Interviews at Grand Hanthar Hospital

4.1.4.2. Kan Thar Yar Hospital

Kan Thar Yar Hospital focuses on internal medicine (particularly heart and kidney-related conditions), and employs doctors prominent in the fields of heart and kidney conditions, in full-time positions. Facilities for heart and kidney conditions are well equiped and a comfortable hospital environment is provided. Of the 20,000 outpatients, 87% received treatment in the internal medicine

department, and the remaining 13% received Medical Checkups. All inpatients received treatement in the internal medicine department.

Table 23 Details for Treatment for Outpatients at Kan Thar Yar Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 2,650)	Gold Heart Package	37%	187
	Age 40 or older	22%	156
	Age 40 or younger	20%	135
	Age 40 or older	7%	118
Internal (Total: 18,345)	Medical examination: Heart disease	40%	42
	Medical examination: Kidney	25%	34
	Medical examination: Hemodialysis	5%	51
	Others	30%	35

(Reference) Created by Solidance Based on Interviews at Kan Thar Yar Hospital

For inpatients, the most common treatments in each department are 39% for heart disease at the Internal Medicine department, 30% for knee and hip-joint replacement at Orthopedic Surgery department, 70% for LSCS delivery at the Obstetrics department. The cost for inpatient treatments is about the same as that at Pun Hlaing Hospital, which has the highest costs in Myanmar.

Table 24 Details for Treatment for Inpatients at Kan Thar Yar Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 1,522)	Heart disease related	70%	1,594
	Kidney related	12%	1,097
	Angiogenesis, stem cells	6%	7,193
	Others	12%	786

(Reference) Created by Solidance Based on Interviews at Kan Thar Yar Hospital

The revenue structure is roughly similar to that of other hospitals, however the inpatient rooms feature a room type called ‘Cherry Royal Suite’ for VIPs, for a price of over US$1,000 per night.

Marketing activities are not significantly different to those of other hospitals in this study, and include events and discount promotions. They ran an event for International Women's Day to raise awareness for women, and hold seminars once per quarter, inviting experts related to the heart and kidney health, which are their areas of focus. There are 30% discounts each season for the internal medicine departnent, and also offer 15% discounts for Medical Checkups for couples prior to marriage.

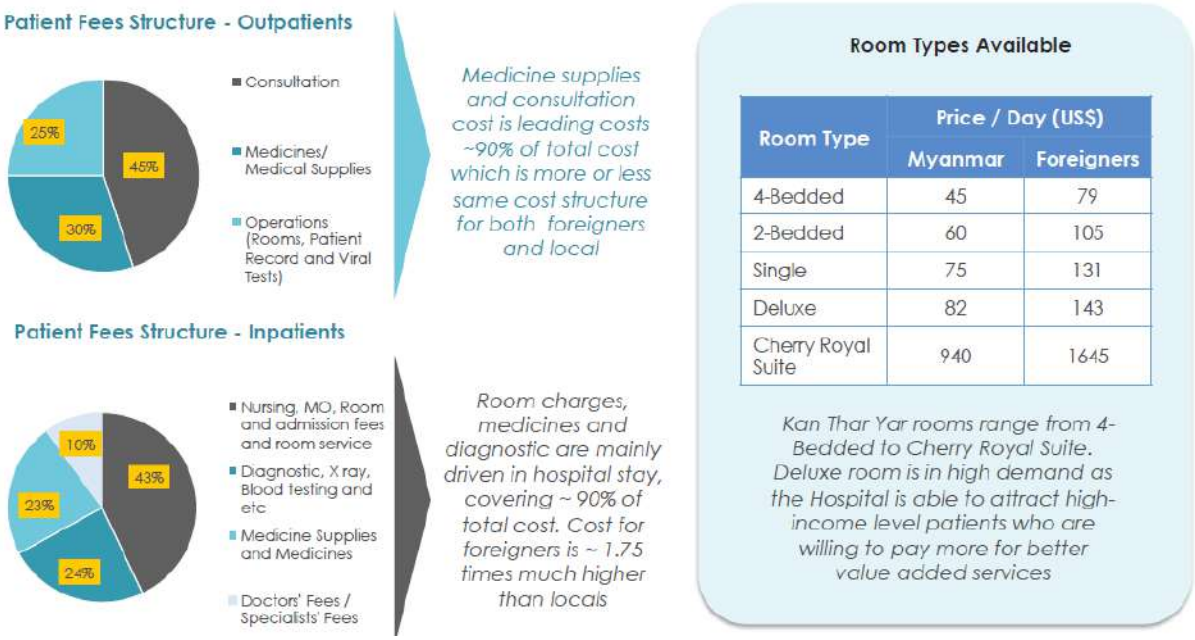


Figure 50 Income Structure of Kan Thar Yar Hospital

(Reference) Created by Solidance Based on Interviews at Kan Thar Yar Hospital

As it is the newest hospital in Yangon, patients have positive impressions it, regarding it as a hospital offering integrated services. Quotes include; "It was the best OPD consultation experience, with careful explanations by the full-time doctor, and polite support at the front desk.", "They did not have an online reservation system and could not receive follow-up mail. It's inconvenient being limited to responding only by phone", "A wonderful hospital with a good location, there are professional teams for heart diseases, there are very hospitable nurses", etc. The comprehensive evaluation of Kan Thar Yar Hospital, based on interviews with these customers, is shown below.

Table25 The Degree of Satisfaction by Customer Journey Type at Kan Thar Yar Hospital

	Criteria	Patient's experience
1	**Appointment/First Contact Point**	
	Online Booking System and response	✗
	Email appointment request and response	✗
2	**Efficiency and Services**	
	Facilities (enough car parking spaces/waiting area)	✓
	Welcoming sweets/Sanitizer or Specialist directory	✓
	Discussion about specialists/ Rooms for IPD?	✓
	Direction Support/help patients to next level	✗
	International Relations desk/Medical translators	✗
	Issuing booking number and call by dedicated person	✓
3	**Consultation with specialists**	
	Electronic medical records (EMR) by doctors	✓
	Enough consulting time/ well-explanation by doctors	✓
4	**Admission/Hospitalization**	
	Food catering/laundry services to Patients	✓
	24/7 in-house specialists	✓
	Availability of treatment packages for IPD	✓
5	**Non-Medical Services**	
	ATM machines	✓
	Restaurants/Convenience stores in hospital	✓
6	**Exit/ Discharge**	
	Payment by Insurance	✓
	Clear Instructions from doctors and nurses post visit and proactive follow up	✓

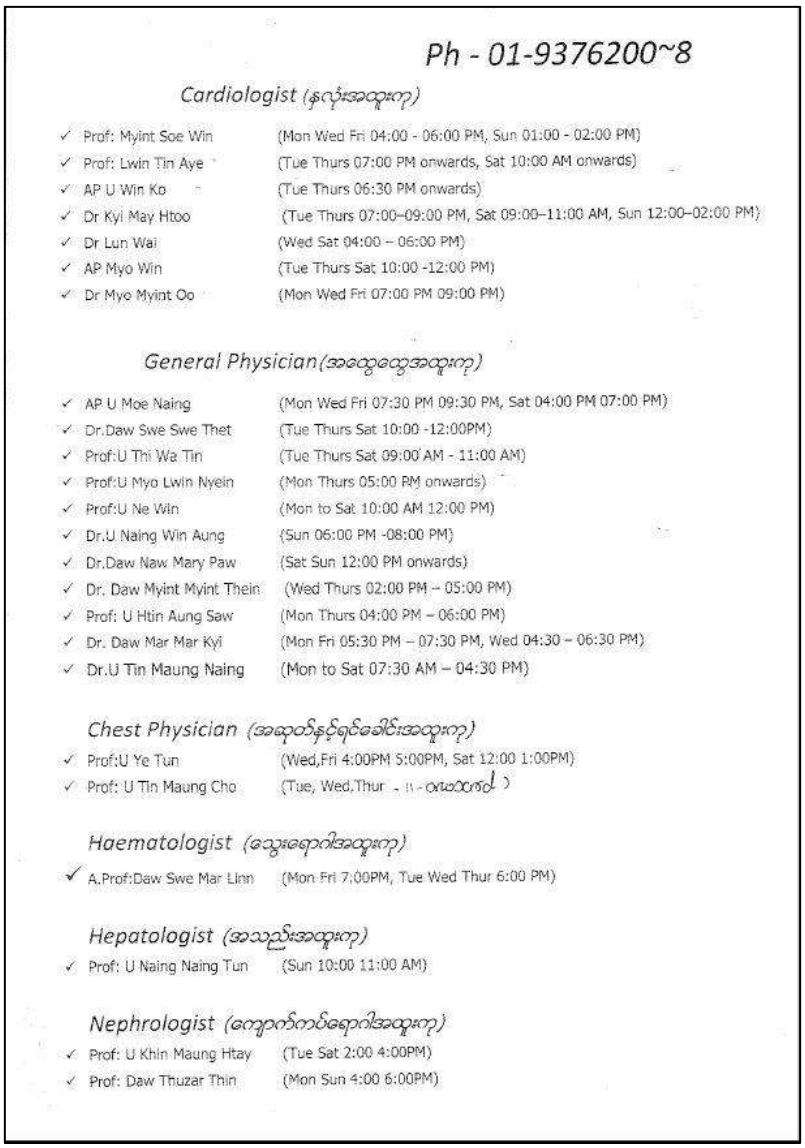
(Reference) Created by Solidance Based on Interviews at Kan Thar Yar Hospital

4.1.4.3. Ar Yu International Hospital

Ar Yu Hospital was operating only for outpatients, after a soft opening in September 2018, and fully opened in November 2018. Thonburi Healthcare Group, a hospital group in Thailand, has 40% ownership, making this a hospital funded by foreign capital, similar to Pun Hlaing Hospital. The management team is Thai, and 6 out of 10 executive officers are Thai, resulting in Thai-led management of the business. Of the remaining 60% owership, 50% is owned by Ga Mone Pwint Group, which manages shopping malls in Myanmar, and 10% is owned by a group of Burmese doctors, some of whom are working as part-time doctors at the hospital.

The hospital has major clinical departments such as internal medicine, gastroenterology, cardiovascular department, orthopedic surgery, brain surgery, obstetrics, and urology. They have a 1.5 Tesla MRI, a 128 slice CT scanner, and other medical equipment comparable to that in competitive hospitals in Yangon. However, at the time of soft opening, only the departments of internal medicine, gastroenterology, cardiovascular, and orthopedic surgery were open, so we do not know which departments are actually operating at present. Also, as with other hospitals, they offer graded private rooms, with deluxe rooms and standard rooms available, as well as two-bed rooms and five-bed rooms, which are cheaper in price.

The hospital employs about 100 doctors, and about 300 nurses, and all staff currently are Burmese people. In that respect, the business is funded with Thai capital, but in view of the operational structure, it is not different from other major hospitals we have researched. There is information that a full-time Thai doctor will be employed, but when we visited the hospital in Novermber we could not confirm this as below doctor's list, and there was no such information available on their website as of the end of November.



Ph - 01-9376200~8

Cardiologist (နှလုံးအထူးကု)

- ✓ Prof: Myint Soe Win (Mon Wed Fri 04:00 - 06:00 PM, Sun 01:00 - 02:00 PM)
- ✓ Prof: Lwin Tin Aye (Tue Thurs 07:00 PM onwards, Sat 10:00 AM onwards)
- ✓ AP U Win Ko (Tue Thurs 06:30 PM onwards)
- ✓ Dr Kyi May Htoo (Tue Thurs 07:00–09:00 PM, Sat 09:00–11:00 AM, Sun 12:00–02:00 PM)
- ✓ Dr Lun Wai (Wed Sat 04:00 – 06:00 PM)
- ✓ AP Myo Win (Tue Thurs Sat 10:00 -12:00 PM)
- ✓ Dr Myo Myint Oo (Mon Wed Fri 07:00 PM 09:00 PM)

General Physician (အထွေထွေအထူးကု)

- ✓ AP U Moe Naing (Mon Wed Fri 07:30 PM 09:30 PM, Sat 04:00 PM 07:00 PM)
- ✓ Dr.Daw Swe Swe Thet (Tue Thurs Sat 10:00 -12:00PM)
- ✓ Prof:U Thi Wa Tin (Tue Thurs Sat 09:00 AM - 11:00 AM)
- ✓ Prof:U Myo Lwin Nyein (Mon Thurs 05:00 PM onwards)
- ✓ Prof:U Ne Win (Mon to Sat 10:00 AM 12:00 PM)
- ✓ Dr.U Naing Win Aung (Sun 06:00 PM -08:00 PM)
- ✓ Dr.Daw Naw Mary Paw (Sat Sun 12:00 PM onwards)
- ✓ Dr. Daw Myint Myint Thein (Wed Thurs 02:00 PM – 05:00 PM)
- ✓ Prof: U Htin Aung Saw (Mon Thurs 04:00 PM – 06:00 PM)
- ✓ Dr. Daw Mar Mar Kyi (Mon Fri 05:30 PM – 07:30 PM, Wed 04:30 – 06:30 PM)
- ✓ Dr.U Tin Maung Naing (Mon to Sat 07:30 AM – 04:30 PM)

Chest Physician (အဆုတ်နှင့်ရင်ခေါင်းအထူးကု)

- ✓ Prof:U Ye Tun (Wed,Fri 4:00PM 5:00PM, Sat 12:00 1:00PM)
- ✓ Prof: U Tin Maung Cho (Tue, Wed,Thur [illegible])

Haematologist (သွေးရောဂါအထူးကု)

- ✓ A.Prof:Daw Swe Mar Linn (Mon Fri 7:00PM, Tue Wed Thur 6:00 PM)

Hepatologist (အသည်းအထူးကု)

- ✓ Prof: U Naing Naing Tun (Sun 10:00 11:00 AM)

Nephrologist (ကျောက်ကပ်ရောဂါအထူးကု)

- ✓ Prof: U Khin Maung Htay (Tue Sat 2:00 4:00PM)
- ✓ Prof: Daw Thuzar Thin (Mon Sun 4:00 6:00PM)

Figure 51 Doctor's list at Ar Yu International Hospital

(Reference) Ar Yu International Hospital

4.1.5. Patient Evaluations for Yangon's Main Hospitals

The patients' preferred hospital, and features and services that they prioritize, differ depending on the clinical department they are visiting, and whether they are outpatients or inpatients.

Medical Checkups are regarded as a standard service, and Asia Royal Hospital is highly evaluated because it offers inexpensive options and is conveniently located. Also, Victoria Hospital is popular, as they have various packages for Medical Checkups.

For outpatients in the internal medicine department, the main criteria for hospital selection are the presence of famous doctors, and whether the hospital has a heart and kidney departments. Inpatients, meanwhile, value the latest facilities and services of Grand Hantha Hospital.

For orthopedic, Pun Hlaing Hospital is a pioneer, and is highly regarded for its reasonable prices and surgical equipment. For outpatients, Asia Royal is preferred for its good location and low prices.

In the rehabilitation field, Grand Hantha Hospital is said to have the best medical facilities. On the other hand, Victoria Hospital has a good reputation for inpatient care, as they provide package services in conjunction with orthopedic surgery.

For obstetrics, Victoria Hospital is famous for offering excellent facilities and services at international standards for a reasonable price, compared to other hospitals. Also, the fact that some part-time doctors can perform IVF treatments is contributing o the Hospital's good reputation.

In the dermatology, Victoria Hospital's beauty center has moved to downtown, and offers 30% discounts as an opening special, therefore it is becoming popular. With famous part time doctors, and the quality of their service package, Victroria Hospital has good reputation for dermatology.

For plastic surgery, Pun Hlaing Hospital is the most popular option compared to overseas hospitals (loke in Thailand), as they have full-time foreign surgeons, good equipment, and reasonable prices etc.

Figure 52 Local Hospital with High Evaluation by Clinical Department

(Reference) Solidiance

4.1.6. Analysis of Major Hospitals in Yangon

For the competing Yangon city hospitals researched for this study, our analysis is based on information obtained from hearings, etc, and on information obtained during actual visits to the hospitals.

1. Asia Royal Hospital
   - ✓ Among the five competitive hospitals, due to their reasonable prices, good access from downtown, and their many famous part-time doctors, Asia Royal Hospital is the most attractive to patients. It's management form is typical of private hospitals in Myanmar. There are almost no doctors working before 4pm, and customer numbers increase abruptly after 4pm. Also, among the 5 hospitals, it has the longest history in business, however the building is old, and there is also an impression that its equipment is inferior.
   - ✓ From a competitive viewpoint, Asia Royal Hospital is a threat, as their prices are a level lower than the other studied hospitals, especially for Medical Checkups. They are also aggressive in marketing initiatives, such as loyalty programs, and we assume that it is very difficult for new hospitals to attract customer groups who are sensitive to price. Meanwhile, their weaknesses are; almost no operations are carried out during the daytime on weekdays, the number of patients is high, the degree of congestion is high, and they have inferior facilities. For our new hospital, we will consider measures to attract customers who place more emphasis on medical services and a high quality customer experience.
   - ✓ Besides Medical Checkup, Asia Royal Hospital has strengths in their interernal medicine and orthopedic surgery departments for both outpatients and inpatients. Cardiology, liver, and kidneys are important fields in internal medicine, and the website of the Japanese Ministry of Foreign Affairs also recommends Asia Royal Hospital for cardiac related diseases. At our new hospital, we are not planning to deal with cardiovascular and liver diseases, so in these fields it is not going to be a competitor. For kidneys treatments, the quality and management of dialysis equipment and water purification equipment are still very important, and we think we will have an advantage in this area.
   - ✓ They plan to open a new ward in 2020, and the construction has already started, however construction has been delayed, so the official opening date has not been announced. In addition, the number of rooms, type, and price range for the new ward are still unknown. Therefore it is difficult to measure concrete impact on our new hospital, though we consider it as intensive competition on the profit model.
   - ✓ There are some aspects of their marketing initiatives that we'd like to refer to, and we are considering the use of a membership program at our new hospital. On the other hand, Asia Royal Hospital has not yet introduced an electronic medical record system. These sytems can be considered advantageous for efficient marketing utilizing data. It is unknown what strategic marketing measures are being considered at Asia Royal Hospital.
   - ✓ Although Asia Royal Hospital does not have foreign counterparts, they have a small number of foreign patients. It is presumed that these patients are consulting through a medical interpretation company in some cases, in the specialist cardiovascular / liver departments, and since treatments in these fields are not planned at our new hospital, we think that it is not particularly necessary to regard it as a competitor in this area.

2. Victoria Hospital
   - ✓ Victoria Hospital opened as a hospital in 2011, however when including the operation of the clinic business that was its predecessor, it has over 10 years experience, which is almost the same business experience as Pun Hlaing Hospital. The hospital is in an easlily accessible area in the northern part of Yangon, and there are few hospitals around, so it has the second highest number of patients among the five competitive hospitals. Its operational model is that of a typical private hospital, and they have large numbers of customers in the evenings. The building is newer than the Asia Royal Hospital, but compared to the two hospitals of Pun Hlaing Hospital and two new hospitals, it is inferior, as it was not originally built as a hospital. The devices & equipment are about the same level as those of Asia Royal Hospital.
   - ✓ The hospital's points of difference include the fact that they have reputable obstetrics and orthopedic surgery departments, that a new circulatory center has been established, and that have an adjoining Leo Clinic, which is a joint venture with the Japanese company. From a competitive viewpoint, the hospital is about 20 minutes by car from the site of our new hospital, and is the closest to our new hospital among the 5 competitive hospitals. Also, we consider obstetrics and orthopedics as our strengths too, therefore it is important to differentiate our new hospital from Victora Hospital. Specifically, for obstetrics, we need to separate rooms for obstetrics from general hospital rooms, and utilize the appeal of fine Japanese style service, including motherhood booklets and prenatal and postnatal parenting classes for fathers. For orthopedic surgery, we need utilize the appeal of high quality doctors, such as Japanese doctors who can speak Burmese and professors who used to work at public universities, and also actively promote early functional recovery via participation in rehabilitation. We might like to receive medical consultations, in order to grasp the details of the service contents at Victoria Hospital.
   - ✓ Victoria Hospital has plans to increase their number of beds by 50, but at present it has not yet started construction, and we have not seen any progress yet.

3. Pun Hlaing Hospital
   - ✓ Pun Hlaing Hospital is 40% funded by Lippo Group, a major hospital group in Indonesia, and as with the newly established Ar Yu Hospital (among major hospitals in Myanmar) it is utilizing foreign know-how. At present, it is also the only hospital in Myanmar which has acquired JCI certification, and it can be said that their treatments, equipment, and operational processes are amount the top ranked in Myanmar.
   - ✓ The buildings of Asia Royal Hospital and Victoria Hospital, mentioned above, were not originally designed as hospitals, so the floors are not optimized for a hospital use. The building of Pun Hlaing Hospital, however, was designed as a hospital from the beginning, and allocated wide spaces for the main passage, so that stretchers can pass each other. The buildings of Grand Hanthar International Hospital and Kan Thar Yar Hospital were also designed as hospitals, but both opened only last year, and have not produced sufficient data to analyze. Pun Hlaing Hospital is a pioneer of these hospitals.
   - ✓ Pun Hlaing Hospital was established as a part of a regional development, with golf courses and luxury residences nearby. Roads leading straight to the hospital are in place, and hospital sites and buildings have an open feeling. They have succeeded in giving an impression of luxury, and in attracting customers who are particularly wealthy people.
   - ✓ Also, among Myanmar's hospitals, it is almost the only one emphasizing employment of full-time doctors. They have employed a fixed number of full-time doctors and do not

rely solely on part-time doctors. Therefore, some patients visit the hospital during daytime, even on weekdays. In this way, they have an internationally certified operation, a building designed for a hospital, and full-time doctors, which is a similar concept to that of our new hospital we will be establishing in this project. In terms of comprehensive medical services and customer experience, it is considered that this hospitai is the most competitive hospital to ours among other local hospitals. In reality, however, there are quite a few areas for improvement in the quality of medical services. When we visited this hospital, we found algae and mold growing on the dialysis equipment, and medical equipment not being used is left without being covered in a corridor or room. We found that there was insufficient consciousness of maintenance at this hospital. Also, when we received a medical examination in the orthopedic department, we found that there the medical service level is in need of some improvement, such as in taking necessary images to diagnosis diseases of the musculoskeletal system (these were not taken in our examination,)

- ✓ Pun Hlaing Hospital 's strengths include obstetrics and plastic surgery in particular. In these departments, they have employed foreign doctors, and people have an impression of high quality of service combined with the luxury atmosphere of the whole hospital. On the other hand, their weakness is the hospital's location. It is distant from the downtown area in the center of Yangon, and it is the only hospital in this study located in Hlaingthaya township, which is over the bridge (across the river) from the city. The infrastructure of roads and bridges are not appropriate sufficient to the volume of traffic, and it is more than an hour by car from the center of the city, and can take more than 2 hours, especially during busy times such as in the morning and evening.
  Pun Hlaing Hospital has opened a satellite clinic in the center of Yangon in order to overcome the problem of location, but what they can offer with the clinic is very limited, and in order to receive comprehensive treatments, customers have to go to the main hospital. As for our new hospital, we believe that we have an advantage in the technology and services provided in our departments, however we have to make use of our location advantages by conducting marketing initiatives including the image of the hospital itself, and the added value services.

4. Grand Hanthar International Hospital
   - ✓ Grand Hanthar International Hospital is a new hospital, opened in 2017, and officially has 700 beds, making it currently the largest private hospital in Myanmar. However, at the present time, some buildings are still under construction, and the number of beds currently available is around 200 - 300 beds. Also, because not all of these beds are used, they appear to be increasing the number of private rooms, and decreasing shared rooms.
   - ✓ Hospital buildings and equipment are new, and large scale, but the hospital was established by a local combined financial group which has no hospital management experience. Most of the doctors are part-time doctors working at other hospitals too. As a result, as with Asia Royal Hospital etc, their operation focuses on weekday evenings and holidays, and the quality of medical services provided is the same as other existing private hospitals.
   - ✓ The strengths of this hospital include its wide range of clinical departments, good location situated in the central part of Yangon City, and its part-time doctors from well-known public hospitals. They have also installed a 3.0T MRI, a 384 slice CT, fully automatic walking support rehabilitation equipment, etc. It has the highest tier equipment in

Myanmar at the present time, and has introduced highly advanced medical equipment, even compared to hospitals in Japan. Compared to the the equipment they have, the medical services offered at the hospital could sufficiently be performed with equipment of conventional levels, as found in competing hospitals, and advanced brain surgery and surgery of the cardiovascular department etc are not offered. Interviews with local equipment manufacturers suggest that the hospital hasn't been able to perform treatments which make use of the high spec equipment. On the other hand, from the patient's point of view, since high-performance equipment seems to be advantageous, it is important to consider policies that publicize the installation of equipment, and policies that increase the perceived quality of medical services.

- ✓ In addition, while Grand Hanthar International Hospital mas made a major investment in equipment, they reduced costs by appointing Chinese general contractors for building the hospital, and construction period was only about a year and a half, which, for the scale of the hospital, is a very short time. As a result, despite having only been completed for about one year, the walls of the building have turned yellowish green, and dirt is conspicuous in the appearance of the building, such as in water stains on windows. Also, tiles on the ground of the parking lot are already coming off, and spiderwebs can be seen on ceilings in the building. There is a possibility that the aging of the building will soon be progressed. Therefore, we consider that utilizing a Japanese construction company and Japanese design company will increase the superiority of our new hospital in the long term.
- ✓ Grand Hanthar International Hospital is the only competitive hospital which has no website, and all information is provided on Facebook. Information on part-time doctors, information on guest doctors from overseas, information on discounts and campaigns, etc. are updated everyday, and their media strategy is based on the fact that smartphones are spreading rapidly in Myanmar. It is unique, and we consider it necessary to utilize opportunities for frequent communication with customers at our new hospital.

5. Kan Thar Yar Hospital
   - ✓ Kan Thar Yar Hospital, like Grand Hanthar International Hospital, is a new hospital, opened in 2017. Similarly, investors are local companies with no hospital management experience, as well as a military-affiliated company called Myanmar Economic Corporation. The concept of the hospital is also very similar to Grand Hanthar International Hospital. It also operates as a tenant type hospital that lends space to part-time doctors, with new hospital buildings and the latest medical equipment. It's in a very good location, which is beside Lake Inya in the central part of Yangon city.
   - ✓ Kan Thar Yar Hospital's strength is its cardiovascular department. Among all clinical departments, the cardiovascular department is a highly specialized field, requiring not only specialized doctors, but also specialized nurses, radiologists, and clinical engineers. In Yangon, Asia Royal Hospital is also famous for its cardiovascular equipment, and was previously recognized as a private hospital guaranteeing a certain level of treatment in that field; however there is still a requirement for higher standards of cardiovascular care. Kan Thar Yar Hospital is trying to respond to this requirement by employing full-time doctors in its cardiovascular department, and installing high-performance imaging equipment. However the public's response has not sufficiently recognized this, and patients for heart and circulatory conditions at Asia Royal Hospital and other hospitals have not perceived the higher quality at Kan Thar Yar Hospital.

- ✓ Moreover, Kan Thar Yar Hospital has not been able to demonstrate distinctive features for clinical departments other than its cardiovascular department, and it is the worst-performing competitive hospital in terms of customer attraction. The impression is that this hospital is the quietest, including during the daytime on weekdays and on weekends. Due to the fact that the core part of their medical care is greatly different from that of our new hospital, this hospital has no point of particular importance as a competitor.

6. Ar Yu Interenational Hospital
   - ✓ Ar Yu International Hospital just fully opened in November 2018. Thonburi Healthcare Group – a Thai hospital group – are the main investors. We haven't obtained enough details regarding their treatments, treatment costs, and strengths. As for doctors, they consist mainly of Burmese part-time doctors, which is similar to other local hopitals, Asia Royal Hospital and Grand Hanthar International Hospital. Therefore, it is assumed that they operate mainly on weekday evenings and on weekends.
   - ✓ As long as the hospital is operated by many part-time doctors, the hospital shares the same human resources with other hospitals, which makes it difficult to make difference in service menu. That kind of operation is not able to provide consistent and careful follow ups for patients. The hospital has to provide ad hoc treatments and cannot provide good care especially for inpatients. It may not be able to deal with sudden change in patient condition or provide emergent operation. Sequence of part-time doctors is not a good environment for young doctors to learn, which is not favorable because it does not train good doctors in Myanmar. From the macro perspective, volume of medicals service stays at the same level and hospitals take each share from the same market. From the company management point of view, hospitals have to pay large amount of consultation fees to attract famous part-time doctors, which incurs more labor cost than having full-time doctors. This cost structure is same in Japan. Hospitals with many part-time doctors are less profitable than hospitals with many full-time doctors.
   - ✓ Ar Yu International Hospital has new building and equipment but so do Grand Hanthar International Hospital or Kan Thar Yar Hospital. Even some of its capital is from Thailand, its operation and management seem to be same as new local hospitals. Although its building and equipment are great, there is still room to improve in terms of medical services. We believe our new hospital is able to differentiate in both ways. We will continue to gather information regarding to this area.

4.2. Overview of Competitive Overseas Hospitals

4.2.1. Bangkok Hospital

Bangkok Hospital is a large scale hospital, which has 488 beds, 15 operation rooms, and more than 650 doctors, 700 nurses and 2,600 support staff. Utilization rate is also high at more than 80%. Percentage of Burmese patients is 9% for outpatients and 8% for inpatients. The hospital has set up 11 branch offices for Burmese people in Myanmar, and provides 30 interpreters for Burmse people at the main hospital. The branch offices offer seasonal promotions for medical checkups, bookings, translation services and air ambulance services. They forcus on Medical Checkups, internal medicine and rehabilitation.

Table 26 Overview of Bangkok Hospital

Overview	
Head office	Bangkok
Ownership	Bangkok Dusit Medical Services (BDMS)
For Burmese people	4 doctors and 29 interpreters (including part-time doctors)
Hospital overview	• Number of beds: 488 • Number of operating rooms: 15 • Capacity utilization rate: 85% • Number of doctors: 650 • Number of nurses: 700
Overview of Offices for Burmese people	
Address	• Head branch office is located on Bo Myat Tun street in Yangon • 13 branch offices in 10 cities
Entity type	Myanmar medical services since 2002 A joint venture (BDMS and a local partner, Sea Lion Group)
Staff overview	• More than 40 staff at the head branch office • Limited support to branch offices
Service overview	• Mainly Medical Checkups and seasonal promotion activities • Translation, booking services and air ambulance

(Reference) Created by Solidance Based on Interviews at Bangkok Hospital

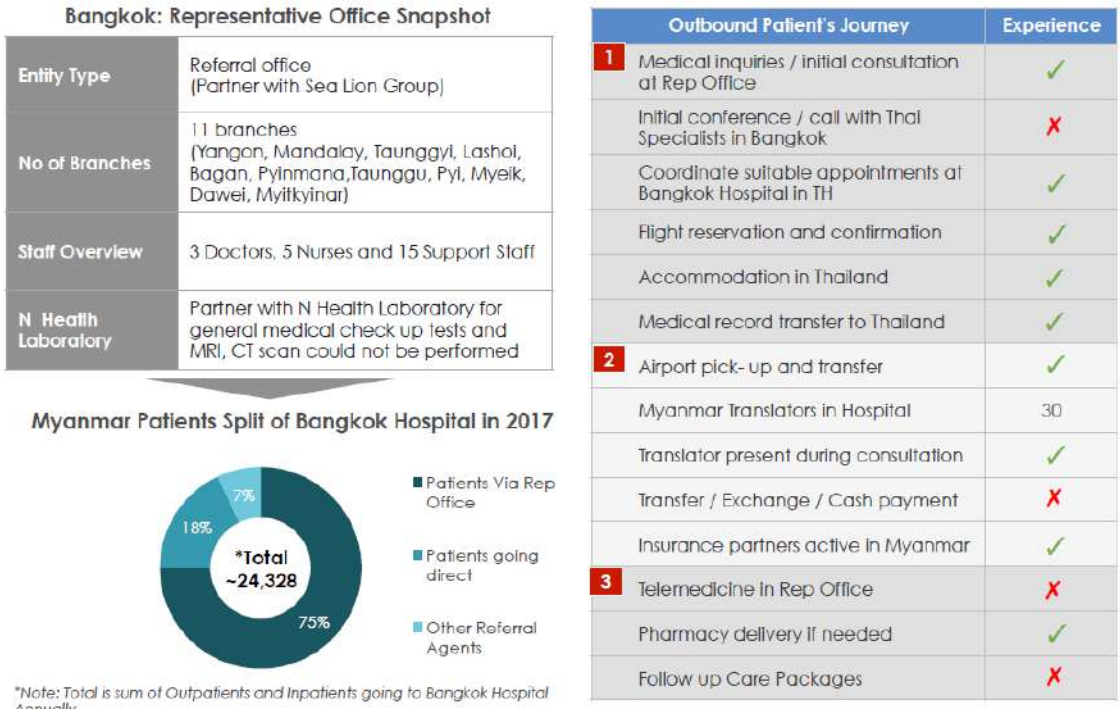


Figure 53 Bangkok Hospital Branch Office and Customer Service Situation

(Reference) Created by Solidance Based on Interviews at Bangkok Hospital

For outpatients, Medical Checkups and internal medicine examinations account for 80% of all treatments. For Medical Checkups, patients over 40 years of age account for 70% (or more) of treatments, and in the internal medicine department, heart disease (35%), hypertension / diabetes (30%), and liver disease (20%) are the major conditions treated.

Table 27 Details of Treatment for Outpatients at Bangkok Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 10,261)	Age 40 or older	70%	832
	Age 40 or younger	27%	309
	Others	3%	115
Internal (Total: 5,701)	Medical examination: Heart disease	35%	159
	Medical examination: High blood pressure, diabetes	30%	119
	Medical examination: Liver disease	20%	134
	Medical examination: Kidney disease	10%	125
	Dialysis treatment	1%	250
	Others	4%	130
Orthopedic surgery (Total: 1,824)	Medical examination: Osteoporosis	20%	122
	Medical examination: Fracture, hip replacement	38%	162
	Medical examination: Bone disability	10%	119
	Medical examination: Spondylosis	25%	125
	Medical examination: Ligament damage	7%	121

Rehabilitation (Total: 91)	Fracture, hip	65%	94
	Stroke-related	5%	84
	Joint pain	11%	78
	Spondylosis	19%	78
Plastic surgery (Total: 24)	Medical examination: Rhinoplasty	21%	78
	Medical examination: Chronic surgery	21%	110
	Medical examination: Silicon	12%	60
	Medical examination: Eyelid	13%	103
	Others	33%	125
Obstetrics (Total: 22)	Medical examination：IVF	71%	203
	Medical examination：Pregnancy	29%	125
Dermatology (Total: 80)	Medical examination：Botox injection	40%	87
	Medical examination：Skin allergy	26%	94
	Medical examination: Contusion	34%	140

(Reference) Created by Solidance Based on Interviews at Bangkok Hospital

There are a small number of cases requiring hospitalization in Bangkok, about 600 cases in total. Internal medicine accounts for nearly 90%; and plastic surgery & obstetrics have several cases. Hospitalization treatment costs as a whole are about 3 to 10 times those in Myanmar, varying from US$2,500 to 14,000 or more.

Table 28 Details of Treatment for Inpatients at Bangkok Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 570)	Heart-disease related	10%	4,200
	Liver- related	15%	3,308
	Angiogenesis / stem cells	25%	9,987
	Kidney related	11%	3,808
	Others	31%	3,745
Orthopedic surgery (Total: 71)	Fracture	8%	6,242
	Knee and hip-joint replacement	69%	8,614
	Spine version	20%	7,178
	Others	3%	4,200
Plastic surgery (Total: 5)	Rhinoplasty	40%	5,618
	Chest silicon	40%	5,119
	Liposuction	20%	5,041
Obstetrics (Total: 8)	Delivery (LSCS)	50%	3,527
	IVF	38%	14,045
	Delivery (Normal delivery)	13%	2,434

(Reference) Created by Solidance Based on Interviews at Bangkok Hospital

Hospital rooms are divided into 6 categories, from US$270 for standard rooms up to US$636 for higher class rooms. Most Burmese patients choose standard class. On the other hand, 30% of patients choose the most expensive rooms, preferring better quality care and room appointments.

The hospital makes use of social media to maintain existing customers and acquire new customers, by providing specific offers, festivals and seminar events targeted at specific customer segments.

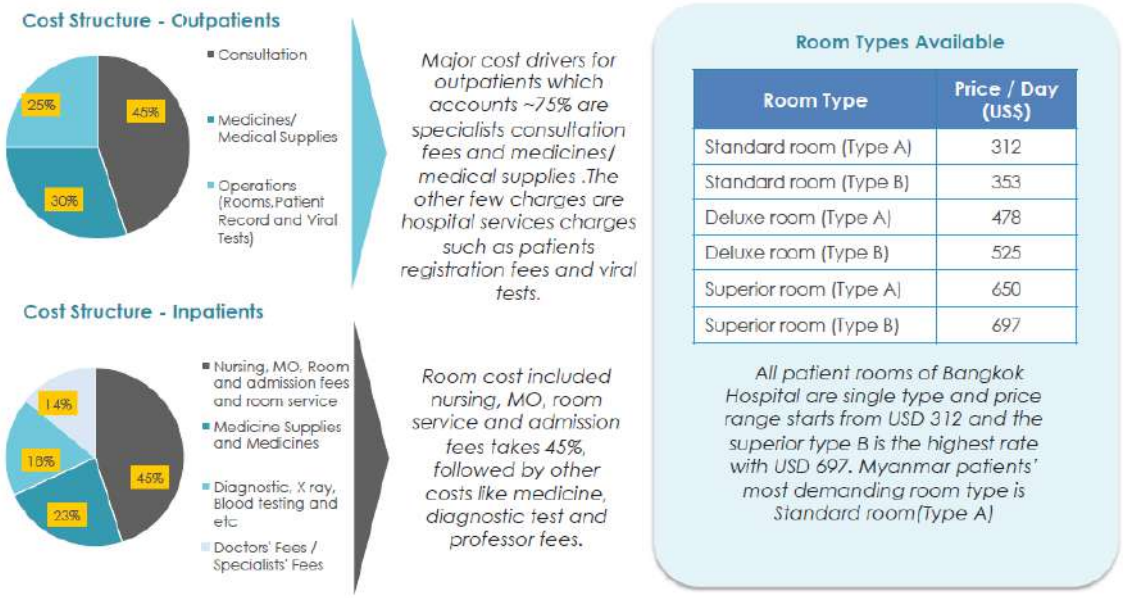


Figure 54 Income structure of Bangkok Hospital

(Reference) Created by Solidance Based on Interviews at Bangkok Hospital

Bangkok Hospital 's brand recognition and brand power in Myanmar, including Yangon, has been strengthened with aggressive marketing activities at their branch offices. They are increasing their brand recognition by exhibiting at the Healthy Family Expo in Myanmar, and holding monthly Super Sunday Health Talk Shows. Health Talk Shows are held not only in Yangon, but also once quarterly in Mandalay. They also offer tickets for screening tours to Bangkok free of charge, a 10% discount for each season, and a 20% discount on packages for knee replacement surgery.

Figure 55 Marketing Programs at Bangkok Hosptail

(Left: Images of Various Events; Right: Leaflets for Discount Programs)

(Reference) Solidiance

4.2.2. Bumrungrad Hospital

Bumrungrad Hospital has 580 beds for inpatients, 125 beds for outpatients, and 19 operating rooms. It's a large scale hospital with 1,200 doctors and 900 nurses. Utilization is around 70%. Ratio of Burmese patients is about 9% for both outpatients and inpatients. The hospital has set up 6 branch offices in 6 cities for Burmese people in Myanmar. Additionally, at their Yangon clinic, they perform diagnostic imaging, and they've set up a system which can carry out initial diagnosis in Yangon. The branch offices offer free seminars as a regular service, and a booking service for hotels, visas and airplane tickets.

The hospital is focusing on Medical Checkups, internal medicine, and orthopedic surgery. For Myanmar, they have three coordinators at the branch office in Yangon, and employ 35 interpreters for Burmese language at the main hospital in Thailand. The hospital has various fully equipped specialty centers, and it is popular among patients as a Myanmar restaurant is located nearby.

Table 29 Overview of Bumrungrad Hospital

Overview	
Head office	Bangkok
Ownership	Listed companies (note: the largest shareholder is BDMS with 24%)
For Burmese people	• 2 doctors and 26 interpreters • Bumrungrad Yangon clinic was established with 80% of ownership in 2016. 20 Thai staff and total capital of US$1,300,000
Hospital overview	• Number of beds: 580 beds are for inpatients and 125 beds are for outpatients • Number of operating rooms: 19 • Capacity utilization rate: 69.57% • Number of doctors: 1,200 • Number of nurses: 900
Overview of Offices for Burmese people	
Address	• Main office is located on Pantra street and Dagon Township in Yangon • 6 branch offices in 6 cities
Entity type	A joint venture with Bumrungrad International and Yangon International Medical Services (YIMS)
Staff overview	• More than 50 staff • Services are limited at branch offices
Service overview	• One-stop services (They offer booking services for hotels, visa, airplane tickets etc) • Regular contact with customers through free seminars

(Reference) Created by Solidance Based on Interviews at Bumrungrad Hospital

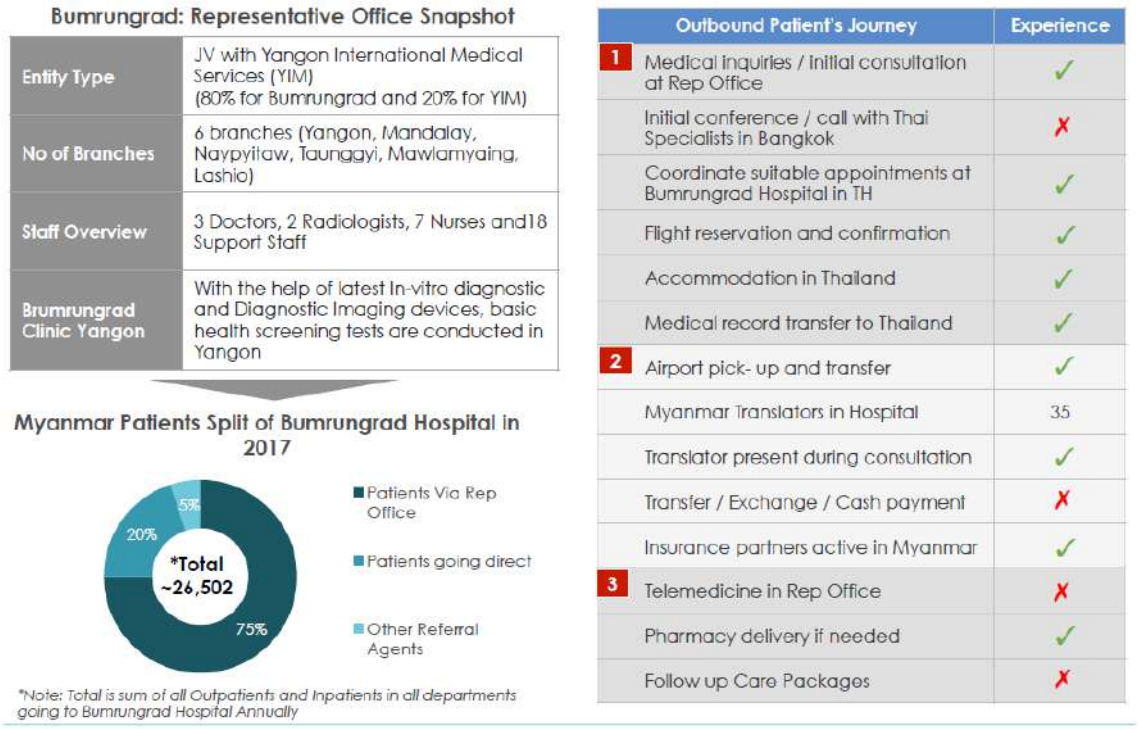


Figure 56 Bumrungrad Hospital Branch Office and Customer Service Situations

(Reference) Created by Solidance Based on Interviews at Bumrungrad Hospital

Outpatients account for 87% of visits for Medical Checkups and internal medicine consultations. The treatment costs are roughly comparable to Bangkok Hospital, and are about 2 to 5 times higher than those of competitive hospitals in Myanmar.

Table30 Details of Treatment for Outpatients at Bumrungrad Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 12,144)	Age 40 or older	77%	1,093
	Age 40 or younger	22%	380
	Others	6%	195
Internal (Total: 6,480)	Medical examination: Heart disease	30%	122
	Medical examination: High blood pressure, diabetes	35%	162
	Medical examination: Liver disease	20%	136
	Medical examination: Kidney disease	10%	130
	Dialysis treatment	7%	281
	Others	4%	133
Orthopedic surgery (Total: 2,074)	Medical examination: Osteoporosis	20%	125
	Medical examination: Fracture, hip	38%	169
	Medical examination: Bone disability	10%	123
	Medical examination: Spondylosis Medical examination: Ligament damage repair	25% 7%	130 125
	Fracture, hip	64%	97

Rehabilitation (Total: 91)	Stroke-related	5%	87
	Spondylosis	11%	83
	Others	20%	98
Plastic surgery (Total: 80)	Medical examination: Rhinoplasty	25%	81
	Medical examination: Chronic surgery	13%	130
	Medical examination: Silicon	11%	70
	Medical examination: Eyelid	20%	121
	Others	31%	140
Obstetrics (Total: 32)	Medical examination: IVF	70%	212
	Medical examination: Pregnancy	30%	131
Dermatology (Total: 83)	Medical examination: Infection	18%	170
	Medical examination: Skin allergy	12%	121
	Medical examination: Contusion	39%	156
	Medical examination: Botox injection	12%	250
	Others	19%	1,092

(Reference) Created by Solidance Based on Interviews at Bumrungrad Hospital

The details of hospitalization, treatment costs, and the percentages of inpatients are very similar to those of Bangkok Hospital, and no special features were identified.

Table 31 Details of Treatment for Inpatients at Bumrungrad Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 848)	Heart-disease related	14%	4,400
	Liver- related	25%	3,371
	Angiogenesis / stem cells	25%	10,019
	Kidney related	8%	3,839
	Others	28%	3,776
Orthopedic surgery (Total: 130)	Fracture	8%	6,554
	Knee and hip-joint replacement	69%	11,236
	Vertebral plate removal	22%	7,335
	Others	3%	4,500
Plastic surgery (Total: 10)	Rhinoplasty	40%	5,649
	Chest silicon	30%	5,150
	Liposuction	10%	5,618
Obstetrics (Total: 12)	Delivery (LSCS)	42%	4,516
	IVF	41%	14,669
	Delivery (Normal delivery)	17%	2,840

(Reference) Created by Solidance Based on Interviews at Bumrungrad Hospital

Hospital rooms are divided into 5 classes, ranging from US$199 for standard 4-bed rooms to US$1,148 for a Premium Royal Suite. The hospital has not only private rooms, but also shared rooms. Burmese patients tend to choose private rooms for under US$300. When the patients' preferred room-class is fully booked, they choose a higher class room, rather than going to other hospitals. This

hospital has a high cost for treatment and hospitalization, and is acknowledged as having high quality services in Bangkok. Therefore it is a highly-rated hospital for not only foreign patients, but also Thai.

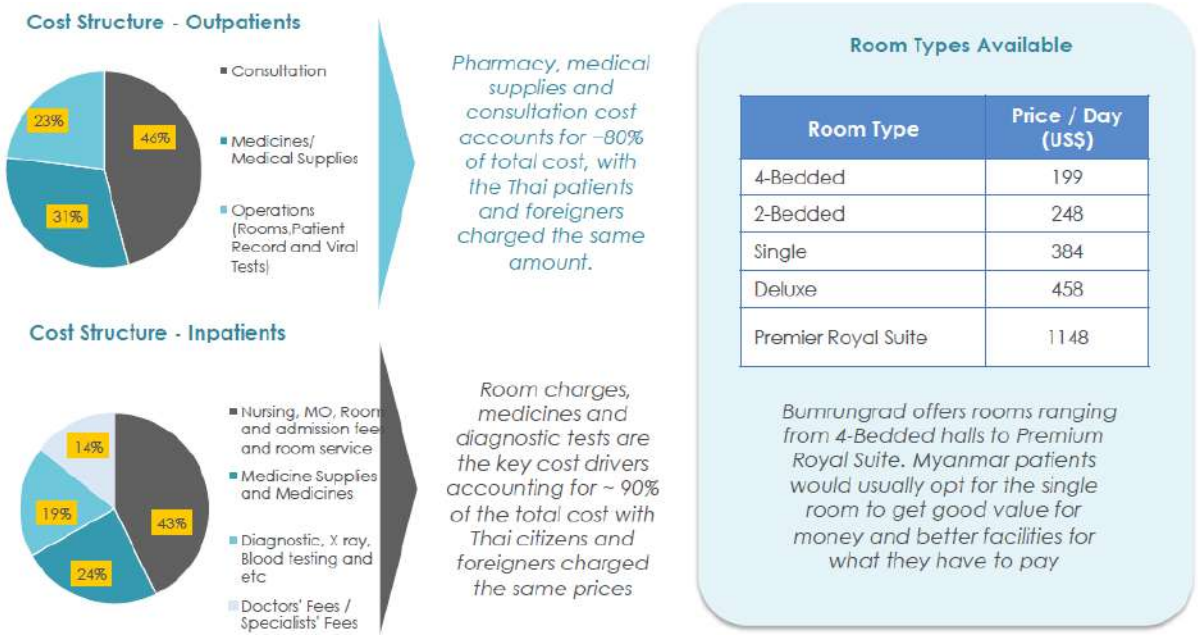


Figure 57 Income Structure of Bumrungrad Hospital

(Reference) Created by Solidance Based on Interviews at Bumrungrad Hospital

Bumrungrad Hospital spends huge amounts of their budget on marketing, focusing on 2 things; introductions and collaborations with medical staff, and client themselves. Offices in Yangon offer booking services for airplane tickets, and 10% discount deals, using regular marketing and outreach activities. Additionally, they introduce services which patients can receive, and offer health seminars which recommend regular Medical Checkups.

4.2.3. Samitivej Hospital

Samitivej Hospital has 275 beds, and 18 operating rooms. It is a large scale hospital with 400 doctors and 1200 nurses. Utilization rate is quite high at more than 80%. Ratio of Burmese patients is 5% for outpatients and 4% for inpatients. The hospital has branch office for Burmese people in Yangon. The office offers Medical Checkups, remote medical services, and emergency jet airplane services to get medical treatments in Bangkok.

In addition to internal medicine and Medical Checkups, the hospital also focuses on pediatrics. Like other hospitals in Thailand, they have established a branch office, and have allocated two medical coordinators, and have hired 15 interpreters at the main hospital. The branch office can offer remote medical services, and doctors visit from Thailand regularly to perform medical examinations.

Table 32 Overview of Samitivej Hospital

Overview	
Head office	Sukhmvit, Bangkok
Ownership	Bangkok Dusit Medical Services (BDMS)
For Burmese people	Limited services for Burmese people as the hospital has less than 10 interpreters (including doctors)
Hospital overview	Number of beds: 275 Number of operating rooms: 8 Capacity utilization rate: >80% Number of doctors: 400 Number of nurses : 1200
Overview of Offices for Burmese people	
Address	Mayangone, in Yangon
Entity type	• Independent practice & medical examination center • A joint venture with Parami hospital
Staff overview	Staff at Stand Alone clinic and general examination centre
Service overview	• Offer services to about 100 patients a day • Medical Checkups, remote medical services, and emergency jet airplane services to get medical treatments in Bangkok.

(Reference) Created by Solidance Based on Interviews at Samitivej Hospital

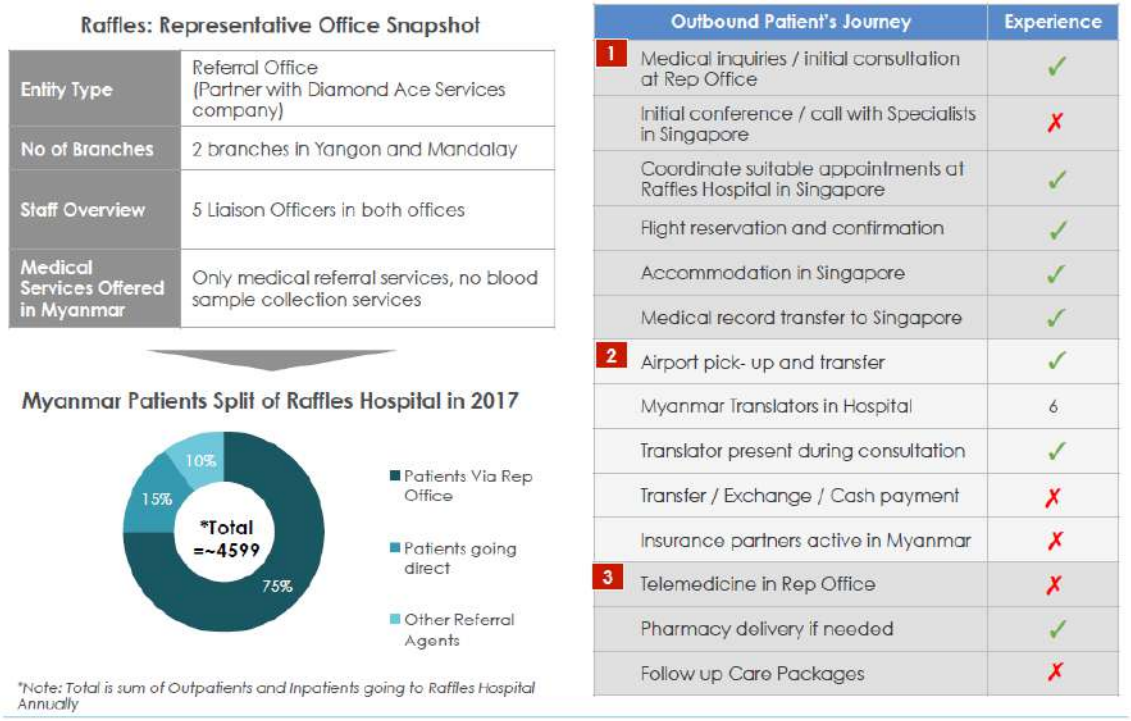


Figure 58 Samitivej Hospital Branch Office and Customer Service Situation

(Reference) Created by Solidance Based on Interviews at Samitivej Hospital

Outpatient occupies 80% or more in Medical Checkup and internal medicine, as with the above two hospitals. Price range is cheaper than Bangkok and Samitivej Hospital by about 20%.

Table 33 Details of Treatment for Outpatients at Samitivej Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 4,224)	Age 40 or older	95%	706
	Age 40 or younger	2%	304
	Others	3%	122
Internal (Total: 2,640)	Medical examination: Heart disease	30%	118
	Medical examination: High blood pressure, diabetes	35%	98
	Medical examination: Liver disease	20%	104
	Medical examination: Kidney disease	10%	99
	Dialysis treatment	7%	203
	Others	4%	110
Orthopedic surgery (Total: 845)	Medical examination: Osteoporosis	20%	101
	Medical examination: Knee and hip	37%	123
	Medical examination: Bone disability	11%	109
	Medical examination: Spondylosis	25%	102
	Medical examination: Ligament damage	7%	111
Rehabilitation (Total: 42)	Knee and hip replacement	65%	78
	Spondylosis	12%	69
	Stroke relate	4%	72

	Others	19%	83
Plastic surgery (Total: 39)	Medical examination: Rhinoplasty	18%	66
	Medical examination: Eyelid	25%	86
	Medical examination: Jaw surgery	10%	113
	Medical examination: Silicon	11%	53
	Others	36%	123
Obstetrics (Total: 40)	Medical examination: IVF	60%	145
	Medical examination: Pregnancy	40%	87
Dermatology (Total: 106)	Medical examination: Infection	11%	123
	Medical examination: Skin allergy	50%	85
	Medical examination: Contusion	39%	100
	Medical examination: Botox injection	9%	165
	Others	11%	748

(Reference) Created by Solidance Based on Interviews at Samitivej Hospital

Reasons for hospitalization vary in each department, however in general, the ratios are similar to those of competing hospitals in Thailand. Prices for outpatient treatments are almost the same as in other Thai hospitals, and the prices for Inpatient treatments similar, being no more that 20% cheaper than those in other Thai hospitals. This hospital has a good reputation for obstetrics, and for its care center for women, among Burmese people. Therefore some patients visit for infertility treatment and pregnancy consultations, then return for knee and joint surgery.

Table 34 Details of Treatment for Inpatients at Samitivej Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 334)	Heart disease related	10%	3,800
	Liver related	25%	3,277
	Angiography	25%	9,051
	Kidney related	11%	3,745
	Stroke related	23%	4,400
	Others	21%	3,683
Orthopedic surgery (Total: 64)	Knee and hip joint replacement	59%	7,959
	Vertebral plate removal	27%	5,618
	fracture	12%	4,682
	Other	2%	2,800
Plastic surgery (Total: 7)	Rhinoplasty	43%	5,462
	Chest silicon	29%	4,963
	Liposuction	29%	4,369
Obstetrics (Total: 12)	Delivery (LSCS)	42%	2,714
	IVF	41%	10,924
	Delivery (Normal delivery)	17%	1,806

(Reference) Created by Solidance Based on Interviews at Samitivej Hospital

Hospital rooms are divided into 6 classes, ranging from US$219 for standard class rooms, up to US$775 for a Royal Suite room. Costs for treatment and hospitalization are the cheapest of the 3 Thai hospitals mentioned in this study.

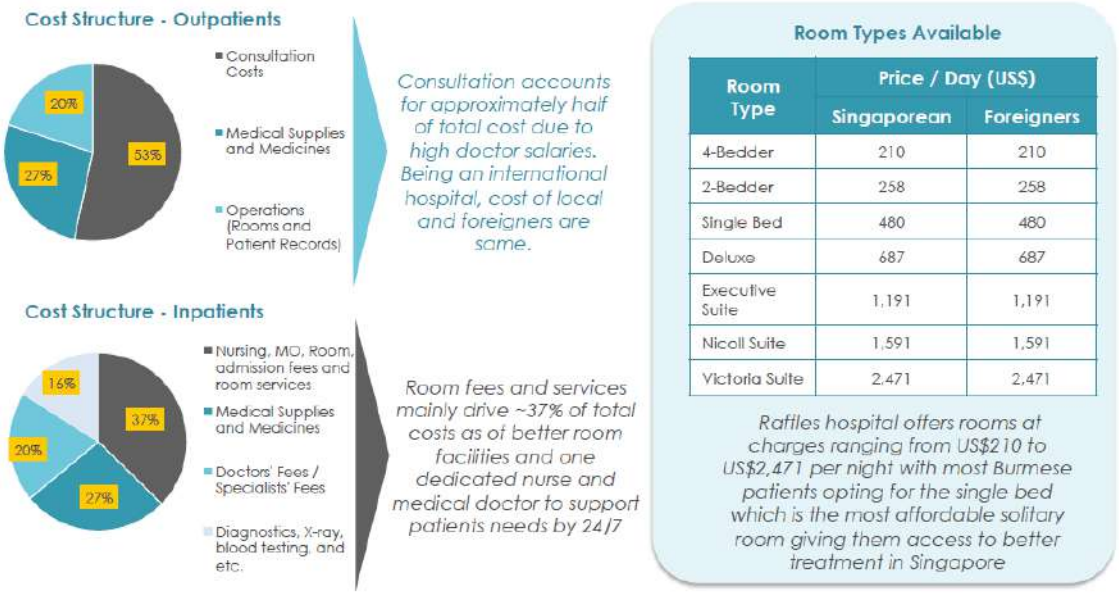


Figure 59 Income Structure of Samitivej Hospital

(Reference) Created by Solidance Based on Interviews at Samitivej Hospital

Samitivej Hospital has recently planned to expand their business proactively in Myanmar, so the number of patients is predicted to increase. The hospital has a partnership with Parami Hospital, however they hardly ever exhibit at co-sponsored events for travel and medical services, and rarely run events as a sole sponsor.

As their main marketing activity, they post videos on health-related topics on Facebook weekly, and set up Q & A sessions. In addition, they are approaching foreign associations such as embassies and NGOs, and are trying to raise their profile among expatriates.

Figure 60 Marketing Programs at Samitivej Hospital
(Left: Images of Various Events; Right: Leaflets for Discount Programs)

(Reference)Solidiance

4.2.4. Raffles Hospital / Mount Elizabeth

We've researched 2 hospitals in Singapore – Raffles Hospital and Mount Elizabeth Hospital – as benchmark companies. They are representative of hospitals in Singapore and have plenty of experience in medical tourism. Below is an overview of these two hospitals.

Table35 Overview of Hospitals in Singapore

	Raffles Hospital	Mount Elizabeth
Ownership	Raffles Medical Group	Parkway Pantai Limited
Location	About 23 mins from Changi airport	About 25 mins from Changi airport
Number of beds	380	333
Capacity utilization rate	80%	60%
Number of operating rooms	20	13
Number of doctors	350	80
Number of nurses	720	270
Number of medical assistants	920	450
Number of engineers	380	250
Number of outpatients (Burmese)	4,015	1,460
Number of inpatients (Burmese)	584	146
Future plans	Planning to open general practices by around 2020	The parent company Parkway Healthcare is planning to construct a hospital which has 250 beds in late 2020

(Reference) Created by the research group Based on the interview at Raffles Hospital and Mount Elizabeth Hospital

4.2.4.1. Raffles Hospital

Raffles Hospital focuses on internal medicine, orthopedic surgery, rehabilitation and obstetrics, and the hospital has set up branch offices in Myanmar, and employs 6 interpreters at the main hospital, similar to competing hospitals in Bangkok. For Burmese people, the hospital's reputation for knee and hip replacement surgery is very good. 75% of patients who visit the main hospital do so via branch offices, but services such as imaging diagnosis and diagnosis by doctors are not conducted at these branch offices.

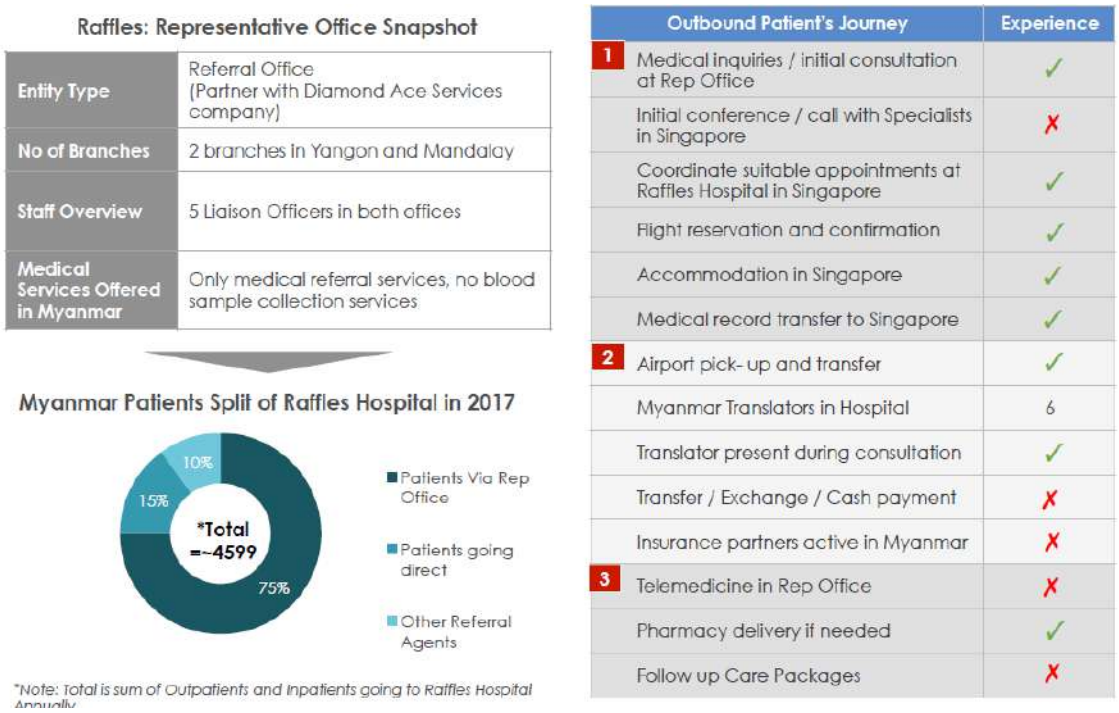


Figure 61 Raffles Hospital Branch Office and Customer Service Situation

(Reference) Created by Solidance Based on Interviews at Raffles Hospital

For outpatients, orthopedic surgery (48%), internal medicine (23%), rehabilitation (16%) are the major clinical departments. In hospitals in Thailand, many rehabilitation options are limited, and orthopedic surgery represents a high ratio of treatments. Outpatient treatment costs are 1.5 to 3 times higher than those of competing hospitals in Thailand.

Table 36 Details of Treatment for Outpatients at Raffles Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 185)	Age 40 or older	24%	2,079
	Age 40 or younger	44%	876
	Others	32%	385
Internal (Total: 703)	Medical examination: Heart disease	40%	220
	Medical examination: High blood pressure, diabetes	34%	177
	Medical examination: Liver disease	11%	205
	Medical examination: Kidney disease	6%	187
	Dialysis treatment	2%	561
	Others	7%	180
Orthopedic surgery (Total: 1,670)	Medical examination: Joint pain, knee and hip joint replacement	45%	280
	Medical examination: Bone disability	22%	220
	Medical examination:Spondylosis	15%	220
	Medical Examination: Ligament Repair Medical Examination: Osteoporosis	10% 9%	250 210

Rehabilitation (Total: 540)	Medical examination: Joint pain	5%	250
	Medical examination: Spine	5%	225
	Medical examination: Stroke related	67%	250
	Others	18%	209
Plastic surgery (Total: 20)	Medical examination: Rhinoplasty	20%	350
	Medical examination: Eyelod	5%	343
	Medical examination: Silicon	40%	300
	Others	35%	380
Obstetrics (Total: 52)	Medical examination: IVF	88%	370
	Medical examination: Pregnancy	12%	267
Dermatology (Total: 60)	Medical examination: Infection	8%	280
	Medical examination: Skin allergy	30%	300
	Medical examination: Contusion	62%	350

(Reference) Created by Solidance Based on Interviews at Raffles Hospital

Inpatients are mainly treated in the orthopedic surgery and obstetrics departments, and there are no inpatients for plastic surgery, as there are in Bangkok. Orthopedic surgery accounts for the largest proportion of inpatients, with 45% of the total. As with outpatients, the inpatient treatment costs are about 1.5 to 4 times higher than those of competitive hospitals in Thailand.

Table 37 Details of Treatment for Inpatients at Raffles Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 157)	Heart disease related	17%	14,682
	Liver related	12%	8,975
	Angiography	37%	14,682
	Kidney related	6%	9,200
	Stroke related	8%	28,422
	Other	20%	8,975
Orthopedic surgery (Total: 250)	Knee and hip joint replacement	72%	22,812
	Bone fracture	16%	12,000
	Vertebral plate removal	5%	10,417
	Other	7%	14,681
Obstetrics (Total: 12)	Delivery (LSCS)	33%	9,507
	IVF	56%	44,877
	Delivery (Normal delivery)	11%	6,082

(Reference) Created by Solidance Based on Interviews at Raffles Hospital

There are seven categories of hospital room, ranging from US$210 for a place in a 4-Bedded room, to US$2,471 for a Victoria Suite. Suite class hospital rooms are nearly twice as expensive as hospitals in Thailand.

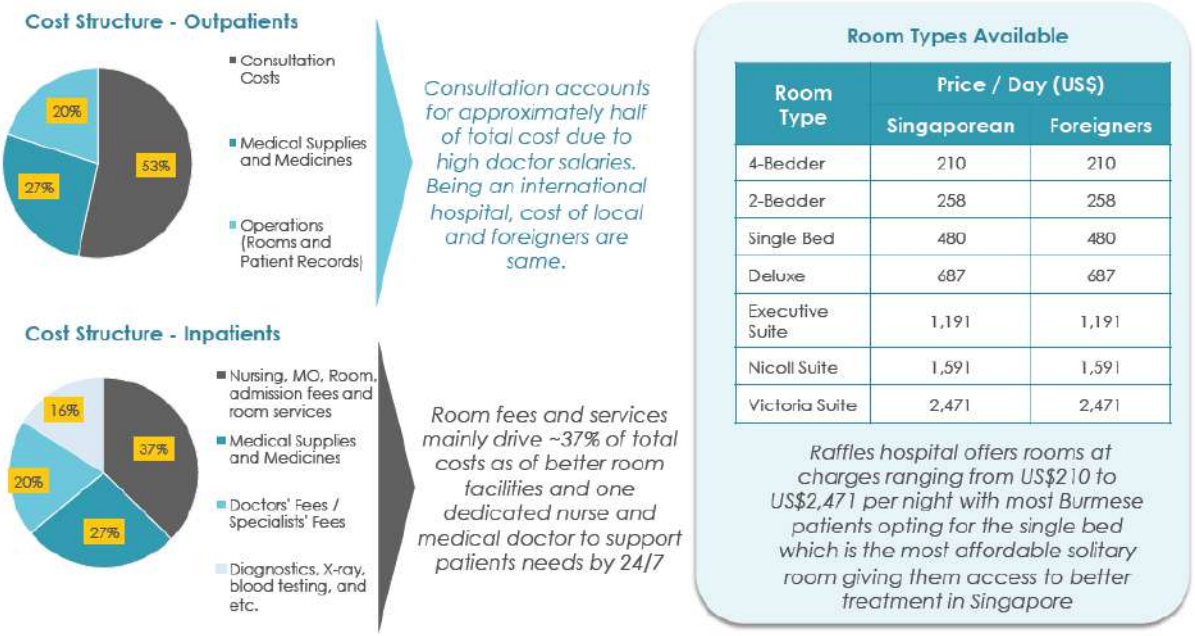


Figure 62 Income Structure of Raffles Hospital

(Reference)Created by Solidance Based on Interviews at Raffles Hospital

Marketing initiatives are limited, and rely on word-of-mouth, and include small events at branch offices. At the Sedona Hotel in collaboration with Mount Alvernia Hospital, they held events where past patients talk about their experience, with the events titled "Your Singapore Healthcare Experience".

Figure 63 Marketing Programs at Raffles Hospital
(Left: Images of Various Events; Right: Leaflets for Discount Programs)

(Reference) Solidiance

4.2.4.2. Mount Elizabeth Hospital

Mount Elizabeth Hospital, like Raffles Hospital, focuses on internal medicine, orthopedic surgery, rehabilitation and obstetrics. The number of Burmese patients is the smallest among our benchmark hospitals. Among the four Mount Elizabeth hospitals in Singapore, Myanmar people tend to go to Orchard and Novena, with Novena receiving about 4 Burmese outpatients per day. At the branch offices, delivery services are available for medicines according to patient's needs.

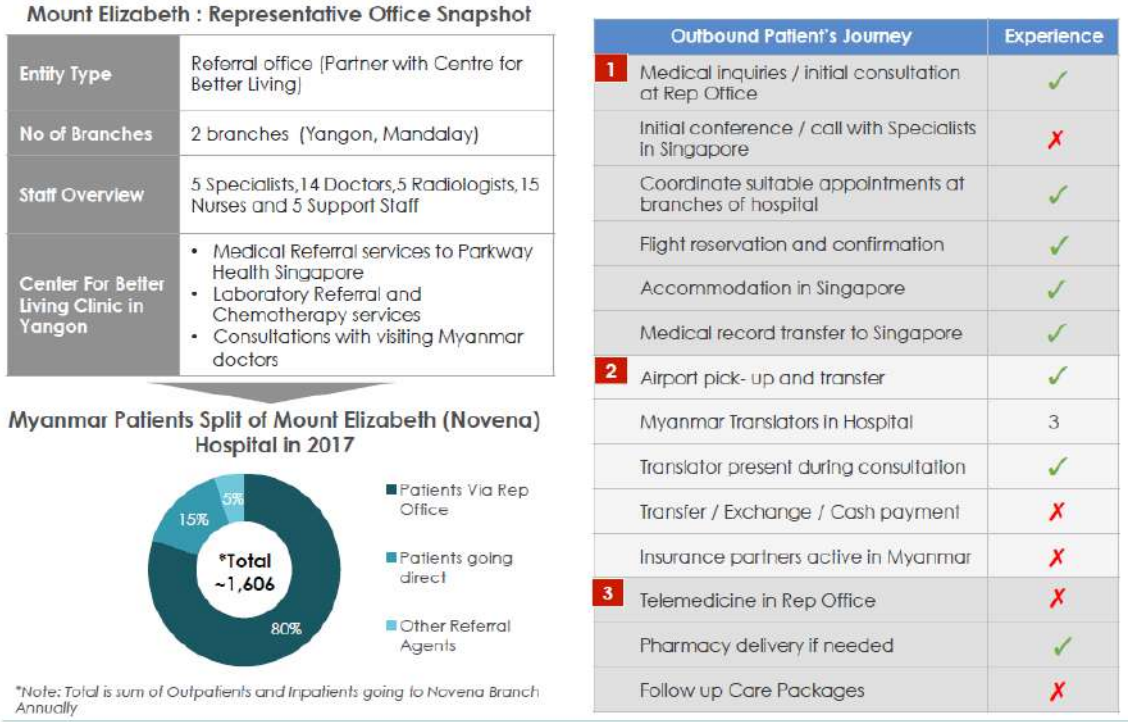


Figure 64 Mount Elizabeth Branch Office and Customer Service Situation

(Reference) Created by Solidance Based on Interviews at Mount Elizabeth Hospital

For outpatient, internal medicine (54%), orthopedic surgery (24%) rehabilitation (14%) are the major clinical departments. In hospitals in Thailand, many rehabilitation options are limited, and Internal Medicine has a high parcentage of patients. Outpatient treatment costs are even higher than those at Raffles Hospital, being around 2 to 5 times higher than those at competitive hospitals in Thailand.

Table 38 Details of Treatment for Outpatients Mount Elizabeth Hospital

Department	Treatment	Percentage of Outpatients	Average treatment cost (USD)
Medical Checkup (Total: 45)	Age 40 or older	44%	3,226
	Age 40 or younger	24%	1,259
	Others	32%	571
	Medical examination: Heart disease	45%	330

Internal (Total: 657)	Medical examination: High blood pressure, diabetes	22%	250
	Medical examination: Liver disease	3%	300
	Medical examination: Kidney disease	2%	270
	Dialysis treatment	1%	770
	Others	27%	270
Orthopedic surgery (Total: 290)	Medical examination: Knee and hip joint replacement	59%	400
	Medical examination: Spondylosis	15%	370
	Medical examination: Fracture	13%	360
	Medical examination: Ligament Repair	8%	380
	Medical examination: Osteoporosis	5%	310
Rehabilitation (Total: 540)	Medical examination: Knee and hip joint replacement	5%	300
	Medical examination: Spondylosis	6%	280
	Medical examination: Stroke related	70%	300
	Other	19%	270
Obstetrics (Total: 52)	Medical examination: IVF	75%	450
	Medical examination: Pregnancy	25%	350
Dermatology (Total: 60)	Medical examination: Infection	26%	420
	Medical examination: Skin allergy	17%	370
	Medical examination: Contusion	57%	380

(Reference) Created by Solidance Based on Interviews at Mount Elizabeth Hospital

There are a small number of inpatients, mainly receiving treatment from the departments of internal medicine (62%) and orthopedic surgery (21%). Inpatient treatment costs, similar to those of outpatients, are about 2 to 6 times higher than those of competitive hospitals in Thailand.

Table 39 Details of Treatment for Inpatients Mount Elizabeth Hospital

Department	Treatment	Percentage of Inpatients	Average treatment cost (USD)
Internal (Total: 65)	Heart disease related	3%	15,550
	Liver related	5%	11,219
	Angiography	66%	29,918
	Kidney related	3%	12,000
	Stroke related	3%	37,397
	Other	20%	11,967
Orthopedic surgery (Total: 22)	Knee and hip joint replacement	45%	25,676
	fracture	18%	15,600
	Vertebral plate removal	14%	14,157
	Other	23%	16,326

(Reference)Created by Solidance Based on Interviews at Mount Elizabeth Hospital

Hospitals rooms are expensive, starting from a minimum of US$320, and for the highest VIP-class room, over $10,000 a night. Marketing initiatives are limited, with the main activity being to regularly dispatch medical specialists from Singapore to treat patients to raise perceptions of existing patients.

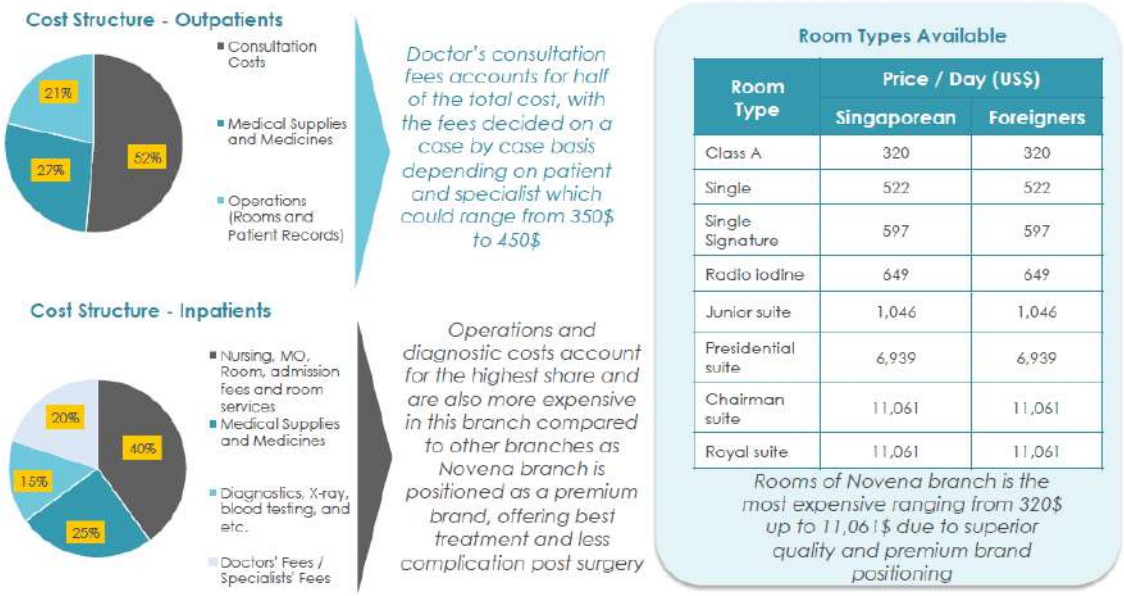


Figure 65 Income Structure of Mount Elizabeth

(Reference) Created by Solidance Based on Interviews at Mount Elizabeth Hospital

4.2.5. Patient Evaluations for Overseas Competitive Hospitals

Survey results from evaluations of clinical departments / inpatient / outpatient visits to overseas competitive hospitals are shown below.

For Medical Checkups, Bumrungrad Hospital, which has state-of-the-art imaging diagnostic equipment and provides discounts (10%), has the highest share of Burmese patients among overseas hospitals.

In internal medicine, Bumrungrad and Mounth Elizabeth Hospital are highly evaluated in terms of providing excellent expertise and equipment for diabetes, liver, kidney and cardiac related treatments.

In orthopedic surgery, evaluations for Bumrungrad Hospital are the highest due to the introduction of surgical assistance machines such as robot arms and other advanced technology, and Raffles Hospital has a good reputation according to reviews mentioning short recovery periods.

In the field of rehabilitation, Bangkok Hospital has the highest rating, as their facilities are excellent.

In obstetrics, due to the inexpensive package price of IVF treatments, patients tend to choose Samitivej Hospital. Moreover, Samitivej has a policy called the '3P concept', and is highly evaluated for prevention of premature births.

In dermatology, there are only two hospitals offering treatment; Bumrungrad Hospital and Samitivej Hospital. Patients can receive acne treatments, Botox injections and cosmetic surgery, which are popular with Burmese patients.

For plastic surgery, service provisions are limited in Tier 1 competitive hospitals in each country. For that reason, Burmese patients tend to use Yanhee Hospital, which is considered a Tier 2 hospital.

Figure 66 Overseas Competitive Hospitals with High Evaluations by Clinical Department

(Reference) Solidiance

4.3. Operation Comparison of Competitive Hospitals

4.3.1. Comparison of Unit Cost for Medical Examinations

Table 51 shows unit costs for medical examinations in Myanmar and international hospitals (Thailand and Singapore, from hospitals identified as competitors in the previous section.) In regards to unit cost for medical examinations for both outpatients and inpatients, the hospitals in Thailand offer services 1.5–7 times more expensive than local average unit costs, and Singapore's services are 4-24 times more expensive.

Table 40 Comparison of Unit Cost for medical service by country (for Outpatients)

Menu	Average Price (USD)		
	Myanmar	Thailand	Singapore
Medical Check-up			
Pre-employment	38	-	-
Over 40	212	926	2,499
Under 40 / Executive	122	339	911
Pre-marital	61	-	-
Others	99	166	405
Internal Medicine			
Consultation for Heart Diseases	31	153	277
Consultation for Hypertension and Diabetes	23	117	204
Consultation for Liver Diseases	29	130	224
Consultation for Renal Diseases	28	121	207
Hemodialysis	58	252	610
Others (Lungs, Haemato, GI etc.)	27	125	250
Orthopedic			
Consultation for Bones disorder / Fractures and discs	39	119	233
Consultation for joint pain / Hip & Knee Replacement	33	158	302
Consultation for Spondylosis / Spine-related Diseases	30	123	242
Consultation for Post-broken legs and hands	44	121	303
Consultation for Ligament Injuries / Repairs	37	121	266
Consultation for Osteroporosis	35	120	220
Rehabilitation			
Rehabilitation for stroke-related cases	25	84	263
Rehabilitation for Spondylosis / Spine-related Diseases	17	79	239
Rehabilitation for Joint Pain / Hip & Knee Replacement	13	92	258
Rehabilitation for Bones and Hip Fracture	18	80	235
Others (Ligaments & Repair etc.)	20	94	224
Plastic Surgery			
Consultation for Nose silicon	22	64	300
Consultation for Nose lifting / rhinoplasty	22	77	350
Consultation for Chin-Surgery	22	121	350
Consultation for Eye lid	22	107	343
Other (Consultation for Maxilo Facial, Liposuction, Breast Augmention etc.)	22	132	380
Obstetrics			
Pregnancy consultation	39	108	288
Consultation for IVF Treatments	80	184	379
Dermatology			
Consultation for Skin Allergy	24	92	320
Consultation for Acne	32	135	375
Consultation for Infectious Skin and Fungal Issues	31	151	338
Botox Injection	144	213	845
Others (Face lifting and Cool sculpting)	546	941	1,915

(Reference) Created by Solidiance based on 10 competing hospitals

Table 41 Comparison of Unit Cost for Medical service by country (for inpatients)

Menu	Average Price (USD)		
	Myanmar	Thailand	Singapore
Medical Check-up			
NOT AVAILABLE	-	-	-
Internal Medicine			
Heart-related Treatments	1,083	4,241	14,742
Liver-related Treatments	839	3,331	9,296
Stroke-related Treatments	1,241	6,619	29,619
Kidney Related Treatments	909	3,807	9,667
Angioplasty and Stem Treatments	5,828	9,838	28,629
Others (GI, Urological, and Kidney related treatments)	673	3,749	9,859
Orthopedic			
Hip & Knee Replacement	6,852	9,798	22,963
Bones Fracture	3,058	5,880	12,335
Spine disclocation/ disc removal treatment	2,570	6,803	11,118
Others (Liagment Injuries and Repair)	1,809	4,040	15,039
Rehabilitation			
NOT AVAILABLE	-	-	-
Plastic Surgery			
Liposuction & Abdominoblasty	4,667	4,849	11,000
Breast Silicon	3,982	5,088	12,000
Butt Augmentation	4,185	6,500	10,200
Rhinoplasty	2,981	5,592	8,500
Obstetrics			
LSCS Labor	854	3,736	9,507
Normal Labor	494	2,480	6,082
IVF Treatment	8,000	12,680	44,877
Dermatology			
NOT AVAILABLE	-	-	-

(Reference) Created by Solidiance based on 10 competing hospitals

4.3.2. Non-medical Operation Support

We investigated outsourcing trends among competitive hospitals, for non-medical operational systems, referring to the management of operational systems at local competing hospitals. Below is summarized the outsourcing situation of two hospitals; Asia Royal Hospital, and Pun Hlaing Hospital. Both companies have outsourced IT, insurance, and waste disposal services, while security and laundry services are handled in-house. Medical equipment is provided by local distributers. Regarding recruitment of human resources, Asia Royal Hospital handles their own recruiting, whereas Pun Hlaing Hospital conducts recruitment through HR companies such as Job Net and My Jobs. Regarding meal services, Asia Royal Hospital does not provide meals, and Pun Hlaing Hospital has a small cafe in the hospital.

Table 42 Outsourcing Operational Situation of Asia Royal Hospital

Operation Type	Description	Outsourced
IT Solutions – Hospital Information System	Has a contract with local supplier - Myanmar Information Technology (MIT). Since 1997, MIT has been providing software for Retail Business and introduced Hospital Information System (HIS) to Asia Royal in 2000.	✓
Safety & Security Services	HR Department recruits security guards by posting online on platforms such as Facebook, as Asia Royal is not using 3rd party services for recruitment.	✗
Medical Supplies	Contract with local distributor, Snow Everest Company (Phillips distributor for diagnostic imaging devices) and with AA Medical Company (for in-vitro diagnostic devices). Amity Company has been providing medical consumables and disposables since 2010.	✓
Insurance	Collaborates with local insurance provider - IKBZ insurance for Group Life Insurance and property insurance which includes fire, earthquake damage, floods, theft and others damage.	✓
Waste Disposal	Collaborates with Yangon City Development Committee (YCDC) for hospital waste management, but YCDC has limited capacity and knowledge of proper medical waste treatment system.	✓
Food Catering	No food and beverage outlet in the Hospital and meal service is not included in inpatients treatment package.	✗
Laundry	Managed by in- house team as there are few laundry service providers in the market dedicated to hospitals.	✗
Recruitment services	The HR Department posts job vacancies on the career page of Asia Royal website	✗

(Reference) Created by Solidiance based on the interview at Asia Royal Hospital

Operation Type	Description	Outsourced
IT Solutions - Hospital Information System	Outsourced to foreign supplier from India, Akhil Systems. The software is compliant with Joint Commission International (JCI) to support Pun Hlaing's overall JCI accreditation	✓
Safety & Security Services	Pun Hlaing's HR department recruits security guards through their webpage/ Facebook / on a need basis from recruitment agencies	✗
Medical Supplies	Pun Hlaing Hospital is a subsidiary of FMI Group which also includes JJ Pun, whose medical division distributes Phillips and Convatec consumables. Disposable products are mainly supplied by Amity International Supply Company.	✓
Insurance	Collaborates with local insurance provider - AYA Myanmar Insurance(AMI) for Group Life Insurance of employees and property Insurance which will include fire, earthquake, theft and other damages	✓
Waste Disposal	Outsourced to Golden Dowa Waste Management Service, a Japanese firm with more than 30 years experience in waste management sector in Japan and South East Asia.	✓
Food Catering	Small café outlet, managed by in-house team with meal service included in inpatients' facilities	✗
Laundry	Managed by in-house team as there are few laundry service providers in market dedicated for hospitals	✗
Recruitment services	Collaborates with online job portals such as Job Net and My Jobs for vacancies announcements	✓

Table 43 Outsourcing Operational Situation of Pun Hlaing Hospital

(Reference) Created by Solidiance based on the interview at Pun Hlaing Hospital

4.3.3. Major Suppliers

4.3.3.1. IT Solution

Hospital Information System (HIS) is a system that integrates financial management systems and patient information management, and automatically performs analysis and creates hospital management reports and operational reports. In addition, it will be possible to create and share electronic medical records between hospital and branch offices. In Myanmar, IT infrastructure is underdeveloped and ICT related laws and regulations are not established, so HIS is not fully utilized. However, due to the establishment of private and international hospitals, the importance of HIS has gradually increased.

Introduction of advanced IT systems to government hospitals is regarded as a strategic action among HIS action plans, and local companies such as MIT and Koe Koe Tech have started establishing HIS and offering it to government hospitals. For foreign-funded enterprises, Akhil Systems in India has provided the HIS system to Pun Hlaing Hospital, and is planning to expand its business in Myanmar.

No	Name of Key Suppliers	Brand	Type	Established Date	Products/Solutions	Key Customers
1	Myanmar Information Technology (MIT)		Local	1997	• Hospital Information system (HIS patient care modules) • Hotella- Hotel Management System • Clinical Management System	
2	Akhil Systems		Foreign	1994	• Hospital Information System (HIS) • Electronic Medical Record (EMS) • Laboratory Information System (LIS) • Pharmacy Information System (PIS) • Radiology Information System (RIS)	
3	Koe Koe Tech		Local	2013	• Hospital Information System (HIS) • Clinic Management Information System(CMIS) • Other health applications such as May May	Ministry of Health and Sports

Figure 67 Major hospital IT solution provider

(Reference) Solidiance

There are differences in the flexibility and range of services provided by IT systems in foreign hospitals and local hospitals in Myanmar. The table below is a comparison of modules available in the IT systems provided by local supplier MIT, and foreign supplier Akhil Systems. While Akhil is capable of providing comprehensive modules, MIT proposes a system that provides a combination of modules tailored to the size, policy, and budget of the individual company. As a result, in current circumstances, the coverage of the local vendor does not compete with that of foreign-affiliated companies.

Table 44 Comparison of Modules for MIT and Akhil Systems

Modules	Description	MIT	Akhil Systems
Front Office Module	Patient's Registration	✓	✓
	Appointment, Scheduling, Admitting, Transfer/Discharge	✓	✓
Clinical Module	Electronic Medical Record (EMR)	✓	✓
	Outpatient (OP) Clinic Management	✓	✓
	Accident & Emergency	✓	✓
	Operation Theater (OT) Management	✗	✓
	Computer Provider Order Entry (CPOE)	✗	✓
	Master Health Check up Management	✗	✓
Inventory Management Module	Purchase Management	✓	✓
	Material Management	✓	✓
	Store Management	✗	✓
	Drug Stores & Pharmacy Management	✗	✓
Daycare Module	Laboratory, Radiology Information System	✗	✓
	Blood Bank Management	✗	✓
	Nursing Dashboard with alerts and reminders	✗	✓
Ancillary Module	Equipment Maintenance	✗	✓
	Dietary Order Management	✗	✓
Reports	Hospital Performance and Inventory Reports	✓	✓

(Reference) Solidiance

Akhil Systems is able to offer services that integrate all modules, however there is a large price gap between Akhil Systems and systems from local providers.

Table 45 Comparison of Modules for MIT and Akhil Systems

Criteria	Description	MIT	Akhil Systems
Interfaces Integrations	SMS/Email, Barcode Interface	✓	✓
	Biometric & Smart Card Integration	✓	✓
	Queue Management System (QMS)	✓	✓
	Integration with Clinical Decision Support	✗	✓
	Mobile App/Patient Portal/Payment Gateway	✗	✓
	Drug Database Integration with Current Index of Medical Specialties (CIMS)	✗	✓
	Laboratory Equipment Interface	✗	✓
Contract Types	Installation Time	~16 Weeks	~24 Weeks
	On-Site Training with Doctors and Staffs	✓	✓
	Training Period	~2 Weeks	~4 Weeks
Maintenance Services	Regular Visits	Once every 3 months	Once every 6 months
	24/7 Call Center	✗	✓
	Dedicated Support Team	✗	✓
	Yangon Office Support	✓	✗
Estimated Cost	Basic Module	25,000 US$	-
	Advanced Module	-	200,000 US$

(Reference) Solidiance

4.3.3.2. Consumables

Competitive hospitals such as Asia Royal Hospital and Pun Hlaing Hospital procure consumables such as surgical gowns and masks through local distributors. Due to price sensitive market conditions, hospital management mostly chooses Chinese brand consumables, and European and Japanese brands are only partially used. Bulk consumables are provided by small and medium enterprises, and are generally supplied individually in small amounts. Meanwhile, major distributers such as Okka Thiri, JJ Pun, Yee Shin, Zeya Associates have begun supplying diverse products ranging from expendables to medical equipment and bedding, operating as one-stop solutions for hospitals. Below, we outline major distributers that provide such integrated services, and compare the services.

Table 46 Major Providers of Medical Supplies

No	Name of Key Suppliers	Brand	Company Type	Established Date	Products/Solutions	Key Customers
1	Okka Thiri	OT	Local	1998	• Laboratory Equipment • Operation Theatre and ICU products, etc. • Emergency – Ambulance, Oxygen Cylinder, and Vacuum Split Sets, etc. • Hospital Furniture – Patient's bed, Wheel Chair, Dressing Trolley, etc. • Consumables and Disposables – Surgical Gown, Drapes, etc.	Asia Royal Hosp
2	JJ Pun	JJ-PUN	JV of Jebsen &Jessen (SEA) and Serge Pun & Associates Group	2012		Pun Hlaing Hospital
3	Yee Shin	YEE SHIN	Local	1990		
4	Zeya & Associates	Z	JV of Royal GK Pte.Ltd and Zeya & Associates Pte.Ltd	2012		Aung Yadana Hospital
5	Amity International Supply	A	Local	2007		Asia Royal Hospital

(Reference) Solidiance

Table 47 Comparison of Providers of Major Medical Consumables

Factors	Description	OT	JJ-PUN	YEE SHIN	Z	A
Consumables Products	Surgical Gowns	✓	✓	✓	✓	✓
	Surgical Drapes	✓	✓	✗	✓	✓
	Advanced Wound Care	✓	✓	✓	✓	✗
	Advanced Ostomy Care	✓	✓	✓	✓	✗
	Gloves and Masks	✓	✓	✓	✓	✓
	Syringes, Cannula and Bandages	✓	✓	✓	✓	✓
	Consumable X-ray Films	✓	✓	✓	✓	✗
	Principal	Chinese Brands and Fuji	ConvaTec, besurence	Chinese Brands and Fuji	ConvaTec, Chinese Brands and Fuji	Hopes (Fukushow International), Faith (Singapore)
Payment Terms	Credit Period	~8 Weeks	~4 Weeks	~4 Weeks	~6 Weeks	~10 Weeks
	Consignment Contract	✓	✗	✓	✗	✓
	Delivery period	3 days	2 days	3 days	2 days	1 day
Estimated Cost	Surgical Gowns – BVB Material	~4$	~8$	~3$	~4$	~6$
	A Box of Consumable Fuji X-ray Films (100pcs)	~83$	~85$	~80$	~83$	-

(Reference) Solidiance

4.3.3.3. Insurance

The insurance sector was liberalized in 2012, and 12 local companies obtained licenses, including First National Insurance, IKBZ, Young Insurance Global, Grand Guardian and AYA Myanmar securing. However, due to government insurance regulations, the services provided are limited, and companies are not differentiated much. Among foreign companies, three Japanese companies (Tokio Marine Nichido, Mitsui Sumitomo, Sompo Japan) have entered the market, but are allowed to provide services in only a limited area in Tirawa Industrial Park. Below is an overview and comparison of major local companies and their services.

Table 48 Overview of Major Insurance Companies

No	Name of Key Suppliers	Brand	Type of Company	Established Date	Service offered	Key Customers
1	AYA Myanmar Insurance (AMI)	AMI	Local	2013	• Group Life Insurance • Health Insurance • Property Insurance • Travel Insurance • Cash Insurance • Motor Insurance • Life Insurance • Cargo Insurance • Personal Accident Insurance	
2	IKBZ Insurance	IKBZ	Local	2012		
3	Grand Guardian Insurance	GGI	Local	2012		

(Reference) Solidiance

Table 49 Comparison of Services of Major Insurance Companies

Property Insurance	• Building • Plant & Machineries, Equipment & Accessories • Stocks (Raw, Finished or In-process Goods and Belongings • Household Goods such as Furniture and Tools • Personal Effect
Basic Coverage of Property insurance	• Fire • Lightning • Explosion caused by gas used for domestic purpose
Add on Coverage of Property Insurance	• Earth-quake fire, and stock damage • Explosion • Storm, Typhoon • Flood and Inundation • Burglary
No Claim Discount (A bonus for not having made a claim against one's policy)	• 1st Year:0% discount on premium • 2nd Year: 25% discount • 3rd Year: 25% discount • 25% no claim discount is fixed throughout rest of the insurance policy term

Description	AMI	IKBZ
Fire / Building Insurance		
Yearly Basic Premium fees	0.28% to 3.6% of building valuation	0.13% to 3.5% of building valuation
Benefits covered Total Loss The insured can obtain compensation up to the amount of sum insured for total losses of or damage to the insured property. Partial Loss Compensation up to the actual value of the property destroyed by fire or insured perils will be paid to the insured.		
Insured Period Minimum 10 days to Maximum 12 months Payment Method Lump sum payment		

(Reference) Solidiance

4.3.3.4. Waste Disposal

The field of waste disposal services is still quite underdeveloped, and this is compunded by the lack of legal systems. General waste disposal has been handled by city committees such as YCDC, but there is a lack of knowledge and experience in categorization and separate handling & disposal of different waste types. Currently, only Japanese-owned Golden Dowa is able to provide international standard services, and Pun Hlaing Hospital utilizes its services to acquire JCI certification. On the other hand, while they are aware of the low standard of service, most business operators use the general waste disposal service of the city committee YCDC.

Table 50 Outline of Major Companies for Waste Disposal

No	Name of Key Supplier	Brand	Type of Company	Established Year in Myanmar	Services offered	Key Customers
1	Golden Dowa Eco-System Myanmar	DOWA Japan	Foreign	2014	• Waste Collection, Transportation, Treatment for Hazardous and Non-Hazardous) • Recycling of materials • Laboratory Analysis (Liquids, Solids) • Waste Water Treatment and etc.	PUN HLAING SILOAM HOSPITALS, KDDI, GSDM

(Reference) Solidiance

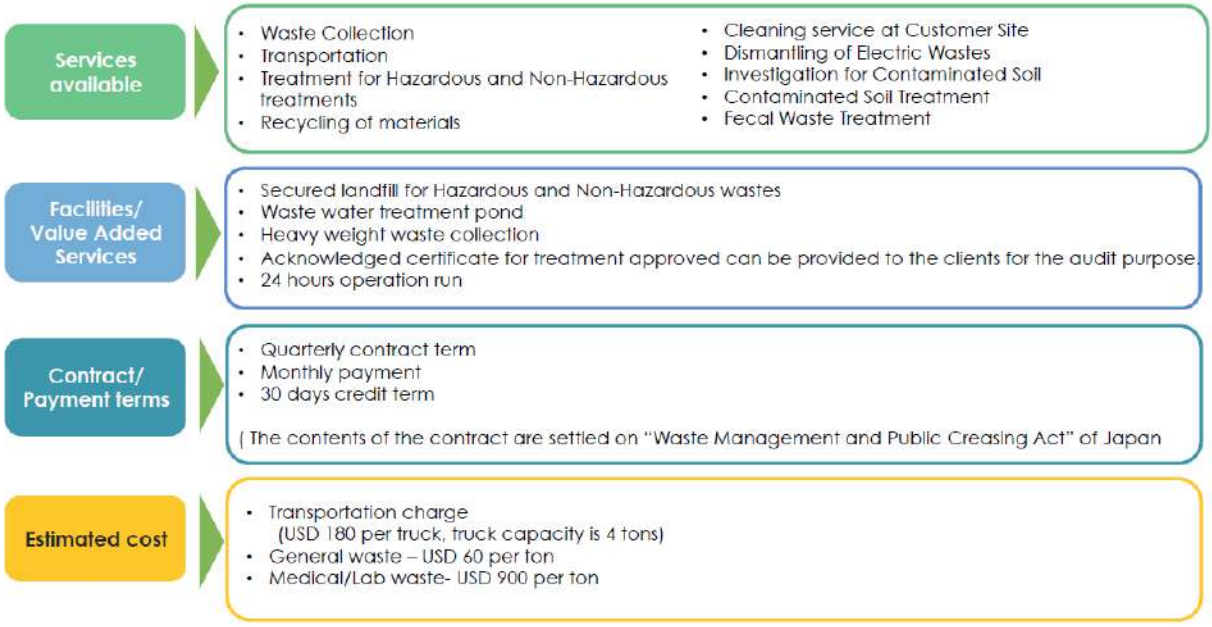


Figure 68 Comparison of Services of Major Waste Disposal Companies

(Reference) Solidiance

4.3.3.5. Recruitment

Online employment websites are recognized as the most common and effective recruitment tool in Myanmar, as many candidates register and provide their CVs, providing various sectors with a wide market for their human resources. Currently there are about 10 online employment websites, the major companies being Job Net, Jobs in Yangon, and Myanmar JobsDB.

Apart from online employment websites, corporate websites and Facebook announcements are used as main recruitment sources. Other recruitment agencies such as My World, Venari, and Quantum Talent exist, but they forcus on specialized industries, resulting in high costs for their services.

Table 51 Comparison of Services of Major Recruiting Companies

No	Name of Key Suppliers	Brand	Type of Company	Established Date	Services offered	Key Customers
1	Job Net	JobNet	Local	2015	Online recruitment service	PUN HLAING SILOAM HOSPITALS, ARYU
2	Jobs in Yangon	MyJobs	Local	2014		PUN HLAING SILOAM HOSPITALS, PARAMI

(Reference) Solidiance

Table 52 Comparison of Services of Major Recruiting Companies

Role	Description	JobNet	Jobs
Employer/Client Role	Candidate Management Dashboard	✓	✓
	Unlimited Job Postings within 6 to 12 months	✗	✓
	Full CV access and Searching	✓	✓
Dedicated Account Manager Role	Digital Marketing Campaigns to reach candidate out through social media network	✓	✓
	Job post updates/ reviews and priority customer service responsiveness	✓	✓
	Scan Applicants CV	✓	✗
	Prioritized job matching ranking for all levels of Job Function and send emails to suitable candidates	✓	✗
	Do preliminary interviews on behalf of client	✗	✗
	Send shortlisted CVs to clients	✓	✗
	Send Performance management report to clients (Number of views received for job posts, number of CVs received, expired date of Job Posts)	✓	✗
Contract Types	Contract and credit term (6 months contract term and 14 days credit term)	✓	✓
Pricing	Package pricing (6 months contract)	USD 3,780	USD 1,990

(Reference) Solidiance

4.4. Summary (Competitive Hospital Benchmark)

Concerning analysis of competitive hospitals and medical examination unit price, we gathered and analyzed information, and provided overviews, on the companies of 10 major competitors. In addition, as comparison points for competitive business operations, Asia Royal Hospital and Pun Hlaing Hospital were chosen as benchmarks, and their outsourcing practices for various non-medical operational system were reviewed. We also collected information and evaluated services provided for each outsourcing industry type/provider.

The findings of the competitive hospital analysis are summarized as follows.

Competitive hospitals are divided into hospitals located in Yangon, and overseas hospitals. Competitive hospitals located in Yangon have a limited range of services, and offer limited quality of services, and service unit price is low. Meanwhile, competitive hospitals located overseas have a wide range of medical services and a high quality of service, but unit prices are high. Particularly, the unit costs of one major hospital in Singapore is very high. In recent years, medical standards have improved in Yangon, there are hospitals which have acquired JCI, and there are several newly established hospitals; but there is still a large difference in the services offered in Yangon hospitals, compared to competitive overseas hospitals. In this project, it is important to provide a range and quality of services that are not found in Yangon, while offering these services at as reasonable a price as possible.

Regarding comparisons of business operations, we conducted consultations as a consortium with business partners who are available to provide medical equipment and medical materials, and received quotes. For IT solutions, we are conducting research into installing an electronic medical records system with a Japanese information systems company. As a result of these consultations and research, the investment amounts for this project can be estimated with high accuracy. On the other hand, we have just confirmed that companies can provide outsourced cleaning, waste disposal, security, and building maintenance services, but we have not yet had consultations or collect quotes, etc. When we have completed the design of our hospital, we would like to acquire quotes. However, these outsourcing expenses are a small proportion of the toal expenses for the hospital, and the impact on the business plan is considered to be limited.

5. Design and Integration of Hospital Buildings

5.1. Prerequisites Summary of Plans for Land and Structures

This project plans to establish a hospital on part of a 2.5 acre total development area. This development site belongs to the Ministry of Industry of Myanmar, which has provided Wa Minn Group of Companies ("Wa Minn") – a candidate partner for this project – with a long-term 70 year lease of the site. Currently the site contains factories and office buildings owned by Wa Minn. In implementing this project, a new company will receive a sublease from Wa Minn for the part of the 2.5 acre site that our hospital will occupy. Also, the current factories and office buildings will be demolished as soon as business permission is acquired form MIC, and the site will be vacant before the construction starts. Outlines of the development plans for the land and buildings are as follows.

Table 53 Overview of Land and Hospital Buildings

Development area	2.5 acres ※ Approximately 10,117.10 m^2
Entire road	12m ※ Possible changes after detailed survey
Land owner	Ministry of Industry
Leaseholder	Wa Minn Group of Companies ※ 70-year lease from the Ministry of Industory
Cuurent status	Enamel pottery factory - 1 building 2 office buildings ※ No residents

Building area	3,516.18 m^2
Total floor area	12,168.26 m^2
Scale	No underground story, 6 above-ground stories
Structure	Reinforced Concrete (earthquake-resistant structure)
Number of beds	101

(Reference) Solidiance

Below are details of the actual candidate building site and surroundings.

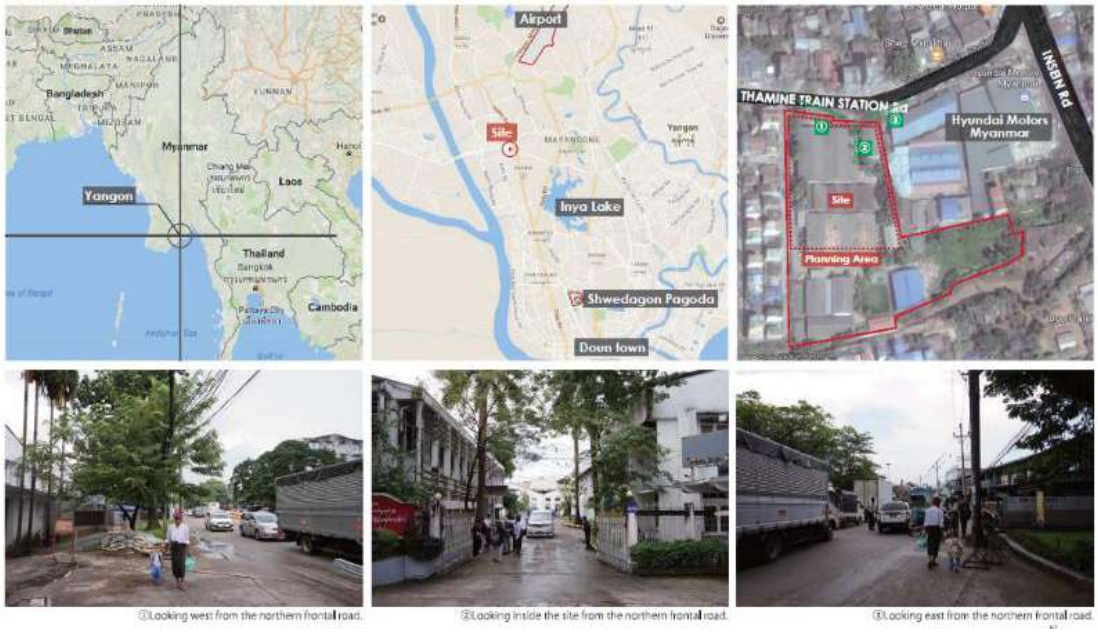


Figure 69 Location of Candidate Site

(Reference) Myanmar Business Central Corporation

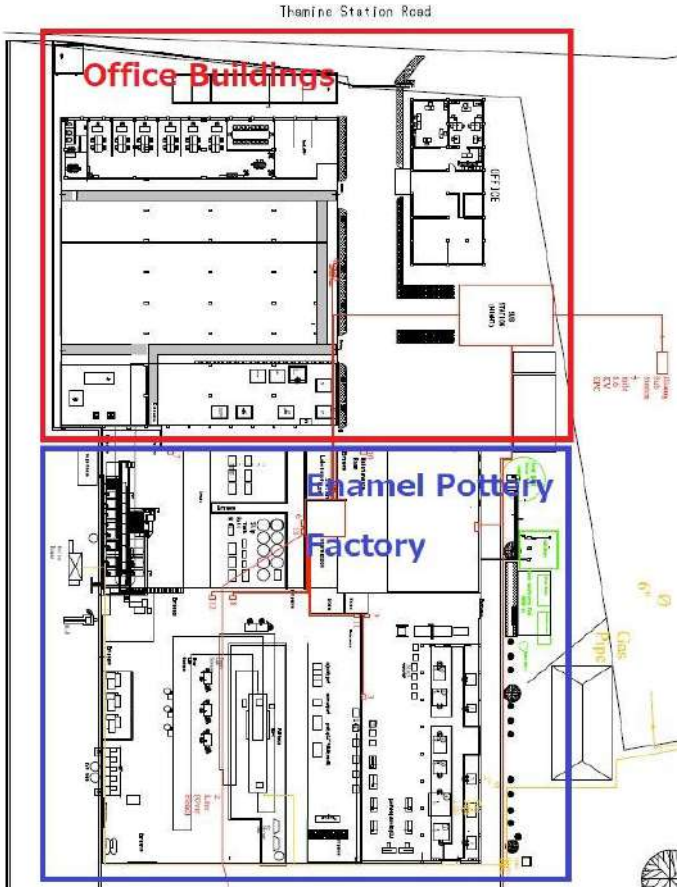


Figure 70 Current Status of Candidate Site

(Reference) Added information by a research group from a floor map created by Azusa Design

5.2. Geological and Measurement Survey

5.2.1. Geological Survey

We conducted a borehole survey at the candidate location. A total of three boreholes were drilled, and a survey performed in accordance with ASTM D 1586, a US standard for survey procedure. Before starting construction, it is necessary to drill the number of boreholes prescribed by provisioning rules of Yangon, but since there are the existing buildings on the site, we decided to drill only 3 boreholes. We used the equipment pictured below.

Figure 71 Boring Machines

(Reference) Geo Frineds

The following instruments were used for sample inspection.

Table 54 Sample Inspection equipment

Equipment	Brand	Country of Manufacture
Electric Balance	ELE	England
Atterberg's Limit Test Apparatus	ELE	England
One dimensional consolidation test machine	ELE	England
Direct Shear test machine	ELE	England
Triaxial	ELE	England
UCS	NL	Mayaysia
Triaxial (CU/CD)	HUMBOLDT	U.S

(Reference) Geo Frineds

Boreholes were drilled at the following three locations.

Table 55 Boreholes location

Location	Coordinates		Height (m)
	E	N	
NBH-1	193121.622	1866420.878	5.95
NBH-2	193133.887	1866368.873	6.00
NBH-3	193110.979	1866324.852	5.96

(Reference) Geo Frineds

Figure 72 Boreholes points on the map

(Reference) Geo Frineds

Survey results showed that, in the 55.45m we drilled for the borehole survey, the following ten soil layers were confirmed;

1. Sandy Lean CLAY-I
2. Lean CLAY-I
3. Clayey SAND-I
4. SILT
5. Silty SAND-I
6. Silty SAND-II
7. Clayey SAND-II
8. Sandy Lean CLAY-II
9. Lean CLAY-II
10. SAND

As a result of these measurements, the value N (numerical value for determining the ground strength etc.) of each layer was determined as follows.

Table 56 Measurement Result of Ground Strength etc.

Sr No.	Soil layer	N value (Measured)					Minimum	Maximum	Average
		10	20	30	40	50 & > 50			
1	Sandy Lean CLAY-I						3	11	5
2	Sandy Lean CLAY-II						100	100	100
3	Lean CLAY-I						6	29	14
4	Lean CLAY-II						43	43	43
5	SILT						34	100	59
6	Clayey SAND-I						4	22	12
7	Clayey SAND-II						60	100	92
8	Silty SAND-I						6	50	23
9	Silty SAND-II						51	100	91
10	SAND						70	70	70

(Reference) Azusa Design

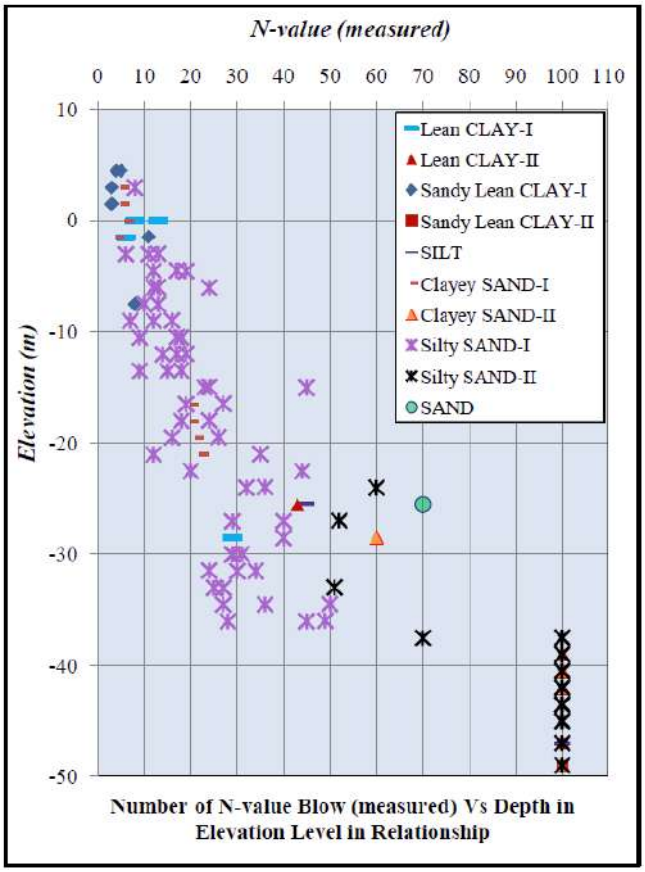


Figure 73 Relation between N-value and depth

(Reference) Geo Frineds

Since it was confirmed that Clayey SAND -II, at a depth of more than 43.5m, was stable with an N-value of 50 or more, we found that we can use piles of 43.5m or more in this project, and this will ensure sufficient support capacity for the foundation of the hospital building.

5.2.2. Measurement Survey

In addition to the borehole surveys, we investigated soil pollution on the site. For the survey procedure, according to U.S. EPA (SOP-2013, SOP2016, SOP2003), we used a Soil Auger (Model: VG 01-045) made in England as a device to collect samples. The analysis method of each parameter is as follows.

Table 57 Analysis Methods Used in Borehole Surveys

No.	Parameter	Analysis Method
1	Arsenic	Acid Digestion And Generation AAS Method (U.S.EPA 1996:3050 And U.S.EPA 1992:7061 A)
2	Cadmium	Acid Digestion And Direct Air Acetylene Flame Method (U.S.EPA 1996:3050 B And U.S.EPA 2007:7000 B)
3	Hexavalent chromium	Alkaline Digestion And Colourimetric Method (U.S.EPA 1996:3060 A And U.S.EPA 1992:7196 A)
4	Selenium	Acid Digestion And Hyoride Generation AAS Method (U.S.EPA 1996:3050 B And U.S.EPA 1992:7061 A)
5	Total mercury	Acid Digestion And Cold Vapour AAS Method (U.S.EPA2007:7471 B)
6	Lead	Acid Digestion And Direct Air Acetylene Flame Method (U.S.EPA 1996:3050 B And U.S.EPA 2007:7000 B)

(Reference) Azusa Design

The survey results for each parameter are as follows.

Table 58 Result of Borehold Survey

No.	Parameter	Result				Reference (Thailand)		Unit
		SQ-1	SQ-2	SQ-3	SQ-4	1	2	
1	Arsenic	2.71	1.36	1.06	2.81	≤ 3.9	≤27	mg/kg
2	Cadmium	ND	ND	ND	0.348	≤37	≤810	mg/kg
3	Hexavalent chromium	ND	ND	ND	ND	≤300	≤640	mg/kg
4	Selenium	0.291	0.127	ND	0.338	≤390	≤10,000	mg/kg
5	Total mercury	0.527	ND	ND	ND	≤23	≤610	mg/kg
6	Lead	6.51	4.57	6.24	12.6	≤400	≤750	mg/kg

Reference value 1: Soil Quality Standard for Habitat and Agriculture, Notification of the National Environmental Board No. 25, B.E. 2547 (2004)

Reference value 2: Soil Quality Standards for Other Purposes. Notification of the National Environmental Board No. 25, B.E. 2547 (2004)

ND: Non-Detectable

(Reference) Azusa Design

As a result of the survey, it is considered that there is no danger of contamination of the soil, since all parameters were below the reference values.

5.3. Infrastructure Condition Survey

5.3.1. Electricity

5.3.1.1. Electricity Supply in Yangon

For electricity supply, when it is under 66KV, it is regulated by Yangon City Electricity Supply Corporation (YESC), and when it is more than 66KV, it is regulated by Ministry of Electric Power (MOEP). When electricity supply is required for huge developments, we require permissions from both MOEP and YESC. There are 3 processes for constructing electrical distribution for this project; branch construction on SS (Sub Station), wiring work from the SS to the development area, and SS installation at the construction site. All of the processes are carried out by private electrical contractors with permission from YESC. Costs for the construction are all the developer's expense, however the facilities for branching and transmitting electricity, and maintenance of these, are managed by YESC. SS at the hospital will be owned by the developers, and maintenance is managed by the developers, in the presence of YESC.

5.3.1.2. Electricity Supply on Development area

Electricity is currently supplied from elevated rails with 6.6KV, and transmission lines are buried in the development area. Transformers are used for electricity supply, and not many blackouts occur, so it is quite stable. However, we are required to change the transmission lines at our expense, from the current 6.6KV to 33KV, to supply predicted electricity for our project. This will be possible, as the development area is on 66K transmission lines.

The government in Myanmar recommends the burying of transmission lines from major sections. The development area is not in a designated section for burying transmission lines as of December 2017. However there is a possibility that the designated area will be expanded, therefore we recommend considering burying lines from the start.

5.3.2. Water Supply

5.3.2.1. Water Supply in Yangon

Water supply in Yangon is regulated by Yangon City Development Committee (YCDC). Plumbing work at the development site is all at the developer's expense, and will be carried out by qualified YCDC staff in the presence of YCDC.

5.3.2.2. Water Supply and Quality at the Development Area

There is 1 water pipe and 2 wells pumping underground water in the development area, and the quality of water is good overall, except that calcium content is a bit over the recommended rate from the WHO. The result is that ground water has a 'High Total Hardness Content' with regards to calcium and magnesium. However, we are planning to use filtered ground water, so no health effects are expected from use of this water in the hospital.

The current water supply could cause shortages under our predicted requirement, which is 120kl/day. Therefore we are required to manage the construction, at the developer's expense, of a 1.3km water pipe extension from Hlawga reservoir. Alternatively, excavating new wells in the development area, or a combination of both options, will be subject to consideration, but it will be difficult to implement a water pipe construction exceeding 1 km in length, and there is the possibility that the expenses will increase. It is difficult to supply the necessary amount of water, even if the water pipe is extended, so we plan to excavate new wells and filter the collected groundwater to supply water for the hospital.

Possible excavation work and water supply facilities are listed as follows;

- Excavate four wells, and use three wells with best water quality results as sources of water.
- After the well water is piped into the building, it is stored in a receiving water tank in an underground pit. Water is supplied from the receiving water tank, and elevated water tanks.
- If the water pressure on the 6th floor is insufficient, install a booster pump, to pressurize and supply water to various places.
- Weights only in meters are provided in well water piping, not individual weighing.
- No prolonged storage for disaster contingency, etc.
- The capacity of the receiving tank is 210 m3 (100% of average daily water usage), the capacity of the elevated tanks are 110 m3 (50% of average daily water usage).

5.3.3. Sewage and Drainage

5.3.3.1. Jurisdiction, Standards and Capacities for Drainage

Rainwater drainage work in the city is regulated by Roads and Bridges Bureau Yangon. The rivers and creeks to which the drained water runs are regulated by Ministry of Agriculture. Septic tanks to process drainage from toilets are normally installed in Yangon, and drainage from kitchens and laundries go directly to rain water drainage canals without any processing.

If we construct a building with 8 stories or fewer, we need to apply and receive approval from YCDC, however there are no determined standards for drainage at the moment. If we construct a building with 9 or more stories, we need to install treatment and purification facilities, and require approval from the Committee for Quality Control of High-Rise Building (CQHP).

Below are the standards for sewage and drainage from CQHP. Drainage from toilets is defined as sewage, and requires an approval by CQHP to discharge.

Table 59 Standards for Discharging Sewage

	Discharging into drains	Discharging into rain water drainage canals	Discharging into rain water drainage canals under the management of YCDC
BOD	300mg/l	50mg/l	20mg/l
COD	450mg/l	100mg/l	50mg/l
SS	300mg/l	50mg/l	30mg/l

(Reference) Myanmar Business Central Corporation

In regards to drainage capacity, there is no concern, as there are ample-sized drainage canals behind the development site. As a reference, the method to purify water at large-scale commercial facilities,

apartment complexes, and government facilities with hundreds of staff, is to use MBR (Membrane Bioreactor) filter technology. The capacity for processing drainage is 100 to 1,100 m^3/day, BOD of processed water is under 20mg/l. Therefore we will install appropriate processing equipment.

5.3.3.2. Sludge Treatment

Sludge treatment is regulated by the Transportation Department at YCDC. When requested via phone, a vacuum truck comes to collect the sludge within 2 weeks. The sludge is processed at sewage treatment plants run by YCDC.

Cost for collection varies depending on the size of the truck and the area of collection. The mixture of sludge, sewage and gray water after processing has to be purified with chlorine disinfection, or other appropriated processing methods. Residual chlorine has to be between 0.0mg/l and 0.1mg/l.

5.3.4. Gas

Gas pipelines in Yangon are regulated by Myanmar Oil and Gas Enterprise (MOGE), which is government affiliated. CNG (Compressed Natural Gas) is supplied with 2 inch pipelines, and 50psi gas pressure in the development area. There are no special concerns regarding use in hospitals.

5.3.5. Information Communication

As for laying phone lines and optical fiber, it should be possible to provide 50 phone lines, and optical fiber with 200M, according to a Japanese company running in joint venture with a local company. However, it could take time to be connected after applying (optical fiber: about 3 months, phone lines: about half a year to 1 year.)

5.3.6. Infrastructure Survey Summary

Regarding the location considered as a candidate site for this project, we conducted an infrastructure condition survey from the five perspectives of electricity, water supply, sewage drainage, gas and information communication. The candidate site is located in the city center of Yangon, and there are many houses nearby. It is considered that basic infrastructure is already in place for operating a hospital business.

Regarding water supply and information communication, we do not have sufficient capacity for the operation of a hospital business at the present moment, but since there are no particular concerns for the water quality, we assume that we can organise new wells to supply water. In addition, it is possible to fully complete the required work for optical fiber and telephone lines before the opening of the business. The information communication infrastructure in Yangon city has developed rapidly in recent years, and has reached a level enabling installation of an electronic medical records system, etc, without problems in terms of quality, such as communication speed and stability.

As for electricity, however, although the number of blackouts is gradually decreasing, it still happens from time to time. Therefore, it is essential to install a generator and UPS. As is the case in Japan, we also have to maintain the minimum functions of a hospital in the case of a blackout.

5.4. Basic Building Design & Architectural Perspective

5.4.1. Planned Layout

We've planned to allocate the main approach (rotary) flow line from the road in front of the site to the east side of the building, and secondary approach (loading and staff) flow lines on the west side of the building. In this way, the general flow lines, and service traffic lines, will not intermingle.

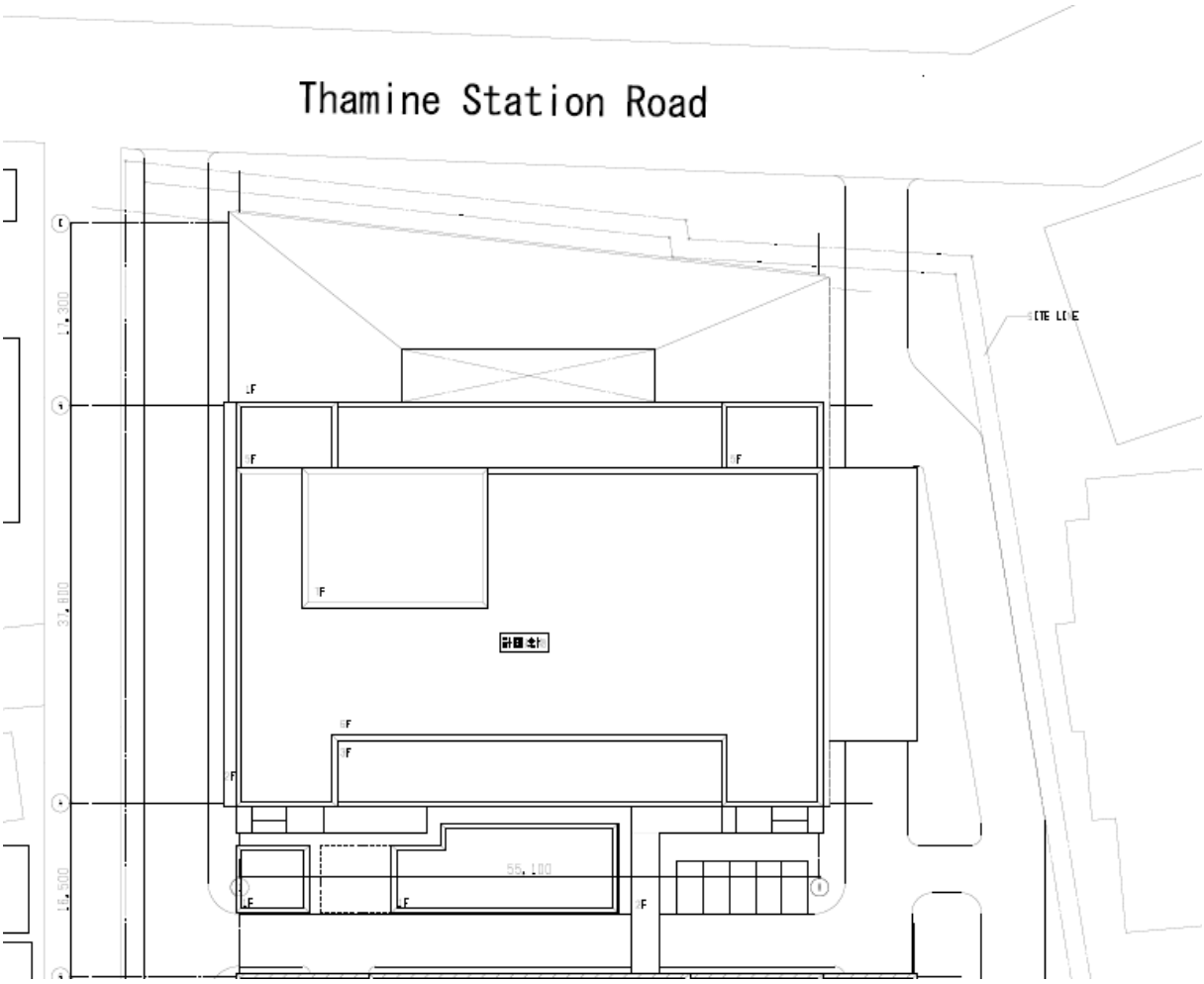


Figure 74 Location Relative to the Front Road of the Site

(Reference) Azusa Design

5.4.2. Architectural Planning

We are planning to allocate elevators, stairs, and equipment shafts together in the middle of the building. Floor plans will be designed so that it is simple for patients and staff to navigate. Existing hospitals in Myanmar may use layouts that were not originally intended for hospitals, sometimes having shared transit areas for patients and staff, and shared elevators. In this project, we follow common hospital floor planning, such as one elevator allocated for patients, and another for staff. There will be a security zone for staff on each floor, and we will attempt to keep separate the flow lines for patients and for staff.

As we consider high tier hospitals in Thailand and Singapore as the main competing hospitals for this project, hospital rooms will mainly be private rooms, with larger private rooms prepared for VIP patients. In addition, we will include a colonnade in the lobby, and design for a feeling of openness, with a large space for the outpatient and Medical Checkup waiting area.

Additionally, both the external and internal appearance will incorporate a lot of wooden materials, and though it is a hospital, outpatients, inpatients and their families will be able to relax for their treatments, surgery and so on. As for the exterior, considering the climate of Yangon is hot, humid, and rainy, we will design for and use materials that are stain-resistant and easily maintainaned.
The layout of the main sections on each floor are below.

Floor plans

1st floor: Main entrance, medical offices, shops, Emergency rooms, diagnostic imaging, pharmacy, kitchen

2nd floor: Outpatients services, spaces for sanitary inspection, Medical Checkup, rehabilitation and dialysis, auditorium

3rd floor: Surgery, main stockroom, administration department, medical offices, changing rooms, electricity room, server room

4th floor: General ward (42 beds)

5th floor: General ward (42 beds)

6th floor: Maternity ward & Delivery (6 beds), VIP ward (11 beds)

Rooftop: Equipment machine room, outdoor equipment and machinery yard

5.5. Summary (Design Related)

In this study, the geological survey, soil pollution survey, infrastructure survey, basic design of the building, and construction costs were analysed for the candidate site.

Regarding geology, soil pollution, infrastructure (electricity, gas, water supply, communication, etc), no particular problems were found as a result of the surveys. From these results, it is considered possible to construct and operate our hospital at the candidate site.

Also, for the basic design of the hospital building, a six-story hospital floor-plan was completed. While making the floor-plans, we discussed details to implement optimal patient flow lines and staff flow lines. As a result, I believe that we could design a hospital that can provide medical services of Japanese standards.

6. Investigation of Legal Considerations

6.1. Permissions and Regulations on Medical Institutions

6.1.1. Regulation Under the Investment Law

Under Myanmar Investment Law, this hospital business will be considered as a restricted investment business activity (restricted investment business) (Myanmar Investment Law, Article 42, notice from Myanmar Investment Committee「MIC」) 15th edition 2017 (restricted investment business activities lists).

1) Private hospital businesses

Private hospital businesses (except for medical transport businesses, which transfer patients to hospitals overseas) are assigned as an investment business, which require an approval from Ministry of Health and Sports (MOHS) as a restricted investment business.

In regards to the standard for approval from MOHS, investment standards are published by DICA. The list below is regulated as investment standards regarding private hospital businesses.

1. Based on designated standards, the business has to minimize impact on environment, prevent expanding infectious disease, and conduct planed waste treatment.
2. The business has to ensure safe drinking water, and maintain enough water for use in the hospital
3. The business has to have developed water and sewerage services
4. The business has to prepare and implement a simple action plan to cope with risk and emergency
5. The business has to prepare a good communication system
6. The business has to ensure 24 hour electricity availability
7. The business has to prepare procedures to deal with dead patients

It is not clear whether a private hospital business (except for medical transport businesses, which transfer patients to hospitals overseas) which has 100% capital provided by foreigner investors can be approved or not. Private hospital businesses are required to verify detailed business plans with related Ministries.

2) Introducing Other Hospitals Overseas

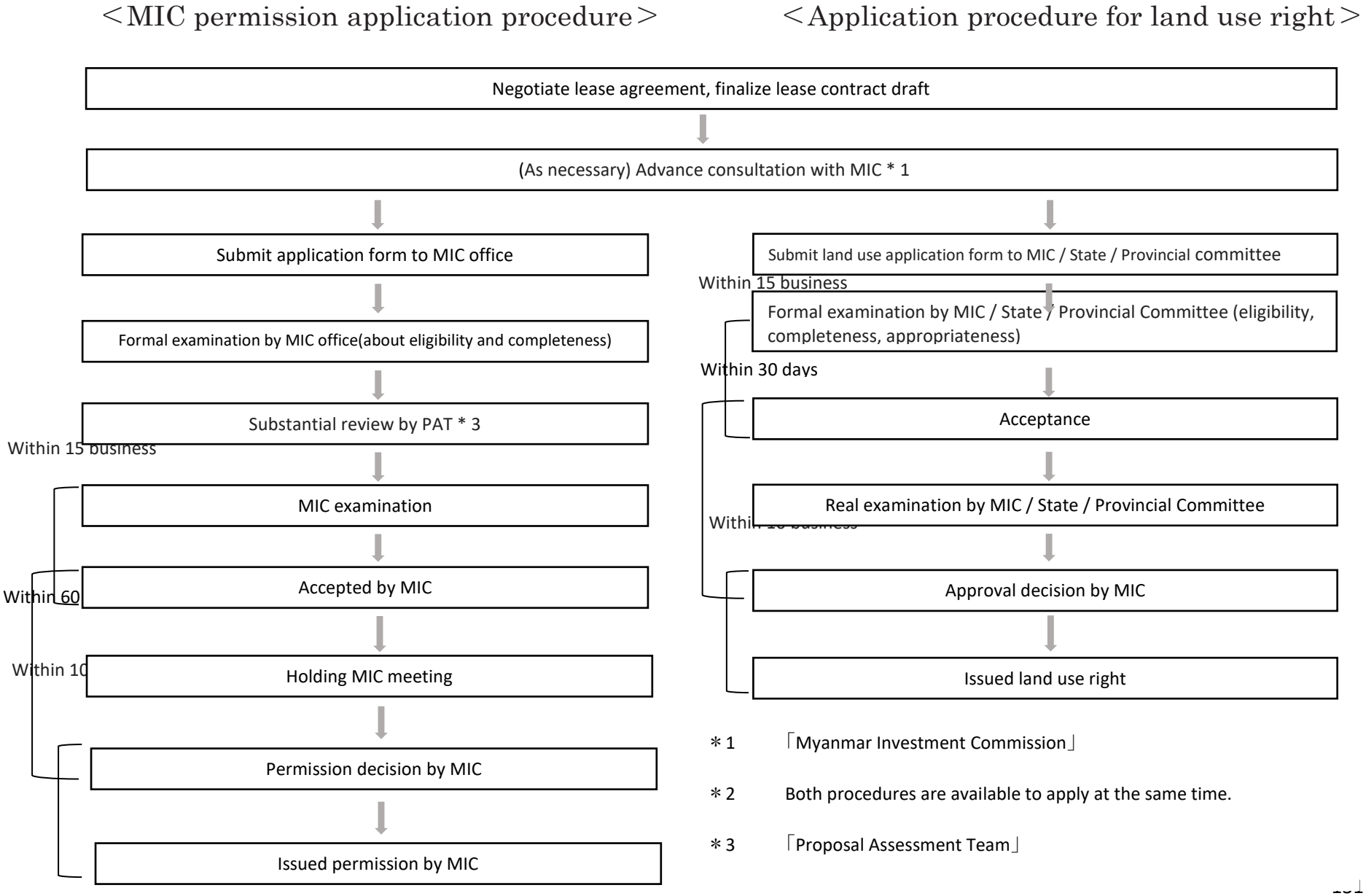
When introducing, mediating and transporting patients whose conditions would be difficult to treat at the new hospital, to overseas hospitals and obtaining compensation, 'Medical transport business, which transfers patients to hospitals overseas' (CPC 931217 is designated as an investment business (joint force business). Certain investments may only be undertaken as a joint venture with a local partner or local company according to the restricted business list.)

'Medical transport business for patients' is described as an agency on the restricted business list. It means that it is possibly considered as a similar case to a Private Health Care Agency (please refer toIII1.(1)) on Private Health Care Services Law.

6.1.2. Restrictions on Foreign Investment Involved in Real Estate

According to the Transfer of Immoveable Property Restriction Law, no foreigner or foreign owned company shall acquire immovable property by way of purchase, gift, pawn, exchange or transfer. (Section 4 of the Transfer of Immoveable Property Restriction Law). Also no foreigner or foreigner owned company shall receive a lease of immovable property, for a term exceeding one year (Section 5(b) of the above). “Foreign owned company” means a company or partnership organization whose administration and control is not vested in the hands of the citizens of the Union or whose major interest or shares are not held by citizens of the Union (Section 2(c)).

Our business has about 75% foreign investment in the JVC, from Chiyoda, JICA etc. The JVC will be classified as a foreign owned company. This means that the JVC shall not acquire immovable property by way of purchase, gift, pawn, exchange or transfer, nor shall receive a lease of immovable property, for a term exceeding one year. Therefore if the JVC requires use of property for long time, they need to acquire the right for real estate long-term use after obtaining a permission and endorsement from MIC.



＊1　「Myanmar Investment Commission」

＊2　Both procedures are available to apply at the same time.

＊3　「Proposal Assessment Team」

6.1.3. Regulations on the Import of Materials etc.

Import restrictions are set individually for each item. However, there are no special restrictions on the importation of construction materials and instruments used during the construction period, so it is considered that there will be no major problems following regular process. However, regulations exist for the import of medical-related items, and when the list of required procurement / import items is finalized, it will be necessary to confirm regulations with authorities, particularly for goods that have never been imported.

6.1.4. Restrictions on Medical Associations

To supply a private medical service under the Law Relating to Private Health Care Services, a person desirous of constructing a new building or renovating an existing building for establishing any private health care service (except for some kinds of service) will need to obtain prior permission. After the process, the person is required to obtain a license regarding the medical services which the private hospital will be providing.

6.1.5. Licenses Relating to Medical Staff

6.1.5.1. Paramedical Staff (excepting doctors, nurses and midwives)

Myanmar Medical Council Law regulates licenses regarding medical staff except for doctors, nurses and midwives. According to an inquiry to the Myanmar Medical Council, there are some registration systems which do not necessarily have a basis in Myanmar Medical Council Law. We will provide an overview of Myanmar Medical Council Law and registration systems.

(1) License Types

By Medical Council Law, we are required to apply for appropriate Medical Practitioner Licenses based on the council law at the Medical Council to carry out medical treatment in Myanmar. (Section 54 in Medical Council Law.) An overview of each medical staff license is below.

Table 60 License Types for Medical Staff

Medical Staff License	Overview
License for Burmese Doctors	
General Doctor License (Section2(i) Myanmar Medical Council Law)	(a) Medical staff license related to doctors issued by the Medical Council. It is for any citizen who has obtained a degree in medicine at a University in Myanmar recognised by Medical Council Law, and who has completed an internship for doctors. (b) Medical staff license related to doctors issued by the Medical Council. It is for any citizen who has passed a doctors license exam, who has obtained from a medical University overseas or a University in general a degree in medicine recognized by the Medical Council, and who has completed internship.

Specialist License (Section2(i) Myanmar Medical Council Law)	Medical staff license related to specialists issued by the Medical Council. It is for any citizen who has obtained a master's degree or diploma at a Medical University in Myanmar or overseas recognised by the Medical Council, and recognised as a specialist for general treatment or professional treatment by the Myanmar Medical Council.
License for Foreign Doctors	
General Doctor Limited License (Section2(k) Myanmar Medical Council Law)	Medical staff license related to doctors issued by Medical Council. It is for foreign doctors who obtained a degree of medicine recognized by Myanmar and overseas Medical Councils. The license is given after consideration by the Myanmar Medical Council.
Specialist Limited License (Section2(l) Myanmar Medical Council Law)	Medical staff license related to doctors issued by Medical Council. It is for foreign doctors who obtained a master's degree or diploma of medicine recognized by Myanmar and overseas Medical Councils. The license is given after consideration by the Myanmar Medical Council.
License for Medical Staff Excluding Doctors	
Medical Engineer License (Section2(m) Myanmar Medical Council Law)	Medical staff license issued by Medical Council. It is for a person who doesn't have a degree of medicine, but has obtained a degree, master's degree or diploma as a medical engineer which is recognized by Myanmar and overseas Medical Councils, to provide treatment in certain fields. The license is given after consideration by Myanmar Medical Council.

(Reference: Nishimura Asahi Law Office)

6.1.5.2. Nurses and Midwives

Myanmar Nurse and Midwife Council Law regulates licenses related to nurses and midwives in Myanmar. This includes nurses and midwives from foreign countries.

(1) License Types

To work as a nurse, midwife, or nurse midwife (nurse related work), a license must be obtained based on Myanmar Nurse and Midwife Council Law (Section 36). Below is an overview of related nurse licenses. Nurse licenses allow the license-holder to perform both nursing activities and midwife activities.

Table 61 License Types for Nurse Related

Nursing Related Licenses	Overview
Licenses Primarily for Burmese People	
Nursing License (Section 3 (i) Myanmar Nurse and Midwife Council Law)	Qualification to undertake nursing activities by a nursing professional.
Midwife License (Section 3 (j) Myanmar Nurse and	Qualifications to undertake midwife activities by midwife professional.

Midwife Council Law)	
Nurse Midwife License (Section 3(k)) Myanmar Nurse and Midwife Council Law)	Qualifications to undertake both nursing and midwife activities by a nursing and midwife professional.
Licenses Primarily for Foreigners (Limited licenses)	
Nursing Limited License (Section2(l) Myanmar Nurse and Midwife Council Law)	License issued by the Council with the limitation of business, place and period to undertake nursing. License for any citizen or foreign nurse who obtained nursing qualifications from any foreign country.
Midwife Limited License (Section2(l) Myanmar Nurse and Midwife Council Law)	License issued by the Council with the limitation of business, place and period to undertake midwife activities. License for any citizen or foreign midwife who obtained midwife qualifications from any foreign country.
Nurse Midwife Limited License (Section2(l) Myanmar Nurse and Midwife Council Law)	License issued by the Council with the limitation of business, place and period to undertake nurse midwife activities. License for any citizen or foreign nurse midwife who obtained nurse midwife qualifications from any foreign country.

(Reference: Nishimura Asahi Law Office)

(2) Work for Nurses, Midwives, and Midwife Nurses

Work for nurses, midwives and midwife nurses described below.

Table 62 Job Description for Nurse / Midwife

Occupation	Duties
Nurse	Physical, mental and required social care to a sick person. In this expression, disciplines of better health and disease prevention for healthy persons are also included (Section 3 (a) Myanmar Nurse and Midwife Council Law)
Midwife	Pre-natal care to pregnant women before delivery, rendering safe delivery at the time of birth and rendering care to delivered mother and new born baby (Section 3 (b) Myanmar Nurse and Midwife Council Law)
Midwife nurse	Both of nurse and midwife duties

(Reference: Nishimura Asahi Law Office)

(3) Conditions for Nurse Limited Licenses

Conditions to obtain nurse limited licenses are described below.

- The person must have a degree, diploma or certificate conferred by any local or foreign nurse training school

- The person must have a license and registration number as a registered nurse from the country in which they obtained the license
- The license above has to be valid when the person applies
- The person must have 'Good Standing' in their certificate from the issuing authority (or the hospital)
- The person must have more than 3 years clinical work experience
- The person must have good language skills in Burmese when treating Burmese patients, and must have good language skills in English when treating foreigners.

6.1.6. Regulations Relating to Medical Services

1. Regulations Relating to Import

To Import anything from overseas, the importer needs to register as an importer and exporter, and is required to obtain licenses relating to the individual import goods.

(1) Importers and Exporters Registration

To import and export in Myanmar, one must complete importers and exporters registration at the Ministry of Commerce. Foreign companies are not prohibited from applying for importers and exporters registration.

(2) Import License

When a registered importer imports goods on the restricted items list (Ministry of Commerce (Notification 61/2017)), the importer must apply for and obtain an import license for the restricted items, at the Ministry of Commerce. At the moment, the restricted items lists contains a wide range of items, therefore it is necessary to obtain an import license for many items. Foreign companies are not prohibited from applying for import licenses for restricted items.

Import licenses have specific regulations depending on the item. It is sometime required to obtain separate permission etc from other Ministries. Validity period for import licenses is 3 months as a general rule, and it is possible to extend validity for another 3 months.

(3) Regulation of Sales

It is adopted policy that import, wholesale, and retail sale of goods by foreign companies is generally prohibited (Policy for Sale). On 11th of May 2018, a notice was issued by the Ministry of Commerce that foreign companies are also allowed to carry out wholesale and retail sales under certain conditions (Notification No.25/2018). However it is not clear at the moment whether selling medicines at a hospital is covered by the notification.

2. Regulations Relating to Medical Drugs

Under the National Drug Law, registration is required when importing, storing and distributing medical drugs. It is also necessary to obtain certificates when importing. To store and distribute registered medical drugs, a manager is required to obtain licenses separately.

3. Regulation Relating to Medical Devices

There seems to be no specific regulation regarding medical devices at the moment. However, there are specific regulations for importing medical devices and radiation devices. Below are the details for these regulations.

(1) Importing Medical Devices

If the medical device does not appear in the List of Exempt Medical Devices, then it is necessary to obtain an import recommendation prior to the import license.

(2) Restriction on Atomic Energy Law

Atomic Energy Law regulates how to import and use nuclear material, radioactive material, and irradiation apparatus (referred to as nuclear material, etc). An irradiation apparatus is a device which is capable of emitting radiation (Section 2(e) Atomic Energy Law). X-ray devices and CT Scanners should be classified as irradiation apparatuses.

a. Registration certificate

Section 13 of the Atomic Energy Law states that a person in possession of any kind of nuclear material, radioactive material or irradiation apparatus shall, within 30 days from the date of being in possession of the same, apply to the Department in accordance with the stipulations in order to obtain the registration certificate.

b. License

Section 17 of the Atomic Energy Law states that a person who has received the registration certificate shall, if desirous of utilizing, producing, storing, distributing or selling nuclear material, radioactive material or irradiation apparatus, apply to the Department in accordance with the stipulations, in order to obtain the licence.

c. DAE Prior Permission

Section 21 of the Atomic Energy Law states that a person desirous of importing or exporting any kind of nuclear material, radioactive material or irradiation apparatus shall, before applying for import-export permit or licence (Please refer to 1. Regulations Relating to Import) to the relevant Government Department or Organization, apply to the Department in accordance with the stipulations, in order to obtain prior permission.

d. Points to remember

Registration certificate, license and DAE prior permission (collectively called ‘registration certificate etc) is issued to an individual person (the association or hospital with which the person is associated is shown on the certificate). It is not clear if the person must be Burmese. Only one registration certificate is required per hospital, even when multiple staff work with irradiation apparatuses.

4. Regulation Relating to Storage and Use of Narcotic Drugs

Narcotic Drugs and Psychotropic Substances Law (Narcotic Drug Law) regulates narcotic drugs; generally, use, storage and distribution of narcotic drugs are prohibited.

(1) Use and Storage of Narcotic Drugs at Hospitals etc

Business entities listed below have rights to possess narcotic drugs (allowed narcotic drugs) excepting prohibited narcotic drugs prescribed under notification issued by MOHS (Section 2(a) Rules relating to Narcotic Drugs and Psychotropic Substances), and narcotic drugs which have been prepared with such drugs in accordance with the directives prescribed.

① Hospitals and dispensaries under the Ministry of Health (Section 48(b) Rules relating to Narcotic Drugs and Psychotropic Substances)

② Private medical centres registered under the relevant law (Section 48(g), same as above)

③ Medical practitioners registered under the relevant laws and rules (Section 48(h), same as above)

(2) Storing and Selling of Narcotic Drugs permitted by MOHS

The enterprises, departments, organizations and persons desirous of storing or selling allowed narcotic drugs and narcotic drugs which have been prepared with such drugs, with the exception of the prohibited drugs which the Ministry of Health has, by notification prescribed, shall apply for a permission in a form to the Ministry of Health (Section 51(a) same as above)

Those who desire of storing or selling the said drugs shall have obtained the registration certificate and license under the National Drug Law before applying for permission from the Ministry of Health (Section 51(b) same as above).

6.2. Medical Lawsuit

6.2.1. Charges for Illegal Actions

Law Relating to Private Health Care Services indicates that a person injured due to a negligent act of the person-in-charge or health care service provider at any private health care services, may sue the relevant person-in-charge or health care service provider under the Law of Tort to obtain damages for his injury (Section39 (a)). The person-in-charge or health care service provider, sued under subsection (a), shall not be exempted from administrative action taken under any relevant existing law (Section 39 (b)). Health care service provider means the person who has obtained a medical practitioner's licence issued by the Myanmar Medical Council, a dental and oral surgeon registration certificate or licence issued by the Dental and Oral Medical Council, a nursing or midwifery licence issued by the Nurse and Midwifery Council, and technicians (Section 2(r)). Technician means the person who has obtained the certificate, diploma, title or degree (i) conferred by the training, school, institute, college or university established to teach the relevant technologies with respect to health care (iii) by any government department and organization or with the permission (ii) of any government department and organization. The said expression also includes the person who has obtained the certificate, diploma, title or degree conferred by a foreign country and also recognized by the Ministry of Health (Section2(p)).

6.2.2. Legal Liability

Section 73 in the Contract Act says that when a contract has been broken, the party who suffers by such breach is entitled to receive, from the party who has broken the contract, compensation for any loss or damage caused to him thereby (which naturally arose in the usual course of things from such breach, or which the parties knew, when they made the contract, to be likely to result from the breach of it).

6.3. Contract Related Considerations

The main contracts that will be required in future are as follows;

1. Outsourcing contract of design

In this study, we introduced the basic design of the hospital building. In the future, it will be necessary to design the hospital in detail, based on the basic design. The detailed design is primarily the work of creating plans used in construction. We plan to outsource this work to a Japanese design firm.

2. Contract for hospital construction

When the detailed design of the hospital is completed, we will enter into a contract with a Japanese general contractor to build our hospital. Since hospital construction costs account for the largest portion of the project cost, this contract is important in reducing the risk of rising project costs.

3. Joint Venture Agreement

In order to operate a hospital business in Myanmar, it is necessary to set up a local corporation in Myanmar. As a local corporation in this project, we plan to establish a joint venture company with multiple businesses. When establishing a joint venture company, a joint venture agreement the contract that establishes the roles etc. of each participant, and it can be said to be the base contract of this project.

4. Land lease agreement

Foreign corporations in Myanmar cannot possess land, and in the case of conducting a business that uses land for a long period of time, it is necessary to obtain a long-term lease of the required land. The parties to the contract are the local corporations, and the counterparty is the owner of the land rights. A draft of the land lease agreement needs to be submitted to MIC with the draft of the joint venture agreement. We will screen any problems regarding the legitimacy of the land through the long-term lease endorsement process by the Myanmar government. If Wa Minn is dissolved, the JV is expected to assume the lease contract with Ministry of Industry. There has been many land related problems and disputes in Myanmar, we will use the endorsement process to get guarantee from the government. Of course, Any risk attributable to the land owner shall be borne by Wa Minn.

5. Outsourcing agreement

The operation of the hospital in this project will be carried out by the newly established foreign corporation, but since the resources of the foreign corporation are limited, the foreign corporation will need to receive hospital management advice and guidance from Ishii Hospital (etc) after opening the hospital. In this case, there will be a provision of services between the two companies, and we will require an outsourcing contract for the services to be provided.

Regarding the above, we have already created a template for these contracts. For details of each contract, we will consult with each party in the future. For labor contracts, we will make them fully compliant with local regulations with support from a local legal firm. Many Japanese companies have offices and subsidiaries in Myanmar and are operating their business with local employees. We are not expecting big issues in this area.

6.4. Summary (Law Related)

Private hospital businesses are one of the project types which require permission from Ministry of Health and Sports in Myanmar. Also, in order implement what is planned in this project, we will need to obtain multiple licenses as a company, and medical staff will also need individual licenses. After establishing a corporation, we plan to proceed with obtaining multiple license as required.

In Myanmar, the development of law and regulations relating to medical practices has been delayed, and the coverage of what constitutes 'medical activities', and of what constitutes each paramedical occupation, is not clear. However, doctors, nurses, and certain paramedical staff are recognized as professionals, and foreigners other than Burmese people are permitted to work as medical staff. It is planned that many foreign medical staff will be employed in this project, so will make use of licenses for foreigners.

Under the law in Myanmar, there are various steps and processes in implementing this project, but no major problems or concerns were discovered among the relevant laws. Compared with operating a hospital business in Japan, there are fewer relevant regulations, and what regulations exist seem to be less detailed. From now on, while we communicate with the Ministry of Health and Sports, it is important to procede with confidence through each step.

7. Tax Related Survey

7.1. Systems, Procedures, and Penalties etc Relating to Declaration and Payment of Taxes

7.1.1. Tax Overview

Currently the fiscal year is from April 1st to March 31st, however it will be changed to October 1st to September 30th, from 2019. Transition period will be April till September of 2019

Table 63 Overview of Corporate and Personal Income Tax

	Corporate Income Tax	Personal Income Tax
Fiscal year	April 1st – March 31st	
Taxpayer classification	Resident corporation • Corporations registered in Myanmar from inception	Residents/foreign residents: • Those who stay in Myanmar for more than 183 days during the fiscal year.
	Non-resident corporation • Corporations registered outside Myanmar from inception (※1)	Non residents • Those who stay in Myanmar for 183 days or less during the fiscal year.
Declaration deadline	Within 3 months (until 31st of June) from the end of the fiscal year	
Tax rate	25%	Differs by taxpayer classification and income
Penalty	• Upper limit of 10% of unpaid amount • OR equivalent to 50% of unpaid amount(※2)	

(Reference) PWC

※1 Branch offices in Myanmar from foreign corporations are allied to non-resident corporations.
※2 When it is judged that there was intentional illegal handling of income

7.1.2. Overview of Corporate Tax

Table 64 Overview of Corporate Tax

	Non Resident Corporation	Resident Corporation
Taxation range	Domestic source income	Income from all countries
Taxable income	Calculated by deducting recognized cost of included expenses such as depreciation from gross income. (※1)	
Payment term	Provisional payment on a quarterly basis. (Deductible in the tax return for amount of provisional tax and withheld tax during the taxable year)	
Penalty(※2)	• All related facts require disclosure within specified period • Fines equivalent to 100% of additional tax • In some cases, imprisonment of 3 to 10 years(※3)	

(Reference) PWC

※1 As scale taxation systems are adopted in Myanmar, dividends from organizations or companies in Myanmar, including partnership, are free of tax.
※2 If it is discovered that the taxpayer is hiding income or matters relating to income.

※3 If all the related facts were not disclosed within the specified period, or in the case of conviction from underreporting of income.

7.1.2.1. Capital Gains

Capital gains are excluded from normal taxable income, they are separately calculated. The amount of tax must be declared and paid within one month of the sale of assets.

Table 65 Taxation overview of capital gains

Capital Gains Tax	
General Corporations	Oil & Gas Corporations
10%(※)	40%~50% progressive tax (※)

(Reference) PWC

※ Only when transaction value is more than 10,000,000 Kyat in the fiscal year, is it subject to taxation.

7.1.2.2. Withholding tax

When providing goods and services in Myanmar, the tax payer is required to collect corporate tax in advance, prior to tax payment. Tax rates differ depending on whether the tax payer is Burmese or non-Burmese (branch offices for foreign companies in Myanmar). Tax must be paid within seven days after withholding.

The withholding tax system, which came into effect in July 2018, states that withholding tax does not apply to any kind of company established under current law. The below is a summary of the new tax rates applied.

Table 66 New Tax Rates

	When Residents receive payment	When Non-Residents Receive Payment	
		Countries with which Myanmar hasn't concluded a Tax Treaty	Ex: Thailand (countries with which Myanmar has concluded a Tax Treaty ※1)
Interest	-	15%(※2)	10%
Dividends	-	-	-
Royalties	10%	15%	15%
Payment for rent, work or services provided, purchase of products, bidding, contract or estimate by local government, federal government, public companies or organizations.	2%	2.5%	-
Payment in Myanmar for rent, work or services provided, purchase of products by state-run business, state-run companies,	-	2.5%	-

committees for development, union, foreign companies, foreigner owned corporation and organization, local companies, joint venture			

(Reference) PWC

※1 Countries with which Myanmar has concluded a Tax Treaty: England, Singapore, Malaysia, Vietnam, Thailand, India, South Korea, Laos, Bangladesh (not yet in effect), Indonesia (not yet in effect)
※2 Payment of interest for branch offices from foreign corporations in Myanmar is not subject to taxation.

7.1.2.3. Loss

Taxable income can be offset with loss excluding capital loss from the fiscal year.

Loss amounts which are unable to offset income, can be carried forward 3 years from the following fiscal year.

Corporate taxes which are classified as advance taxes are; 1) withholding tax, 2) Pay Advance Income tax at customs when importing items, and 3) Advanced corporation tax in quarterly income tax returns. All of these, if losses, can be counted as offsets, or carried forward. These taxes are recognized and calculated separately from loss amounts. Although the carry-over limit for normal losses is three years, for these three tax types it is currently possible to carry forward losses without a deadline. However, in the case of tax incentives based on MIL, losses incurred during the tax exemption period cannot be carried over to the period after the tax exemption expires.

With regard to advanced corporation tax at the time of export, tax for MTO 1, MTO 2 jurisdiction enterprises is exempted, but all companies are still subject to 2% tax with respect to advanced corporation tax at the time of import.

7.1.2.4. Permanent Establishment (PE)

Non-resident corporations who provide services in Myanmar, and own PE in Myanmar, must withhold 2.5% tax from payments received for provided services. The withheld taxes are paid in advance, and the withheld tax is deducted from corporate tax to be paid in the tax return.

Non-resident corporations who provide services in Myanmar, and doesn't own PE in Myanmar, are also liable for the 2.5% withholding tax, however the amount of tax is the final amount of taxation.

7.1.3. Personal Income Tax Overview

A person who works in Myanmar, whether resident or non-resident, is liable to pay tax. Table 81 shows personal income tax overview.

Table 67 Personal Income Tax Overview

	Burmese		Foreigners	
	Residents	Non-residents	Residents	Non-residents
Taxable income	All income	Domestically sourced income	All income	Domestically sourced income

<table>
<tr><td rowspan="2">Salary Income and Other Income</td><td>Salary Income</td><td rowspan="2">0~25% of progressive tax rate</td><td>Tax free</td><td rowspan="2">0~25% of progressive tax rate</td></tr>
<tr><td>Other foreign capital income</td><td>10%</td></tr>
<tr><td colspan="2">Capital Gains (Dividends are tax free)</td><td colspan="3">10%</td></tr>
<tr><td colspan="2">Rent income</td><td colspan="3">10%</td></tr>
<tr><td colspan="2">Payment term</td><td colspan="3">Within 7 days after tax withheld (※1)</td></tr>
<tr><td colspan="2">Penalty</td><td colspan="3">Up to 10% fine from deductible annual salary (※2)
Fine equivalent to 50% of unpaid amount (※3)</td></tr>
</table>

(Reference) PWC

Resident: A person who stays more than 183 days in Myanmar in the fiscal year.
Non-residents: A person who stays 183 days or less in Myanmar in the fiscal year.

※1 Business is required to pay withheld income at the time of payment of income every month. In the tax return at the end of the fiscal year, the paid withholding income tax is deducted from the final amount of tax. Declarations are required to be made by the end of June of next fiscal year.

※2 Bureau of Internal Revenue makes a decision when the tax was not paid by the specified date.

※3 Employers are obliged to withhold income tax when they pay salary to employees, there is generally no need for employees to declare tax returns, so tax is to be paid under responsibility of the employers.

7.1.4. Commercial Tax Overview

Commercial tax is a sales fee tax for various goods and services produced or provided in Myanmar. This is similar to Value-added tax (VAT) adopted by foreign countries. Commercial tax is however withheld for imported items, in addition to customs duties, at the time of import clearing.

There is a refund provision similar to that implemented in other countries, details for the procedures are not clear.

Commercial tax does not apply for businesses with sales or service revenues of 5,000,000 Kyat or less during the fiscal year.

Also, Medical Checkups (excluding those for cosmetic purposes) are a non-taxable item. Because there is a possibility that tenant revenue, and revenue from sales and dispensation of medicines, it will be necessary to confirm this in writing in the future.

Table 68 Commercial tax overview

	Importing goods, Selling goods in Myanmar	Providing services	Exporting goods
Principle	5%	5%	Tax-free
Tax-free items	88 items (Table1)	31 items (Table 2)	-
Special tax rate	2 items (Table3)	-	-

(Reference) PWC

Applicable (tax-free) items were revised in April 2018, as shown in the below table.

Table 69 Applicable Items - 1

Sr.No.	Item
1	Husks, rice, bran, chaff
2	Wheat, wheat flower
3	Corn, other grains, and their flowers
4	Beans, Beans powder
5	Peanuts
6	Sesame seeds, sesame
7	Seeds of chili, sunflower, tamarind, cotton
8	Palm oil
9	Many kinds of cotton
10	Hemp, hemp fibre
11	Garlic, onions
12	Potatoes
13	Other kinds of spices (leaves, substance, seeds and bark) and their processed products
14	Fruits
15	Vegetables
16	Sugar, and sugarcane
17	Mulberry leaves
18	Herbs, plants
19	Materials for roofing such as straw, reed, palm tree, cardamon, yam and specific agricultural products in Myanmar such as tanaka
20	Wood, bamboo
21	Animals, fish, prawn
22	Silkworm cocoon
23	Rattan
24	Honey, bee wax
25	Glue for sealing
26	Strained lees of peanuts, sesame,cotton substance, rice bran etc
27	Bleaching agent (hydrochloride contained in bleaching agent)
28	Koiya strings (strings made with coconut skin)
29	Tea leaves
30	Stamps, revenue stamps
31	Black boards, pens and chalk for black boards
32	Paste made from fish (ngan-pya-ye)
33	Peanut oil, sesame oil
34	Fresh fish, prawn, meat
35	Dried fish, dried prawn
36	Pickled fish, prawm
37	Fish powder, prawn powder
38	Milk, fructose condensed milk, sugar-free condensed milk, milk powder
39	Soy milk
40	Chilies, chili powder

(Reference) PWC

Table 70 Applicable Items - 2

Sr.No	Item
1	Rent for parking
2	Life insurance
3	Micro finance
4	Insurance services (except for beauty spa services)
5	Education services
6	Freight transport services (transportation by vehicle, ship, airplane, heavy equipment excepting for transport by pipe lines)
7	Services relating to financial markets
8	Financial services approved by the Central Bank
9	Customs, port services
10	Rental services for office equipment for special events (tables, chairs, cooking equiment etc)
11	Industry for manufacture by commission
12	Funeral services
13	Child care services
14	Traditional massage and massage by blind people
15	Moving services
16	Toll services for toll roads
17	Medical health services for veterinary clinics
18	Public toilet services
19	International flight services
20	Services relating to culture and arts
21	Public transport services
22	License fees to be paid to goverments institutions regarding applications for permission
23	Publishing services for books and printed papers related to defense
24	Various services which staff at Embassies and consultates use
25	Services purchased with funds and funds donated to the government in Myanmar from overseas and within Myanmar
26	Services cabinet identified as duty-free in response to requests by the government
27	Services provided by federal and local government bodies
28	Loto business
29	Services relating to industry and agriculture
30	Domestic flight services
31	Publishing services for books and printed papers related to defense

(Reference) PWC

Table 71 Applicable Items - 3

Sr.No	Items	tax rates
1	Sales of buildings after construction	3%
2	Sales of jewelry made with gold	1%

(Reference) PWC

7.1.5. Special Goods Tax (SGT: Special Good Tax)

Separate to normal commercial tax, special goods tax is applied to the items listed below for distribution processes of import, manufacture, or sale in Myanmar. The tax rates were revised in April 2018, as shown in the below table.

Table 72 Revised Tax Rates

Sr No	Item	Tax rate
1	Ciagarattes	4-16 Kyat/cigarrate
2	Chewing tobacco	60%
3	Tabaco leaves	60%
4	Cigars	0.5-1 Kyat/cigar
5	Double-pole cigar	80%
6	Pipe tobacco	80%
7	petel & chewing (betel nut wrapped with betel leaves)	80%
8	Alcohol (sale price is less than 26,000 Kyat/liter)	91-5,911 Kyat/L
8	Alcohol (sale price is more than 26,000 Kyat/liter)	60%
9	Beer	60%
10	Wine (sale price is less than 26,000 Kyat/liter)	81-5,254 Kyat/L
10	Wine (sale price is more than 26,000 Kyat/liter)	50%
11	Wood and processed products	5%
12	Jade stone	15%
13	Ruby,sapphire,emerald, diamond and other jewels	10%
14	Jewelry goods made with jade, ruby, sapphire and eme	5%
15 (can be changed)	Light van, Saloon, sedan, light wagon, state wagon and coupe, except for pick-up trucks with 4 doors double cabin style (from 1,501cc to 2,000cc)	10%
	Same as above (from 2,001cc to 4,000cc)	30%
	Same as above (more than 4,001cc)	50%
16	Kerosene, petrol, diesel, fuel for airplanes	5%
17	Natural gas	8%

(Reference) PWC

7.1.6. Tax on Import

The following three taxes are incurred for importing goods. Importers pay these taxes at the time of import clearance. All three taxes will be subject to Incentives listed in 7.2.1.

- Commercial tax
- Import tax
- Advanced Income tax

For commercial tax, as in 7.1.4. Commercial Tax Overview, the tax is basically 5% of the price, but some items are exempt. The price here is the landed cost of imported goods (Landed Cost), which is levied on the price of goods, insurance fees, transportation expenses plus import tax.

For import tax, tariff rates of 0% up to 40% are stipulated for imported goods in accordance with the "Customs Tariffs of Myanmar". The tax is based on the sum of the price of goods, insurance fees, transportation expenses etc (CIF + port usage fee.)

Advanced Income Tax is one of the taxes generated at the time of import and operates as an advance payment of corporate tax. That is, the amount paid here is deducted from the corporate tax amount. The tax rate is a uniform 2%, regardless of the category of goods, and is based on the price of the arrival-based price plus import tax and commercial tax.

Table 73 Tax on Import

Item	商業税 (Commercial Tax)	関税 (Customs)	前払法人税 (Advance Income Tax)
Payment Timing	When products are imported		
Payment Responsible	Importers		
Tax rate	Basically 5%	0%～40%	2%
Tax Basis	CIF+port fee + Customs	CIF+port fee	CIF+port fee + Customs + Commercial Tax
Note	A part of products is exempt from commerical tax	Subject to MIC incentives	-

(Reference) PWC

7.1.7. Other Tax Systems

- Property Tax

Real estate (land and buildings) in urban development areas are subject to property tax, by the city development committee. In particular, a tax rate of 13% is set as the standard real estate tax on hospitals. The tax rate is applied to the "Total Annual Value" of land, buildings, equipment, etc.

This "Total Annual Value" is not determined by = Fair Value, but is determined by a field survey by YCDC. Strictly speaking, there is also a voluntary calculation method, and although calculation formulas are prescribed by YCDC, it is necessary to calculate for each individual asset, and the calculation result often exceeds the determined amount of YCDC in many cases. Since property tax itself is generally a small amount at present, there are many companies that adopt YCDC's determined amount.

- Stamp Duty

Various documents are subject to stamp duty, based on Stamp Duty Law. It is applied in Kyat, the currency in Myanmar, when you have a contract. Below are typical examples;

- 2% of the value when transferring of the ownership of property; an additional 2% when transferring and selling property.
- 0.1% of the value of the stock when transferring ownership of stocks
- 0.5% of collateral value and bond value
- 0.5~2% of annual lease contract fee (depends on period)

- Social Security Contributions (SSC)

Social security contributions are deducted from monthly salary, and paid by the 15th of next month.

- Obligation for owners who have more than 5 employees
- 10% fine of SSC amount if tax is not paid

- Others

There is currently no tax system in for the below;

- Transfer pricing regulation
- Group corporate taxation system/ consolidated taxation system
- Thin capitalization taxation
- Anti-tax haven measures

7.1.8. Procedures for Tax Return

Currently, modern tax collection systems for large companies are developing in Myanmar, therefore similar systems to other countries are becoming available at the tax office.

Table 74 Deadline for Declaration and Payment

	Type of Payment	Payment Deadline
Corporate income tax	Tax return	Within 3 months of the end of the fiscal year (until June 30th)
	Capital gains tax	Declare within 1 month of transaction
	Withholding tax (employers pay)	Pay within 7 days after withholding
Private income tax	Withholding tax (employers pay)	Pay within 7 days after withholding
	Tax return	Within 3 months of the end of the fiscal year (until June 30th)
Commercial tax	Pay during the fiscal year	Pay the amount for the previous month by 10th of the current month
	Declare during the fiscal year	Declare within one month of the end of each quarter
	Tax return	Within 3 months of the end of the fiscal year (until June 30th)

(Reference) PWC

The Tax Office is divided into 3 departments, and they still developing. Therefore, the method of applying and the forms required differ depending on the tax.

- Large Tax payer Office (LTO)… in charge of corporate tax, commercial tax
- Medium Tax payer Office (MTO)… in charge of corporate tax, commercial tax
  MTO divides applications into 3 types, depends on the scale of the company's sales, business type, and importance.
  - MTO1
  - MTO2
  - MTO3
- Township office… in charge of personal income tax

7.1.9. Tax investigation

The Tax Office can investigate taxpayer's records, and has the authority to reassess when payers haven't followed tax regulations. They investigate and reassess up to 3 years of prior submitted tax returns. When payers are determined to have been intentionally dishonest in a tax return, the tax office can investigate them for anytime previous fiscal year.

7.2. Duty-free, Tax Reduction Benefits System for Foreign Investments

The government of Myanmar revised investment laws with the aim of improving investment from foreign capital and domestic capital, since the inauguration of the new Cabinet in 2016.

7.2.1. Tax Incentives

Tax incentives are listed below; MIC determines whether tax incentives are applied in each case. It is not always the case that all the below tax incentives granted. In general, it is possible to receive prior confirmation of whether incentives are appicable to our case, or not. However, after applying for an investment plan and including a list of machineries, equipment, and building materials scheduled to be imported, then even if incentives are not approved for reasons such as incompleteness of documents, etc, it is possible to be re-submit the application for incentives. Basically, we cannot find any cases in our target sector where the tax incentives were not granted.

With regards to the useful life of assets for tax purposes, the depreciation rate under income tax law is calculated by the straight-line method. However, the useful life of assets for accounting purposes can be set by company policy. According to the Myanmar tax law, there is no standard for determining whether to apply depreciation or not. Therefore it is common to determine whether assets are subject to depreciation based on basic accounting, and in the case of assets listed on the attached depreciation rate table, it is common to determine whether assets are subject to depreciation based on this list.

Table 75 Tax Incentives by Tax Type

	Incentive
Corporate tax	i. Corporate tax is exempt under certain conditions in zones (※1) at the start of business activities. • Zone 1 (areas which are the least developed): 7 years • Zone 2 (areas which are reasonably developed): 5 years • Zone 3 (areas which are well developed): 3 years ii. When reinvesting a part of profit obtained from the business within 1 year, income obtained from reinvestment will be tax exempt or be subject to a reduced tax rate. iii. Businesses are allowed to deduct depreciation costs for fixed assets (building, machines, and equipment, etc) by calculating a shorter-than-useful life under tax law (※2) iv. Costs for research and development in Myanmar are allowed to deduct up to 10% of taxable income.
Import tax etc	i. When additional investments are made to expand a business, during preparation for business or construction (※3), import tax and other taxes are waived or reduced for imported machines, equipment, devices or materials for construction (only applies to items difficult to source from within Myanmar) ii. When importing raw materials or semi-finished goods in order to produce completed goods to export, import tax and other taxes are waived or reduced.

(Reference) PWC

※1 Specified zones are listed below (they will be amended from time to time as development progresses)

Table 76 Zone Classification

	State	Area
Zone1	• All areas of 4 states; Kayah, Kayin, Chin, Rakhne • Around the edges of 3 states; Kachin, Mon, Shan	• Marginal areas of 6 wards; Saging, Tanintharyi, Bogo, Magwe, Ayeyarwady, and Mandalay
Zone2	• The central parts of 3 states; Kachin, Mon, Shan	• Central parts of 6 wards; Saging, Tanintharyi, Bogo, Magwe, Ayeyarwady, and Mandalay • Marginal areas of Mandalay (except for zone 1) • Marginal areas of Yangon
Zone3	-	• Central parts of 2 wards; Mandalay and Yangon

(Reference) PWC

※ 2 The accepted depreciation rate is 1.5 times higher than the depreciation rates under tax law.
※ 3 When additional investments are made to expand a business, construction from the original investment plan must be at least 80% complete, before additional investments can qualify for import tax (etc) reductions. The term for waived or reduced tax is at longest 2 years.

7.2.1.1. Procedures for Tax Incentives

When applying for investment permission from MIC, or when carrying out procedures for endorsement, Examinations into whether tax incentives are applicable or not will consider the matters listed below;

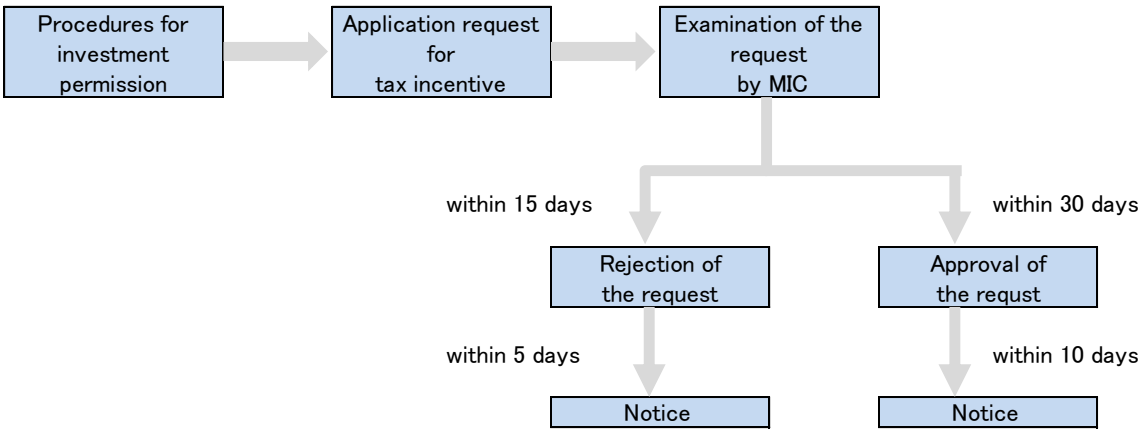


Figure 75 Application Procedures for Tax Incentives

(Reference: PWC)

a~f are essential requirements, g (and onwards) are optional conditions.

a) The investment project will be carried out legally and absolutely
b) The application documents for tax incentives follow stipulated regulations

c) The investment project falls under one of the promoted investment businesses (※1)
d) The amount of investment is more than US$300,000
e) The project must obtain permission of endorsement by MIC
f) Investment must be carried out somewhere in zones 1 to 3
g) The project must contribute to creating employment or fostering engineers in Myanmar
h) The project must transfer new technology and skills to Myanmar
i) The project must contribute to the enhancement of market competitiveness and production efficiency of domestic products, and to the improvement of infrastructure and services in Myanmar.
j) Amount of export is expected to increase

※1 Promoted Investment Businesses

- Agriculture and agriculture related business (except for tobacco, growing & production of tobacco)
- Afforestation and forest conservation and other forest related business
- Manufacture of specific products
- Development of industrial areas
- Development of new cities
- Business activities for new cities
- Construction of roads, bridges and railway lines
- Construction of harbors, river ports, and dry ports
- Management, operation, and maintenance of airports
- Maintenance of aircraft
- Transport business
- Generation, transmission and distribution of power
- Production of renewable energy
- Telecommunications business
- Education business
- Healthcare business
- Information technology business
- Hotels and sightseeing
- Research and development of chemicals

7.2.2. Special Economic Zone (SEZ)

Law for special economic zones was put into effect in 2014. The first SEZ was Thilawa, as stated by the law, and lots of companies including Japanese companies have set up their businesses in that zone. SEZ development plans are processed in Kyaukpyu and Dawe. SEZs are specified, examined, and approved by the central conference body, and the central governing body consisting of the president, vice president, and ministers from each ministry. Each SEZ has a management committee, and these committees give permissions for investment, and carry out detailed management operations.

Business types permitted in SEZs are listed below. Required minimum startup capital is determined by business type.

Table 77 Permitted Business Types in SEZs

	Business Type
1	Trading business
2	Infrastructure development business including real estate, hotels, shops
3	Technology related, construction business
4	Storage business & transportation business
5	Research & Development business
6	Software Programming
7	IT services business
8	Distribution services including wholesale and retail
9	Financial services
10	Services provided by specialists (excepts for law and accounting)
11	Lease business
12	Other services including consulting business
13	Construction business and construction related services
14	Education related services
15	Environment protection related services
16	Hospital and other medical services
17	Tourism related services
18	Entertainment related business
19	Culture and sports related services
20	Transportation related services

(Reference: PWC)

Regarding application procedures for SEZs, SEZ offices have a required application form (Form1, information for investors, a new company, registration certificate, and audited financial statement etc). Once submitted, it is judged for investment permission within 30 days of the form-received date.

The tax incentives of Special Economic Zone (SEZ) are as follows.

Table 78 Tax Incentives for SEZ

	Tax Incentives	
Corporate tax	Free zone	Promotion zone
	i) Corporate tax waived for 7 years from the start of manufacturing or providing services	ii) Corporate tax waived for 5 years from the start of manufacturing or providing services
	iii) After finishing the tax-free term of i) orii) above, corporate taxes are reduced by 50% for the next 5 years.	
	iv) After the reduced tax term of iii) above, if a part of the profit from the business is reinvested within 1 year, corporate tax on income from the reinvestments are reduced by 50% for the next 5 years.	
	v) Tax losses can be carried over for five years and offset income	

<table>
<tr><td></td><td colspan="2">vi) Education and training expenses and research and development expenses can be written off.</td></tr>
<tr><td rowspan="3">Import tax etc</td><td rowspan="2">vii) Import tax and other taxes are waived when importing the below items;
• Raw materials for manufacturing
• Machine equipment and spare parts for manufacturing
• Construction materials and vehicles to build factories, storage, and offices
viii) Businesses in duty-free sales, export sales, and storage and transportation services can have Import tax and other taxes waived when importing the below items;
• Products for sale
• Consigned goods for sale
• Vehicles and other materials</td><td>ix) Within 5 years of starting a business, import tax and other taxes are waived when importing the below items, and after the first 5 years import tax is reduced by 50% for the next five years.
• Required equipment, devices, spare parts for the business (excluding items for sale)
• Construction materials and vehicles to construct factories, storage and offices
• Required vehicles and other materials for business
x) Import tax and other taxes on importing the below items are claimable for refund.
• Completed products for export
• Raw materials to manufacture semi-finished products</td></tr>
<tr><td>xi) Tax-free of Commercial tax for products distributed from domestic or promotion zones</td><td>xii) Tax-free of commercial tax or reduced relating to purchase transaction during the term of the corporate tax free and reduce above.</td></tr>
<tr><td>Commercial tax</td><td colspan="2">xiii) Tax-free of commercial tax relating to export completed products</td></tr>
<tr><td>Other</td><td colspan="2">xiv) Taxes free for exporting completed products</td></tr>
</table>

(Reference) PWC

7.2.3. Foreign Exchange and Foreign Exchange Regulations

Foreign exchanges are regulated by the Foreign Exchange Management Act (FEML) and Foreign exchange control rules.

In general, Burmese people, foreigners and companies require permissions from (FEML) regarding all practical foreign exchange transactions relating to borrowing foreign currency, repayment of their principal and interest, payments to foreign persons and opening accounts and remittance of profits at

foreign banks. Remittance from outside Myanmar to inside Myanmar doesn't require any report or notice.

Companies established under Myanmar Investment Law can send money for investment and profit in foreign currencies relating to the investments.

Definitions of foreign exchanges are below;

- Foreign cash
- Means of settlement available to enable payments with foreign cash, or overseas payments
- Deposits from Inter-governmental financial institutions of foreign countries, the central bank, the Ministry of Finance, commercial banks
- Securities used for international funds transfer
- Foreign currency accounts opened and managed at domestic banks

7.3. Risk Items which are Contingent Liabilities

Below are listed the laws and systems which are predicted to be revised, and items (from different standards) which are currently uncertain or unclear.

However, none of the contents are fatal in considering the implementation of this project, and it is considered that there is no need to conduct detailed examination and investigation. We will pay close attention to the latest regulation information in cooperation with law offices and tax offices and want to take appropriate measures each time.

- National tax law revision

The president approved new tax laws in March 2018, issued from April 1st, 2018.
Some content of these laws are not concrete. Points are bellows.

1) Change of the fiscal year
   Fiscal year will be changed to October to September, starting October 2019.
   April to September 2019 will be a transitional period.
2) Regarding introduction of tax amnesty rules
   Discussions were held to pardon the income tax for non-disclosed income, however embodying this in law has been postponed
3) Repeal of domestic withholding tax
   Although the current law has slated for revision, but no details have been released

- Revision of company law

The president signed the new company law in December 2017, it will be enforced in August 2018.
2 key points on tax;

1) Foreign companies can obtain small amounts of stock in Burmese companies
2) Foreign companies are obliged to register in Myanmar when they conduct business for more than 30 days.

- Condominium law

Condominium law was established in January 2016. Foreigners can purchase up to 40% of designated buildings. However, rules have not yet been announced, and are yet to come into force.

- Tax payment system

Tax payment systems are under maintenance, and some application processes are not effectively administered.

- Zone classification relating to incentives for SEZ

Zone designations change based on the progress of development

- Investment ratio at the establishment of a joint venture

Ratio is specified by the appropriate ministry depending on the business

- Obtaining approvals and permissions from appropriate ministries

There cases where restrictions are put in place by relevant ministries and agencies.
Import licenses are not given to foreign companies, excepting some goods permitted for SEZs or allowed by MIC investment.

7.4. Summary (Tax related)

In this section, we examined the general tax system in Myanmar and the tax exemption / tax reduction benefit systems applicable to this project in particular, then we calculated predicted tax amounts based on these tax systems, and investigated other risk matters.

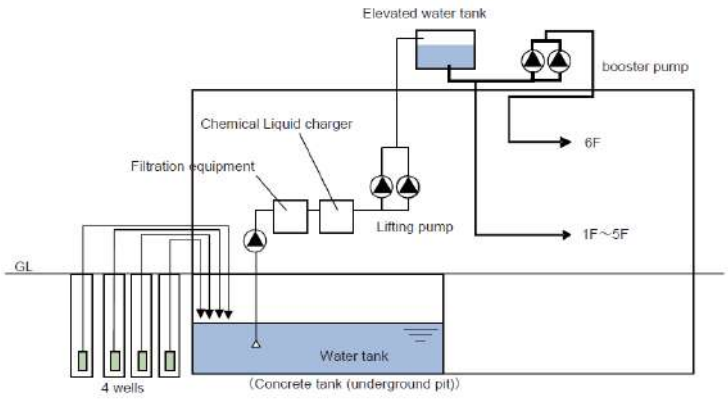
The current tax system in Myanmar has fewer tax categories and less complexity than tax systems in developed countries. On the other hand, the system itself is not firmly established, some rules are not clearly defined, and are ambiguous or inadequate, while some are left to the individual judgment of the government or ministries, and changes are frequently made etc. Considerations regarding regulation changes planned in the near future are as described in "7.3. Risk Items which are Contingent Liabilities", but because there is a possibility that large changes may occur suddenly in the future, we will need to communicate with the accounting office carefully, and check the latest news on tax law from time to time.

8. Environmental and Social Impact

8.1. Overview of Business Components Affecting Environment and Society

The overview of business components that may affect natural and social environments in this project are summarized below.

Table 79 Overview of business components that may affect natural and social environments

Topic	Business components
Construction plan	Construction process: 24 months (including earth retaining wall - 1 month, pile construction - 2 months, foundation construction - 2.5 months, building construction - 8.5 months) Earth retaining wall construction: Assumed to use seat pile (for water), drilling depth assumed to be about 2.5 m Pile construction: Existing pile, support layer GL - 20 m
Basic structure	Size: 6 floors above ground, plus a tower house Total floor area: 12,168.26 m^2 Structure type: Reinforced concrete Structural frame: Rahmen structure Foundation: pile foundation (existing concrete pile) Main facilities: kitchen, examination rooms, waiting room, pharmacy, specimen examination room, X-Ray room, PET-CT room, electricity room, operating rooms, delivery rooms, inpatients rooms (total of 100 beds), shower rooms, rehabilitation rooms, Air conditioning facility room * The planned project site is described in Section 8.2, Current Natural Environment and Social Situation.
Water supply	We plan to excavate 4 wells and intake, filter and supply water onsite. After pumping water from the well into the building, it will be stored in a receiving tank in an underground pit. Water is supplied from the receiving tank plus an elevated water tanks. The capacity of the receiving tank is 210 m^3 (100% of the average daily water usage amount), the capacity of the elevated tank is 110 m^3 (50% of the average daily water usage amount). If water pressure on the 6th floor is insufficient, a booster pump will be installed to apply pressure and supply water to various places.  Hot water will be supplied from a boiler installed on the rooftop, to areas requiring hot water (kitchen, delivery rooms, shower rooms, inpatinet shower rooms of). In consideration of the amount of hot water used, we are considering installing electric boilers.

<table>
<tr><th>Topic</th><th colspan="4">Business components</th></tr>
<tr><td>Drainage treatment</td><td colspan="4">Drainage in the hospital is divided into domestic wastewater, kitchen wastewater, medical inspection wastewater, infectious wastewater, rainwater / spring water drainage and treated water. Domestic wastewater, kitchen wastewater (after primary treatment with oil traps), medical inspection wastewater (after neutralization treatment), and infectious wastewater (after sterilization treatment) are to be purified in a septic tank, to be installed on the west side of the premises. The septic tank adopts a flow control type fluid flow filtration circulation system. Wastewater after treatment, and rainwater drainage, are discharged to a creek flowing from east to west on the south side of the project site.</td></tr>
<tr><td>Air conditioning system</td><td colspan="4">Air conditioning is planned with the ability to set temperatures individually for each room, by adopting an individual heat source system based on an air-cooled heat pump multi-package system. Supply of cold / hot water to the external air conditioner uses a central heat source system with an air-cooled chiller, and it adopts an annual cycle of cooling + dehumidification & reheating system.</td></tr>
<tr><td>Waste treatment</td><td colspan="4">We plan to sort and collect general waste from this facility, and dispose of it, as follows;
<table>
<tr><th>Waste Category</th><th>Form</th><th>Type/Content</th><th>Method of Disposal</th></tr>
<tr><td rowspan="3">Infectious waste</td><td>Sharp</td><td>・Blood product , organ, tissue
・ Injection needle, syringe with needle, surgical knife・ Petri plates, glass pieces
・ Things used in chemotherapy, etc.</td><td>Outsourcing to the private sector, or Yangon City Development Committee (YCDC)</td></tr>
<tr><td>Liquid・semi-liquid</td><td>・Samples from medical inspection (blood)</td><td>Outsourcing to the private sector</td></tr>
<tr><td>Solid</td><td>・Items contaminated with blood
・ Items used for infection control
・ Syringes contaminated with blood or Body fluids
・ Infectious diapers
・ Gloves, gauze, etc.</td><td>Onsite incineration</td></tr>
<tr><td rowspan="2">Non-infectious waste</td><td>Medical plastics etc</td><td>Items not contaminated with blood;
・ Medical plastic products
・ Drop packs etc.</td><td>Onsite incineration</td></tr>
<tr><td>Paper</td><td>・Items containing</td><td>Onsite incineration</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Topic</th><th>Business components</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td></td><td>personal information</td><td></td></tr>
<tr><td></td><td>Medical glass items</td><td>Items not contaminated with blood;
・Chemical bottles, glass products, thermometers, etc.</td><td>Outsourcing to the private sector</td></tr>
<tr><td>General Waste</td><td>General waste</td><td>・Raw garbage
・Plastic products
・Wastepaper, wood chips, etc.</td><td>Outsourcing to YCDC</td></tr>
<tr><td></td><td>Recycables</td><td>・Tins ・glass bottles
・Newpaper, cardboard, etc</td><td>Recycling companies</td></tr>
</table>
The onsite inceration facility planned for installation is a small dry distillation gasification incinerator, MGB type (Kinsei Industry Co. Ltd.) The incineration process is as follows;
① Put medical waste into dry distillation gasification furnace
② Gasification (low temperature・low oxygen state)
③ Gas generated in the dry distillation gasification furnace is burned at high temperature (above 800 ° C) in the combustion furnace
④ Exhaust gas is emitted from the chimney into the atmosphere
⑤ Medical waste will become incineration ash after gasification combustion, and is removed via the ash door.


</td></tr>
<tr><td>Gas</td><td>✓ Natural gas is drawn via a pipeline from a compressed natural gas station (CNG Station), which 300 meters away from the planned project site, and used in the kitchen.</td></tr>
<tr><td>Traffic planning</td><td>✓ We estimate that traffic volume of hospital users will increase to around 100 to 130 cars / day (about 7 to 10 cars / hour).
✓ We plan to install the number of parking spaces required by authorities</td></tr>
</table>

Topic	Business components	
		on the premises.
Disaster prevention	✓	Following the instructions of Yangon City Fire Services, we will introduce a Fire-Fighting System compliant with Singapore's Fire Service Law
	✓	The facility will install sprinklers, indoor fire hydrant facilities, wet risers (deformable water supply system with water inlet and indoor fire hydrants), and fire extinguishers (Japanese specification, set every 20 m).
	✓	A fire alarm system will be installed, following Myanmar standards, and evacuation routes. Additionally, an internal broadcasting system for evacuation and ordinary announcements is also planned to be installed.

(Reference) Nippon Koei

8.2. Current Natural Environment and Social Situation

The project site is located in Ward 2 of Mayangon Township, in Yangon Province, adjacent to Hlaing Township. At the moment, Enamel Wear Factory No. 1, under the jurisdiction of the Ministry of Industry, is located on the site. (See Photo 1)

Figure 76 Planned Site for This Project (1)

(Reference) Nippon Koei

Figure 77 Planned Site for This Project (2)

(Reference) Nippon Koei

Photo 1 Photos of Existing Factory (No. 1 Enamel Wear Factory)

(Reference) Nippon Koei

8.2.1. Natural Environment

8.2.1.1. Weather

Myanmar has a tropical ~ subtropical monsoon climate with three seasons (dry season, rainy season, winter) covering almost the entire country. The dry season is generally hot and dry from the middle of February to mid May. The rainy season is from the middle of May to the end of October, and is characterized by heavy rainfalls due to the southwest monsoon. The winter is somewhat influenced by the dry southeast monsoon from late October to mid-February.

The Ministry of Transport and Communications (MOTC) Kaba-aya Meteorological Station, under the jurisdiction of Department of Meteorology and Hydrology (DMH), has been observing Greater Yangon's weather data since 1968. The location of Kaba-aya Meteorological Station is shown in Figure 90.

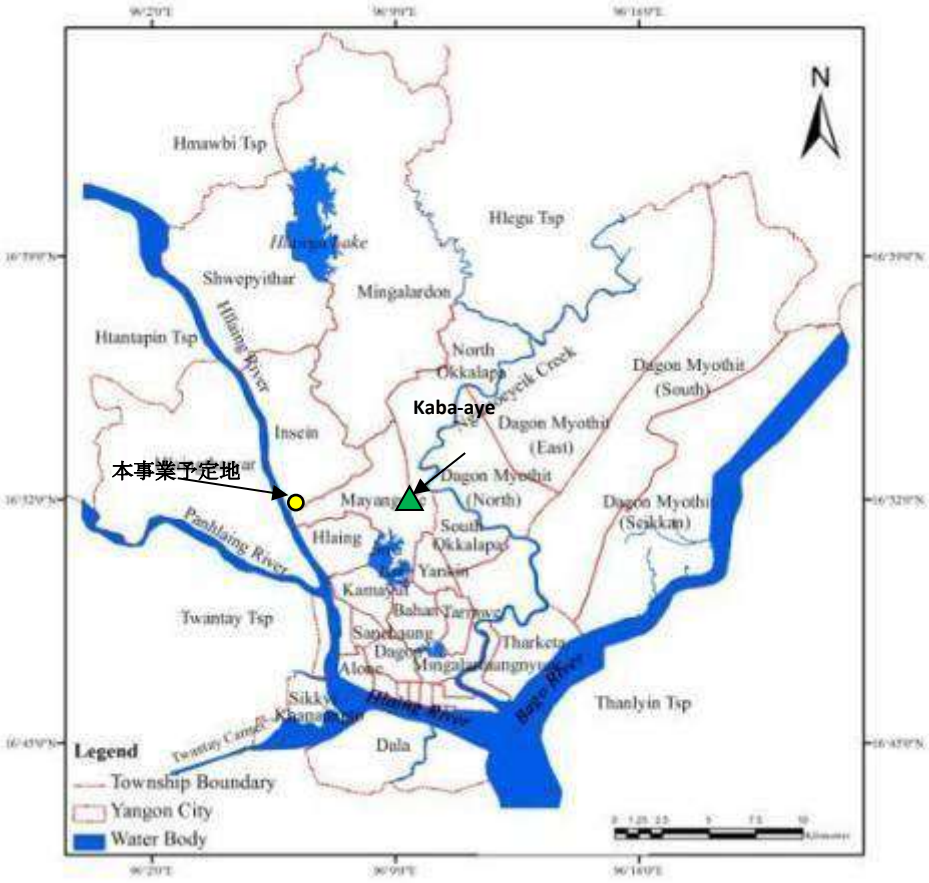


Figure 78 Location Map of Kaba-aya Meteorological Station

(Reference) Nippon Koei

According to observation records at Kaba-aya Meteorological Station, the annual average temperature from 2005 to 2014 is 27.3℃; April has the highest average temperature at 30.5℃, and January the lowest at 24.7℃, and monthly averages are all over 25.0℃ except for January. The annual average monthly rainfall is 245.58 mm per month. Due to the southwest monsoon, rainfall is increased during May to October, with about 96% of annual rain falling during this period.

Table 80 Highest · Lowest · Average temperature and precipitation by Month in Yangon (average between 2005 and 2014)

No.	1	2	3	4	5	6	7	8	9	10	11	12	Average
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Max. Temp. (°C)	32.2	34.5	36	37	33.4	30.2	29.7	29.6	30.4	31.5	32	31.5	32.33
Min. Temp. (°C)	17.9	19.3	21.6	24.3	25	24.5	24.1	24.1	24.2	24.2	22.4	19	22.55
Mean Temp. (°C)	24.7	26.8	28.8	30.5	28.7	27.2	26.5	26.5	26.8	27.9	27.4	25.2	27.25
Rainfall (mm)	6	1	20	39	375	520	671	554	480	215	50	16	245.58

(Reference) Data of the Department of Meteorology and Hydrology, Kaba-aye Station, Yangon in the Statistical Year Book (2015)

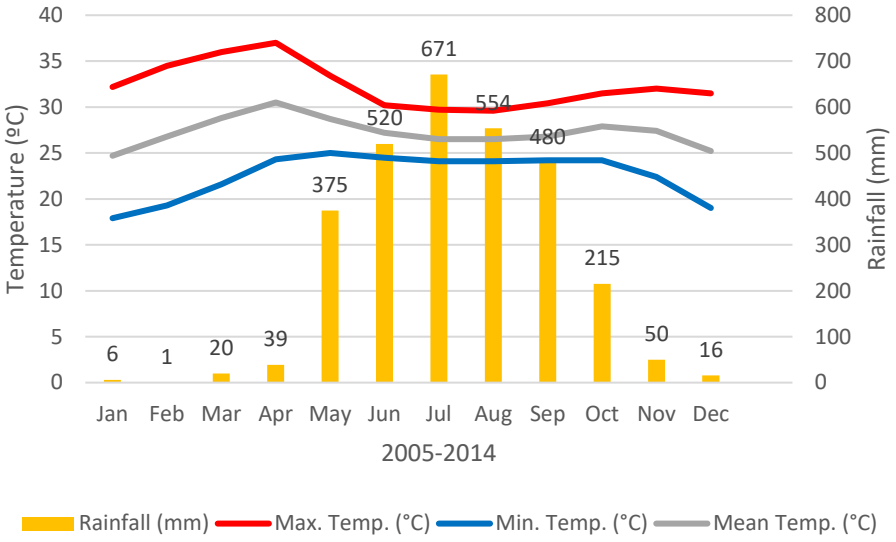


Figure 79 Temperature and Rainfall in Yangon (average between 2005 and 2014)

(Reference) Data of the Department of Meteorology and Hydrology, Kaba-aye Station, Yangon

The annual average wind speed is 1.1m/s, and the maximum 42.9m/s was recorded when Cyclone Nargis hit in May 2008. However, in April, May and October, when the the number of cyclones normally increases, the wind speed does not change much, as shown in Figure 99.

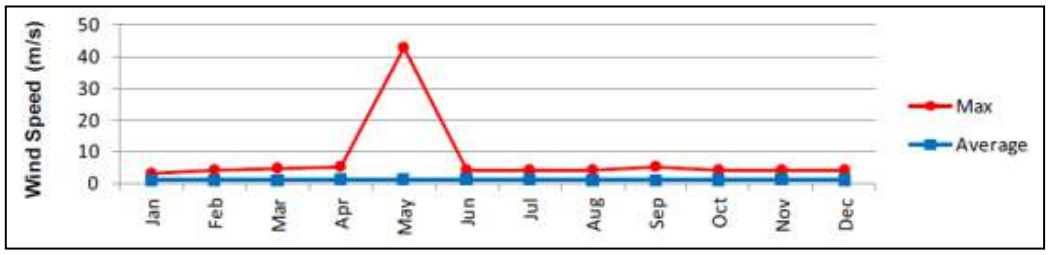


Figure 80 The maximum and average wind speed in Yangon (average from 1991 to 2008)

(Reference) The Strategic Urban Development Plan of the Greater Yangon, April 2013, JICA Study

8.2.1.2. Nature Reserve / Forest Reserve

In Myanmar, the Department of Forest (DOF) of the Ministry of Natural Resources and Environmental Conservation (MONREC) is responsible for reserved forests (RF), protected public forest (PPF), and protected areas. As of October 2016, there are 39 nature reserves in Myanmar, about 38,906.49 km2, accounting for about 5.75% of the country. In Myanmar, the target proportion of these nature reserves to land area is set at 10%.

The protected areas in the Yangon Division are shown below. Located 35 km north of Yangon city, there is Hlawga Wildlife Park PA, registered in 1982, which is comprised of a wildlife park (3.1km2), zoo (0.3km2), and buffer zone (2.7km2), for a total of 6.2km2.

None of the reserved forests, protected public forests, or protected areas are located near our planned project site.

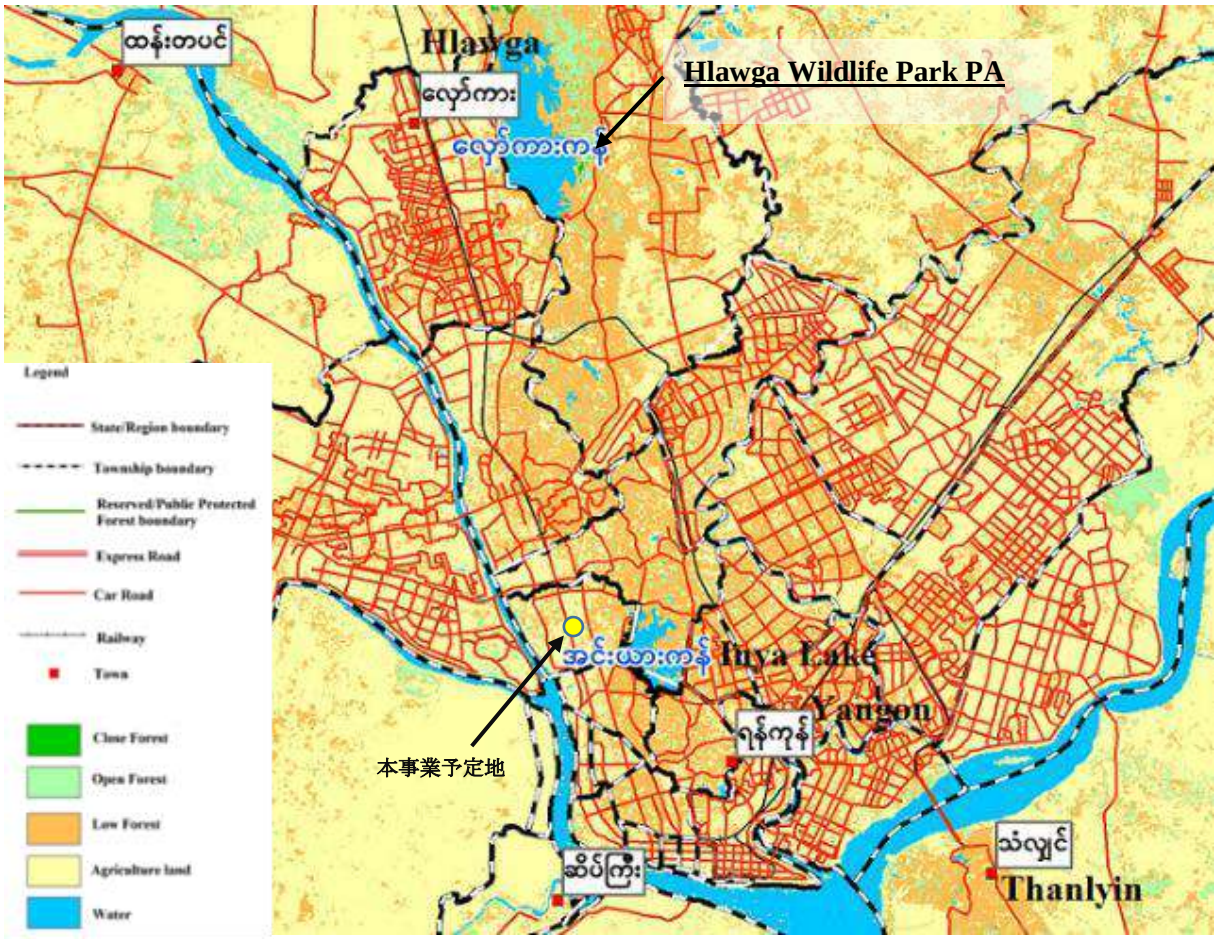


Figure 81 Reserved Forests and Protected Areas in Yangon Division

(Reference) Nippon Koei

8.2.1.3. Rivers

In Yangon, there is the Yangon River to the south, Pazuntaung Creek and Bago River on the east side, and Yangon River and Twantay Canal on the west side. Twantay Canal flows into the Yangon river. The Yangon River is a tidal river, and the average water level of Bo Aung Kyaw Wharf in Seikkan District is +0.856 m. The main river near our project site is the Yangon River.

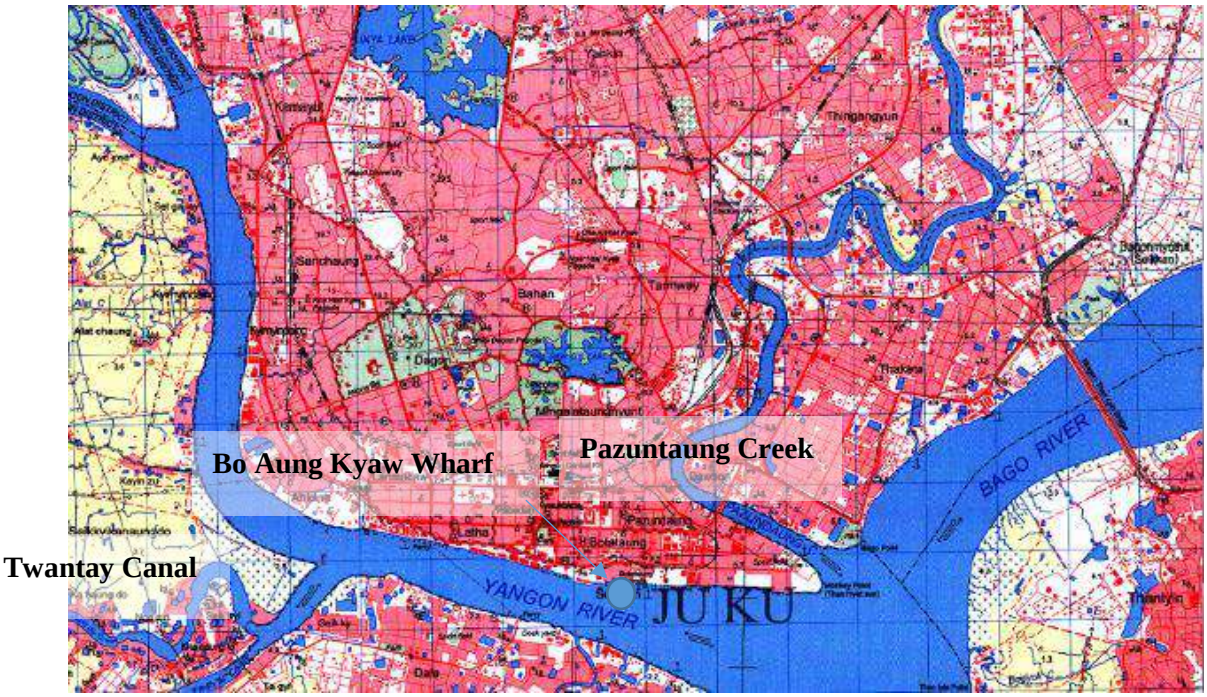


Figure 82 Rivers Around Our Project Site

(Reference) Nippon Koei

8.2.1.4. Topography

Figure 95 shows the topography (altitude) of Yangon. The average altitude of the Mayangon township is 100 feet (about 30.5m) and the west side leads to the southernmost tip of the Bago Mountains. On the other hand, Hlaing township is located at an altitude of 36 feet (about 11 m), and has a flat topography without mountainous areas or valleys.

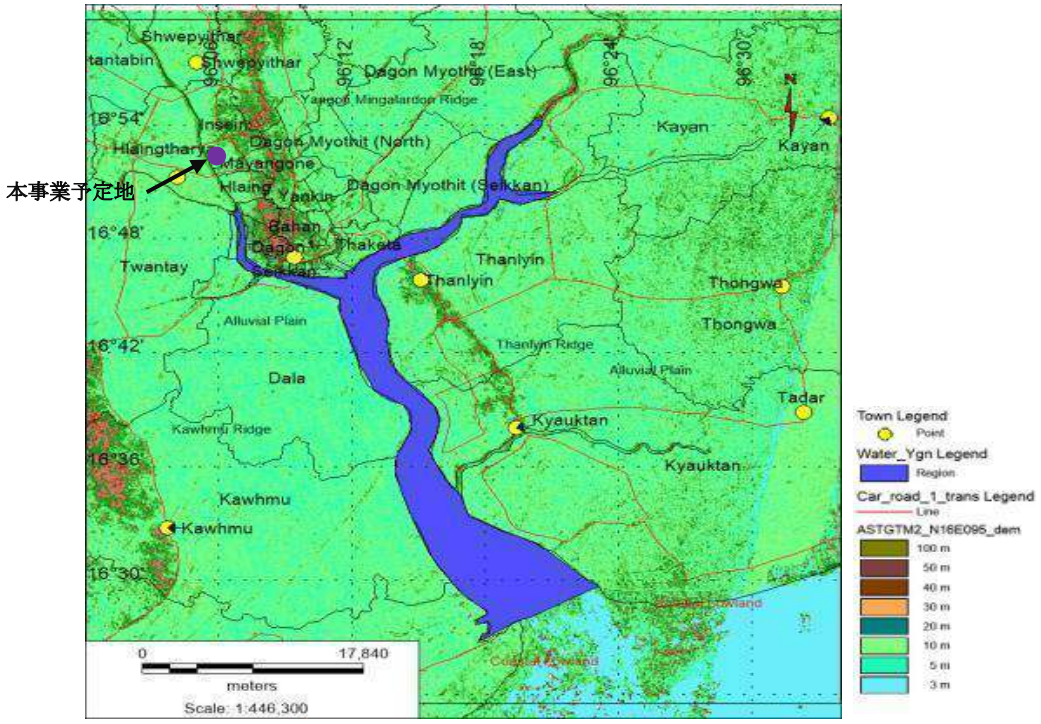


Figure 83 Altitude in Yangon

Note: Scale is not applicable (Reference) Resource Environmental Myanmar Ltd.

8.2.1.5. Ecosystem

Myanmar is a region with high biodiversity, with 11,800 plants including 251 mammals, 1,056 birds, 360 reptiles, and 1,200 species of trees confirmed (Tin Tun, 2009). It is said that there are 153 threatened species present in Yangon City. According to information of the Bureau of Administration, there are no confirmed threatened species in Mayangon and Hlaing township.

8.2.2. Waste / Medical Waste

Waste management in Yangon is conducted according to Pollution Control and Cleansing Rules (Order No. 10/99) of Yangon City. It is supervised and managed by the Pollution Control and Cleaning Department (PCCD). PCCD provides residents and business operators in the area with services for collecting and transporting waste as a public service, and the waste materials are disposed of at the final disposal site.

Waste collection includes (1) collecting from individual doors with push-carts and trucks, (2) collection from temporary waste tanks, and (3) curbside collection via arranged waste bins and so on. Multiple collection methods are used in combination.

There are two major waste disposal sites (final disposal sites); Htein Bin and Htawe Chaung, plus five provisional disposal sites. They are open 24 hours to accept waste via open dumping, which is not accompanied by environmental pollution controls at all facilities. The amount of waste collection and disposal in FY 2007-2011 was 1,250 to 1,400 tons/day.

For medical waste, YCDC is in charge of collection and disposal. For large-scale hospitals, collection occurs everyday. Separate collection is carried out using the following three bag-colours;

(i) Blue or green: Non-harmfull medical waste or household waste not contaminated with infectious agents or pathogens (food residue, paper · cardboard · plastic packaging)
(ii) Yellow: Pathogenic waste, infectious waste, goods used for medical practices
(iii) Red: Disposable medical stock such as sharp objects, disposable syringes and waste syringes with injection needles, old medicines, expired medical solvents.

Infectious waste is incinerated at a crematorium in the city, or buried as-is. Sharp items (injection needles etc.) are buried at the disposal site. Other medical waste items are treated in the same way as household garbage. According to the YCDC estimate, about 250 to 280 tons of medical waste are generated annually, more than 70% of which is infectious waste.

8.2.3. Social Environment

8.2.3.1. Ward

The Yangon township is divided into 4 districts and 39 further townships, and our project site is located in in the Mayangon Township. (However, since the project's planned site is adjacent to Hlaing Township, we are investigating the social environment of both areas). Mayangon Township has 10 wards, and is adjacent to 7 townships. Hlaing Township has 16 wards, and is adjacent to 3 townships.

8.2.3.2. Population

As shown in Table 94, according to the 2014 Census, the populations of Mayangon Township and Hlaing Township were 198,113 people and 160,307 people respectively. The population densities are 7,819 people/km2 and 11,761 people/km2, which is considerably higher than the average of 723 people/km2 in Yangon. Additionally, the average number of people per household ranged from 4.5 to 4.6 people, slightly more than the national average and Yangon City average (4.4 people).

Table 81 Population of Mayangon Township and Hlaing Township (2014)

Township	Total				Population Density (person/km²)	Household size (person)
	Male	Female	Total	Sex Ratio		
Mayangon	93,392	104,721	198,113	89.2	7,819	4.6
Hlaing	75,029	85,278	160,307	88	11,761.5	4.5
Yangon	3,517,486	3,837,589	7,355,075	92	723.2	4.4
Union Average	24,225,304	25,987,763	50,213,067	93	74.2	4.4

(Reference) Results of the 2014 Population and Housing Census

8.2.3.3. Race / Religion

Table 95 shows the racial composition in Mayangon Township and Hlaing Township. Most of the people living in Mayangon Township are Burmese, accounting for about 94%, followed by Kayin tribe (3.1%), and Rakhine tribe (1.2%). In Hlaing Township, while Burmese account for about 84%, the proportion of other ethnicities has risen to about 9.4%. According to the results of the survey by the General Administration Department, the presence of ethnic minorities and indigenous peoples have not been confirmed in either township.

Table 82 Ethnic Composition of Mayangon Township and Hlaing Township (2014)

Township	Kachin (%)	Kayah (%)	Kayin (%)	Chin (%)	Mon (%)	Burma (%)	Rakhine (%)	Shan (%)	Others (%)	Foreigner (%)
Mayangon	0.06	0.05	3.12	0.16	0.23	94.18	1.22	0.33	0.19	0.47
Hlaing	0.16	0.04	2.05	0.7	0.78	83.98	2.12	0.78	1.24	9.45

(Reference) Corresponding General Administration Departments

Regarding religion, as shown in Table 96, Buddhism is the most popular religion in both Mayangon and Hlaing Townships (Mayangon: 85%, Hlaing 91%). In Mayangon Township, Buddhism is followed by Christianity (13%), and in Hlaing Township, by Hinduism (3.2%), and Islam (2.3%).

Table 83 Religion in Mayangon and Hlaing Township (2014)

Township	Religion	Buddhist	Christian	Hindu	Muslim	Other	Total
Mayangon	Number	161,265	24,012	1,665	2,879	-	189,821
	(%)	84.95	12.65	0.88	1.52	-	100
Hlaing	Number	114,238	2,314	4,051	2,911	1546	125,060
	(%)	91.34	1.85	3.24	2.33	1.24	**100**

(Reference) Corresponding General Administration Departments in C1 and W1 Area

8.2.3.4. Regional Economy and Employment

Table 97 shows the labor force situation (main employment category) of population aged 10 years or older, in Mayangon and Hlaing Townships, according to the census results of 2014. The unemployment rate (Sought work) is 2.8% in both townships, and tends to be slightly higher than the rate for the entirety of Yangon Township (2.3%).

Table 84 Labor Force Situation of Population Over 10 Years Old

Township	Population 10 years and	Employee (government	Employee (private)	Employer	Own account	Unpaid family	Sought work	Did not seek work	Full time student	Household worker	Pensioner, retired,	Ill, disabled	Other
Mayangon Township	175,456	10,355	52,096	4,114	21,635	4,708	4,865	927	25,005	30,404	12,753	1,091	10,355
	(%)	5.9	29.7	2.3	12.3	2.7	2.8	0.5	14.3	17.3	7.3	0.6	5.9
Hlaing Township	144,144	9,055	40,944	3,078	19,526	3,484	4,019	541	20,332	24,876	11,500	954	9,055
	(%)	6.3	28.4	2.1	13.5	2.4	2.8	0.4	14.1	17.3	8.0	0.7	6.3
Yangon Region	6,279,629	258,151	1,784,656	128,576	887,821	209,537	142,701	28,733	853,726	1,255,087	401,484	47,164	258,151
	(%)	4.1	28.4	2.0	14.1	3.3	2.3	0.5	13.6	20.0	6.4	0.8	4.1

(Reference) Result of the 2014 Population and Housing Census

8.2.3.5. Social Infrastructure Development Status

Table 98 shows the development of existing social infrastructure in Mayangon and Hlaing Townships, according to the census results of 2014. In both townships, the coverage rate for electricity and sanitary toilets (Safe sanitation) is high, but the coverage rate of telephone and water services are low. However, with regard to telephones, cellular phones have become widespread in recent years, and in both townships have spread to more than 80% of households. Compared with the wider Yangon Township, the social infrastructure development rates of both townships are high.

Table 85 Social infrastructure coverage rates in Mayangon and Hlaing Township (2014)

Township/region	Electricity	Telephone	Mobile	Pipeline water service	Sanitary toilet

Mayangon	98.0%	15.5%	84.3%	48.4%	98.4%
Hleing	98.9%	17.9%	89.4%	26.7%	99.3%
Yangon Region	69.3%	8.2%	60.9%	24.4%	91.1%

(Reference) Result of the 2014 Population and Housing Census

8.2.3.6. Water Use

The below tables show the number of households by water source, for drinking water, and for domestic water, in Mayangon and Hlaing Townships, according to the census results of 2014. In both townships, the main source of water for daily life is tube-well and borehole, accounting for over 95% of total households.

Table 86 Number of households by drinking water source in Mayangon and Hlaing Township (2014)

Source of drinking water	**Total**	**Tap water/ Piped**	**Tube well/ borehole**	**Protected well/ Spring**	**Unprotected well/ Spring**	**Pool/ Pond/ Lake**	**River/ Stream/ Canal**	**Waterfall/ Rainwater**	**Bottled water/ Water**	**Tanker/ Truck**	**Other**
Mayangon Township	38,807	11,697	9,326	508	28	*	*	*	17,049	-	146
	(%)	30.1	24.0	1.3	0.1	<0.1	<0.1	<0.1	43.9	-	0.4
Hlaing Township	32,837	3,777	9,900	71	*	*	*	*	18,899	-	122
	(%)	11.5	30.2	0.2	<0.1	<0.1	<0.1	<0.1	57.6	-	0.4
Yangon Region	1,582,944	210,489	403,890	65,653	27,904	298,093	11,263	4,648	543,856	5,156	11,992
	(%)	13.3	25.5	4.2	1.8	18.8	0.7	0.3	34.4	0.3	0.8

(Reference): Results of the 2014 Population and Housing Census

Table 87 Number of households by domestic water source in Mayangon and Hlaing Township

（Reference）of drinking water	**Total**	**Tap water/ Piped**	**Tube well/ borehole**	**Protected well/ Spring**	**Unprotected well/ Spring**	**Pool/ Pond/ Lake**	**River/ Stream/ Canal**	**Waterfall/ Rainwater**	**Bottled water/**	**Tanker/ Truck**	**Other**
Mayangon Township	38,807	18,776	18,684	1,007	50	49	2	-	87	1	151
	(%)	48.4	48.2	2.6	0.1	0.1	<0.1	-	0.2	<0.1	0.4
Hlaing Township	32,837	8,763	23,512	123	16	39	-	-	343	7	34
	(%)	26.7	71.6	0.4	<0.1	0.1	-	-	1.0	<0.1	0.1
Yangon City	1,582,944	386,621	809,120	67,923	30,346	248,456	23,978	275	3,086	484	12,655
	(%)	24.4	51.1	4.3	1.9	15.7	1.5	<0.1	0.2	<0.1	0.8

(Reference) Result of the 2014 Population and Housing Census

8.2.3.7. Cultural heritage

In Myanmar, Buddhism is the major religion, and there are Buddhist facilities, temples and pagodas in various cities. In Yangon, there are 189 historic buildings, including religious facilities such as pagodas and mosques, built before 1950. As shown in Table 112, religious buildings such as pagodas, temples and churches are located in Mayangon and Hlaing Townships; in particular, Kabar Aye Pagoda and Kyaik Wine Pagoda in Mayangon Township are famous (Refer to Photo 2). Note that these kinds of cultural and religious buildings are not located at our project site or its surrounding area.

Table 88 Major Cultural and Religious Buildings Located in Mayangon and Hlaing Township

Township	Cultural Heritage Building
Mayangon	1) Aung Shwebontha Dhamma Beikman Monastery, 9 Mile Junction, Pyay Road. 2) Kabar Aye Pagoda, Kaba Aye Pagoda Road. 3) Kyaik Kale Pagoda, Yangon-Pyay Road. 4) Kyaik Kalo Pagoda, Yangon-Pyay Road. 5) Kyaik Waing Pagoda, Kyaik Waing Pagoda Road. 6) St. Edward's Roman Catholic Church, Yangon-Pyay Road 7) St. George's Anglican Church, Yangon-Pyay Road
Hlaing	1) Sri Mary Yeoman Church, Yangon-Insein Road

Kabar Aye Pagoda

Kyaik Wine Pagoda

Photo 2 Major pagodas in Mayangon Township

8.3. Myanmar's Legal System and JICA's Guidelines Related to Environmental and Social Considerations in Myanmar

8.3.1. Organizations Concerning Environmental and Social Considerations in Myanmar

As of August 2018, the organization that plays a central role in Myanmar's environmental administration is the Ministry of Natural Resources and Environmental Conservation (MONREC). The ministry also has branch offices set up at Region and State levels.

8.3.2. Major Institutions Related to Environmental and Social Consideration in Myanmar

Environmental Conservation Law (2012) and Environmental Conservation Rules (2014) have been issued as the upper level environmental laws. Environmental and social considerations, including environmental management law and major laws and institutions of Myanmar concerning EIA are as shown in Table 113.

Table 89 Major Laws and Institutions of Myanmar Concerning Environmental and Social Considerations and EIA

	Name of Laws, Rules, etc.	**Year**
1. Constitutional and Environmental Policy		
	Constitution of the Republic of the Union of Myanmar	2008
	Myanmar Environmental Conservation Policy	1994
	National Sustainable Development Strategy	2009
2. Environmental Conservation		
	Environmental Conservation Law	2012
	Environmental Conservation Rules	2014
	Environmental Impact Assessment (EIA) Procedure	2015
	National Environmental Quality (Emission) Guidelines	2015
3. Biodiversity, Natural and Cultural Conservation		
	Wildlife Protection Act 1936	1936
	Forest Law	1992
	Animal Health and Development Law	1993
	Protection of Wildlife and Conservation of Natural Area Law	1994
	Conservation of Water Resourcess and River Law	2006
	National Biodiversity Strategy Action Plan in Myanmar	2012
	Conservation of Water Resourcess and River Rules	2013
	The Law Protecting the Antique Objects	2015
	The Law Protecting the Antique Buildings	2015

	Name of Laws, Rules, etc.	Year
4. Urban Development and Management		
	The Yangon Water Works Act	1884
	Yangon Development Trust Act	1920
	The City of Yangon Municipal Act	1922
	The City of Rangoon Municipal Act 1922	1922
	The Underground Water Act	1930
	The City of Yangon Municipal Amendment Act 1961	1961
	Road and Bridge Utilization Law	1985
	City of Yangon Development Law	1990
	Law Amending the City of Yangon Development Law	1996
	Yangon City Development Committee	1999
	Road Law	2000
	Law Amending the Road and Bridge Utilization Law	2014
	The Second Amending Law of the Road and Bridge Utilization Law	2015
	The Second Amending Law of the Road	2015
	Highways Law	2015
	Law Amending the Highways Law	2015
	Condominium Law	2016
5. Land Acquisition and Resettlement		
	The Land Acquisition Act 1894	1894
	Lower Burma Town and Village Lands Act	1899
	The Law Amending the Lower Myanmar Town and Village Lands Act	2015
6. Heritage		
	The Protection of Preservation of Cultural Heritage	1994
	Protection and Preservation of Cultural Heritage Regions Law	1998
	Law Protecting Ancient Materials	2015
	Law on the Preservation and Protection of Ancient Buildings	2015
7. Public Health		
	Public Health Law	1972
	National Health Policy	1993
	Prevention and Control of Communicable Diseases law	1995

	Name of Laws, Rules, etc.	Year
	The Body Organ Donation Law	2004
	The Law Relating to Private Health Care Services	2007
	The Law Relating to Private Health Care Services	2007
	Myanmar Medical Council Law	2015
	Nation-wide Health Insurance Policies	2015
7. Social Security		
	Leave and Holiday Act 1951	1951
	Labour Organization Law	2011
	Social Security Law	2012
	Social Security Rules	2012
	Myanmar National Social Protection Strategy Plan	2014
	Minimum Wages Law	2013
	Employment and Social Security Notification	2013
	Minimum Wages Rules	2013
	The Law Amending Leave and Holiday Act 1951	2013
	Employment and Skill Development Law	2013
	Settlement of Labour Dispute Law	2014
	Notification for Minimum Wages Law	2015
	Payment of Wages Law	2016

(Reference) Each related law

8.3.3. EIA system in Myanmar

In Myanmar, the approval process for the environmental impact assessment (EIA Procedure: December 29, 2015) was approved by the Cabinet and enacted in January 2016. For the approval procedure, the qualifications and requirements of assessors of EIA (Environmental Impact Assessment) and IEE (Initial Environmental Survey), need to be included in the EIA and IEE reports. Environmental management plan (EMP: Environmental Management Plan), the methods of conducting public meetings, and how to gain an approved EIA / IEE report by MONREC, etc, are described.

In the approval procedures, the minimum project sizes requiring IEE and EIA are defined for 142 business categories. Table 103 shows minimum project sizes for the hospital business category.

Table 90 Major Laws and Institutions of Myanmar Concerning Environmental and Social Considerations and EIA

Type of Investment Projects	Size of Project which require IEE	Size of Project which require EIA

Hospitals	All Size	All activities where the Ministry requires that the Project shall undergo EIA

(Reference) EIA Procedure (2016)

As shown in the table above, depending on the result of the MONREC decision for this hospital project, we will either implement IEE, or EIA. However, according to past cases, if a project has a scale of 200 beds or more then it is subject to EIA, and if the scale is smaller then the project is subject to IEE. Since this project is planning for 100 beds and there are no nature reserves or cultural heritage buildings on the planned site or its surroundings, we can consider this project to be an IEE project.

8.3.4. Gap Analysis of JICA's Environmental and Social Consideration Guidelines and Related Laws in Myanmar

Table 115 shows the differences between the environmental impact assessment related laws of Myanmar, and the JICA Environmental and Social Consideration Guidelines, and our response policy to the law and guidelines in this project.

Table 91 Overlap / Differences between JICA Environmental and Social Consideration Guidelines and EIA System Requirements in Myanmar

Subject matter	**JICA Environmental and Social Consideration Guidelines**	**Law in Myanmar**	**Presence / absence of gap and contingency policy**
Basic matter	In carrying out the project, investigate and examine the environmental and social impacts of the project as soon as possible from the planning stage, consider alternatives and mitigation measures to avoid and minimize impacts, and reflect the results in the project plan. (JICA Guidelines, Attachment 1.1)	Project executors must receive the results of assessment by MONREC and, if necessary, conduct IEE or EIA at the planning stage. Mitigation measures are required for IEE projects, and comparative studies of alternative proposals and formulation of mitigation measures are required for EIA projects. (EIA Procedure (2015) Chapter IV and V)	In the case of an IEE project in Myanmar, comparison and examination of alternative proposals of implementation are not required. In this project, when implementing IEE, we will compare alternatives and formulate mitigation measures.
Information disclosure	The Environmental Assessment Report (which may have a different name depending on the institution) must be written in the official language or widely used language of the country	The IEE report of an IEE project, the scoping report of an EIA project and the EIA report are either prepared in Burmese, or written in English with the summary in Burmese.	Basically there is no difference. A local consultant is planned to implement the IEE for this project, documents for the IEE 1 report will be prepared in Burmese, and explanations will be made

Subject matter	JICA Environmental and Social Consideration Guidelines	Law in Myanmar	Presence / absence of gap and contingency policy
	of project implementation. Also, explanation documents must be prepared in languages and styles that local people can understand.	(EIA Procedure (2015), Chapter IV and V)	in Burmese at the citizen briefing session.
	Environmental assessment reports are to be open to the public in the country of implementation, including to local residents where the project is implemented, and stakeholders such as local residents are required to be able to browse reports at any time and are permitted to obtain copies. (JICA guideline, Attachment 2)	Within 15 days of the submission of the IEE / EIA report to MONREC, the project executors are required to release the report to the public, and to the stakeholders including local residents, PAPs via (i) the website of the project implementer, (ii) in the case of IEE, the local media, in the case of EIA, the national media (newspapers etc.), (iii) a public place such as a library and (iv) the office of the project implementer. (EIA Procedure (2015), Articles 38, 65)	Basically there is no difference, and the IEE report of this project is based on the EIA Procedure (2015); (i) the website of the project implementer, (ii) the media in the local area (Yangon city) such as newspaper, and (iii) public place such as libraries (iv) the office of the project implementer
Negotiation with residents	For projects that are thought to have a large impact on the environment, from the earliest stage, for which you also consider alternative implementation plans, the information needs to be disclosed. You also need to have sufficient consultation with stakeholders such as local residents. It is necessary that the results are reflected in the project contents. (JICA Guidelines, Attachment 1, Social Agreement.1)	With regard to an IEE project, you need to disclose information on the proposed project plan, in the manner described above, immediately after the start of IEE (if it's EIA project, it will be at the scoping stage), and additionally, you are required to have consultation (discussion) meetings with the local residents, and with affected residents and organizations. (EIA Procedure (2015), Article 34, 50)	Basically there is no difference. Immediately after the start of IEE, we will disclose information and consult with stakeholders in accordance with EIA Procedure (2015), and reflect the results of the consultations in this project plan.

Subject matter	JICA Environmental and Social Consideration Guidelines	Law in Myanmar	Presence / absence of gap and contingency policy
	In preparing the Environmental Assessment Report, sufficient information must be disclosed beforehand, & discussions held with stakeholders such as local residents, and a record of disccusions must be prepared.	In addition to the above, the IEE / EIA report is required to state the result of discussions with stakeholders, the process of residents' participation, opinions from residents, and responses to them. (EIA Procedure (2015), Article 36, 51, 63)	Basically there is no difference. In this project, discussion records with local residents and others are described in the IEE report
	Discussion with stakeholders such as local residents should be conducted as necessary throughout the project's preparation period and implementation period, but it is desirable that discussions are held especially at the time of selection of the environmental impact evaluation items and when preparing a draft. (Environmental Assessment Report Required for Category A, JICA Guidelines, Attachment 2.)	Stakeholder discussion is required for both IEE and EIA projects. In the case of the IEE project, it is assumed that discussions will be held once in the IEE implementation stage, in the case of the EIA business, two discussions are required, in the scoping and EIA investigation stages. (EIA Procedure (2015), Chapter IV and V)	Basically there is no difference. In addition, this project is classified as a category B project in accordance with JICA Environmental Guidelines.
Environment impact	The areas of the influence to be investigated and examined in regard to environmental and social considerations include human health, safety and natural environment (including cross-border or global environmental impact) through the atmosphere, water, soil, waste, accident, water use, climate change, ecosystems and biotechnology, etc. In regard to Social considerations, matters	The areas of consideration for environmental impact are stipulated to include pollution, nature, society, socioeconomic, public health, culture, occupational health and safety, safety, and even climate change. For social impact assessments, it is stipulated that considerations will include the impact on involuntary residents and indigenous peoples. In addition, for the environmental	EIA Procedure (2015) does not cover all items described in the JICA guidelines (For example, gender and child rights are not clearly stated.) In this survey, environmental impact assessment will be carried out for items that are clearly stated in the JICA guidelines, but are not found in the EIA Procedure (2015), where there are concerns about the impact.

Subject matter	JICA Environmental and Social Consideration Guidelines	Law in Myanmar	Presence / absence of gap and contingency policy
	such as those listed below; Regional economies such as employment and livelihood measures, land use and regional resource use, social organizations such as social capital and regional decision-making organizations, existing social infrastructure and social services, poor people and indigenous peoples with socially vulnerable groups such as tribes, gender, child rights, cultural heritage, conflicts of interests in the region, infectious diseases such as HIV / AIDS, labor environment (Including occupational safety). (JICA guidelines, Attachment 1. Scope of the impact to be considered.1)	management and monitoring plan, it is important to consider environmental impacts such as noise, vibrations, waste, hazardous waste, drainage, rainwater, air quality, odor, chemical substances, water quality, erosion, sedimentation, biodiversity, occupational safety, public health, safety, cultural heritage, employment, training, and emergency measures (as examples.) (EIA Procedure (2015), 2, 7, 63)	
	Impacts to be investigated and considered include not only the direct and immediate impact of the project but also the derivative impacts / secondary impacts, cumulative impact, and impacts inherent in the impact of the business. It is also desirable to consider the impact of the project's lifecycle. (JICA guidelines, Attachment 1, scope of impact to consider. 2)	It is stipulated that the impacts to be investigated and considered include direct, indirect, cumulative, desirable, undesirable, or all of the above. In addition to negative impacts and cumulative impacts of this projects, it is also necessary to clarify the unavoidable effects even when implementing environmental impact mitigation measures. It is stipulated to cover the impact of all stages of the project (planning stage, construction stage, operation and maintenance stage,	Although there is no mention of the influence of impacts inherent to the business, there are basically no differences. Even in this project, we will consider the derivative and secondary impacts in the evaluation of project impact.

Subject matter	JICA Environmental and Social Consideration Guidelines	Law in Myanmar	Presence / absence of gap and contingency policy
		dismantling stage, closing stage / after conclusionof business). (EIA Procedure (2015), 2, 56)	
Monitoring & handling complaints etc	We shall endeavor to make public the monitoring results to the local stakeholders involved in the project. (JICA Guideline, Attachment 1, Monitoring.3)	Within 10 days of the creation of the monitoring report, it is required that the project executor disclose it to the website of the project, and to public places such as the library, and the office for the project. (EIA Procedure (2015), 110)	Basically there is no difference. Publish the monitoring report according to EIA Procedure (2015).
	It is required to provide opportunities with sufficient information for stakeholders involved in this project, to participate, discuss and consider countermeasures. And we must endeavor to agree on procedures for solving problems. (JICA Guidelines, Attachment 1, Monitoring.4).	There is no regulation regarding this matter in Myanmar.	We plan to implement a complaint handling mechanism in this project.
Ecosystem	The project shall not involve significant conversion or significant deterioration of important natural habitats or significant forests.	Protected forests and protected public forests have been established in Forest Law (1992) and activities prohibited in these areas are regulated. In the Protection of Wildlife, Wild Plant and Conservation of Natural Area Law (2016), natural areas are divided into (a) Scientific Reserve, (b) National Park, (c) Marine Park, (d) Nature Reserve, (E) Wildlife Reserve, (f) Valuable Protected Areas of Geophysics, and (g) other reserves designated	The law on forest conservation etc. is not written in the context of business development, but basically there is no difference. In addition, important natural habitats or important forests have not been confirmed at the project site or its surrounding area, and we assume there will be no impact on these areas.

Subject matter	JICA Environmental and Social Consideration Guidelines	Law in Myanmar	Presence / absence of gap and contingency policy
		by other ministries, and restricted and prohibited activities are regulated as well.	
Indigenous people	The influence of the project on indigenous peoples must be examined in all ways and avoided. If avoidance is not possible after such consideration, measures should be taken for affected indigenous peoples in order to minimize the influence and compensate losses.	There is no provision in the Myanmar Act. However, EIA Procedure (2015) is required to evaluate the project including the influence on indigenous peoples.	In Myanmar, there is no legal system stipulating requirements to avoid or minimize the influence on indigenous peoples, and compensate for losses. Indigenous peoples have not been observed at our planned site and its surrounding area.

(Reference) Nippon Koei

8.3.5. Comparative Study of Alternative Sites

When selecting the site location for this project, we conducted the following comparative study on the four candidate sites in Yangon city, and chose option ①.

Table 92 Alternative Plan Comparison (Location Review)

	Option ①	Option ②	Option ③	Option ④
Location	Mayangon Township (Ward 2, near Thamine intersection)	Mayangon Township (Mindhama ward)	Mingaladon Township	Thingangyun Township (Thuwunna ward)
Owner	Ministry of Industry	Individual	A private company	A private company
Size	2.5 acres	1.5 acres	3 acres	2 acres
Lease fee	○	○	○	△
Convinience from Yangon CBD	○	○	×	○
Resident relocation	No	Yes (Illegal residents)	No	No

	Option ①	Option ②	Option ③	Option ④
Surrounding environment	Residential areas	Residential areas (Temple adjoining)	Residential areas (Industrial park Adjoining)	Since outdoor concert halls were built nearby, there is noise at night
Development of Surrounding area	×	×	○	○
Selection result	Selected: This site will be the planned site for the project	Rejected: Both location and local economy are good, but resident relocation would be required.	Rejected: Both the local economy and surrounding environments are good, but there is concern about attracting customers because the location is far from downtown.	Rejected: Noise problem from the outdoor concert hall.

(Reference) Nippon Koei

8.4. TOR of Scoping and Environmental and Social Consideration Survey

The purpose of scoping is to identify the evaluation items that are considered to be important for environmental and social considerations, and to determine investigation methods. Table 106 shows the results of scoping, and Table 107 is a TOR of surveyed environmental and social considerations.

Table 93 Scoping Results and Existing Environmental Conditions

Classification	Item impacted	Evaluation		Reasons for evaluation score
		Before and during construction	During operation	
Pollution control	Air pollution	B-	B-	**During construction:** Due to the operation of construction equipment and the running of construction vehicles, deterioration of air quality due to exhaust gas, dust is expected. **During operation:** Increased traffic volume will cause a negative influence on the air quality due to exhaust gas from the running vehicles. Also, a negative impact on air quality due to the operation of the incineration facility is expected.
	Water pollution	B-	B-	**During construction:** Turbid water accompanying the construction work, and water pollution due to drainage from the construction site is expected. **During operation:** Water quality deterioration due to wastewater generated from facilities and infectious wastewater is expected.
	Waste	B-	B-	**During construction:** Waste from construction work and general waste from workers is expected to be generated. **During operation:** It is expected that medical waste will be generated, including general waste from the hospital, hazardous waste and infectious waste.
	Soil pollution	B-	B-	**During construction:** Possibility of soil contamination due to leakage of construction oil etc. **During operation:** There is a possibility that soil contamination may occur due to leakage of fuel and waste liquid, and inappropriate management.
	Noise & vibration	B-	B-	**During construction:** The occurrence of temporary noise and vibrations due to the operation of the

Classification	Item impacted	Evaluation		Reasons for evaluation score
		Before and during construction	During operation	
				construction machinery and the running of the construction vehicles is expected. **During operation:** Increase in vehicle traffic and occurrence of noise and vibration due to operation of boiler facilities and emergency power supply facilities are expected.
	Ground subsidence	B-	B-	**During construction:** Land subsidence due to use of groundwater is expected. **During operation:** Land subsidence due to use of groundwater is expected.
	Odor	C	C	**During construction:** Works that cause offensive odors are not planned, but odors may occur due to improper management of waste. **During operation:** If management of waste and sludge is inappropriate, there is a possibility of generating bad odors.
	Substratum	B-	B-	**During construction & operation:** Due to waste and drainage, there is a possibility of affecting the substratum of an adjacent waterway.
Natural environment	Reserve area	D	D	**During construction & operation:** There are no reserved areas on or in the vicinity of the project site.
	Ecosystem	D	D	**During construction & operation:** As the project site is currently being used as an enamel garment factory, and valued fauna and ecosystems have not been sighted, it would appear that this project will have little impact on ecosystems.
	Water	C-	C-	**During construction:** Works that cause changes to river water flow or riverbeds are not going to occur, but transient impacts are expected to occur from land modification and groundwater intake. **During operation:** Changes to the water environment after land reformation is predicted.
	Terrain / Geology	D	D	**During construction & operation:** As the project site is currently being used as an enamel garment factory, and large-scale excavations and embankments are not planned, impacts

Classification	Item impacted	Evaluation		Reasons for evaluation score
		Before and during construction	During operation	
				on topography and geology from this project are not expected.
Social environment	Land Acquisition & Resident Relocation	D	D	**During construction & operation:** Land acquisition and resident relocation will not occur in this project.
	The under-priviledged	D	D	**During construction & operation:** This project does not include plans that will affect the underpriviledged.
	Ethnic minorities / indigenous peoples	D	D	**During construction & operation:** The presence of ethnic minorities and indigenous peoples has not been noted at the project site and its surrounding area.
	Regional economy such as employment and livelihood measures	B+	B+	**During construction:** Because this project involves large-scale construction work, it is expected to create new employment during the construction period. **During operation:** Positive impacts on the regional economy from the operation of the hospital are expected.
	Land Use and Regional Resource Utilization	D	D	**During construction & operation:** Since the project site planned for this project is currently used for an enamel garment factory, the use of the land will change, but it is considered that there is almost no impact.
	Water usage	C-	C-	**During construction:** Although groundwater is planned for use during construction in this project, in order to evaluate the impact, it is necessary to understand the surrounding water use situation and the current condition of the groundwater. **During operation:** Although the use of groundwater is planned also during hospital operation, in order to evaluate the impact, it is necessary to evaluate the surrounding water use situation and current condition of the groundwater.
	Existing social infrastructure and social services	B-	B-	**During construction:** An increase in construction vehicles could temporarily affect access to social infrastructure and services. **During operation:** Due to the increase in traffic volume for this project, there is a possibility

Classification	Item impacted	Evaluation		Reasons for evaluation score
		Before and during construction	During operation	
				that the traffic situation around the project site will be affected.
	Unfair distribution of negative & positive impacts	D	D	**During construction & operation:** Considering the details of this project plan, its considered unlikely that the project will have unfair distribution of negative & positive impacts to the surrounding areas.
	Conflict of interest within the region	D	D	**During construction & operation:** Considering the details of this project plan, it is considered that there are no conflicts of interest within the region.
	Cultural heritage	D	D	**During construction & operation:** There are no cultural heritage sites etc. at the project site or its surroundings, so there is no impact from this project.
	Aesthetic	D	B+	**During construction:** View points for aesthetics have not been confirmed around the project site, and furthermore, during the construction period, it is planned to install a fence around the project site, so it is considered that there is no influence on the environments aesthetic. **During operation:** A positive influence on the surrounding aesthetic can be expected, via the appearance of the design.
	Gender	D	B+	**During construction & operation:** This project is concerned with establishing a hospital and operating it, it does not include any business affecting gender in particular.
	Children's rights	D	D	**During construction & operation:** This project is concerned with establishing a hospital and operating it, it does not include any business affecting children’s rights
Health and safety	Worker safety and hygiene	B-	B-	**During construction:** Because this project involves large-scale construction work, consideration must be given to the safety of the environment and hygiene conditions for workers. **During operation:** Employees' occupational safety may not be secured if appropriate occupational safety management is not carried out.
	Public health	B-	A+	**During construction:**

Classification	Item impacted	Evaluation		Reasons for evaluation score
		Before and during construction	During operation	
				Impact on public health around the planned site is expected due to many construction workers being onsite for work. **During operation:** Regional medical services will be improved by this project, so a positive influence on public health is expected.
Other	Climate change	B-	B-	**During construction:** It is expected that generation of greenhouse gases will occur due to the operation of construction machinery and the running the construction vehicles. **During operation:** The operation of boilers, air conditioners, incineration facilities, etc. and the running of related vehicles are expected to generate greenhouse gases.

A+/-: Significant positive/negative impact is expected.

B+/-: Positive/negative impact is expected to some extent.

C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses)

D: No impact is expected.

Table 94 TOR of Environmental and Social Consideration Survey in This Project

Environmental consideration	Survey items	Survey method
Air pollution	1) Implementation status of air quality monitoring around the project site 2) Confirmation of air environmental standards in Myanmar 3) Forecast of impacts during construction 4) Evaluating the extent of traffic increase during operation based on traffic demand forecast 5) Prediction of impact of operation of incinerator and heat source facility introduced at the site	1) Survey of existing documents 2) Confirm related laws and regulations in Myanmar 3) Existing document survey, similar case studies 4) Impact prediction based on traffic demand forecast result 5) Existing document survey, similar case studies
Water pollution	1) Confirmation concerning water quality environmental standards, drainage standards, drainage permission system 2) Understanding impact during construction	1) Confirmation of related laws and regulations in Myanmar 2) Survey of existing materials, arrangement of construction plans 3) Organizing the business plan, surveying similar projects

Environmental consideration	Survey items	Survey method
	3) Evaluating the impact of the wastewater treatment plan at the time of operation 4) Current status of discharge destination of wastewater	4) Field survey and survey of existing materials
Waste	1) Confirmation of relevant laws related to industrial / medical waste disposal 2) Waste Management Status in Yangon City 3) Medical waste disposal situation in Yangon City 4) Prediction of type and amount of waste generated during construction 5) Medical waste management plan at the time of operation 6) Prediction of type and amount of waste generated at the time of operation	1) Confirmation of related laws and regulations in Myanmar 2) Survey of existing documents 3) Survey of existing documents 4) Analysis of similar cases, arrangement of construction plans 5) Organization of business plan 6) Survey of existing documents, investigation of similar projects.
Soil pollution	1) Confirmation of environmental standards in Myanmar 2) Evaluate potential risk of soil contamination in this project 3) Measures against soil pollution in this project	1) Confirmation of related laws and regulations in Myanmar 2) Survey of similar projects and existing materials 3) Organizing business plans and surveying existing materials
Noise/vibration	1) Confirmation of environmental standards in Myanmar 2) Conditions around this project area (distance to residential areas, schools, etc.) 3) Understanding the impact during construction 4) Understanding the impact at the time of operation	1) Confirmation of related laws and regulations in Myanmar 2) Field surveys around the project area 3) Organization of construction plans, and survey of existing materials 4) Existing document survey and investigation of similar projects
Ground subsidence	1) Understand the characteristics of the ground around the planned project site 2) Current groundwater usage around the project site 3) Expected usage of groundwater during construction 4) Expected usage of groundwater at the time of operation	1) Survey existing documents, and conduct a field survey and organize field survey results 2) Survey of existing document and field survey 3) Investigation of similar projects 4) Investigation of similar projects
Odor	1) Substances that can be a source of bad smells during construction and countermeasures against malodors 2) Substances that can be a source of bad smells at the time of operation and countermeasures against malodors	1) Investigation of similar projects 2) Investigation of similar projects
Substratum	1) Status of discharge destination of wastewater 2) Influence on sediment	1) Field survey around the project site 2) Survey of existing documents and investigation of similar projects

Environmental consideration	Survey items	Survey method
Water	1) Status of surrounding water areas (waterways, rivers) 2) Planned ground height and current surrounding ground height 3) Rainwater drainage plan during construction 4) Rainwater drainage plan at the time of operation	1) Field survey around the project site 2) Survey of existing documents and organizing the project plan 3) Organising construction plans and survey of existing documents 4) Organizing the project plan and survey of existing document
Regional economy including employment and livelihood measures	1) Employment plan during construction period 2) Prediction of effect on regional economy by hospital business operation	1) Organising construction plans 2) Investigation of similar projects
Water usage	1) Understanding local conditions of water use 2) Water usage plan during construction 3) Water usage plan at the time of operation	1) Organizing a survey at the site and the results of the survey 2) Investigation of similar projects 3) Organising construction plans and investigation of similar projects 4) Investigation of similar projects
Existing social infrastructure and social services	1) Situation of social infrastructure around the planned project site 2) Operation forecast of machinery and construction vehicles during construction 3) Forecast of increase in traffic volume due to this project during business operation	1) Field survey around the site of the project, organizing the traffic survey results 2) Organizing the construction plans and investigating similar projects 3) Organizing traffic survey results
Worker safety and hygiene	1) Occupational safety measures during construction 2) Employee's occupational safety measures during hospital operation	1) Organize measures for this project 2) Organize measures for this project
Public health	1) Impact on occupational health by occupational safety measures during construction 2) Prediction of health impact on local residents caused by population inflow for this project	1) Investigating existing documents 2) Investigating existing documents
Climate change	1) Climate change related measures and emission status of greenhouse gases in the relevant countries / regions 2) Evaluation of activities expected to generate greenhouse gas during construction 3) Evaluation of activities expected to generate greenhouse gases at the time of operation	1) Confirming relevant countermeasures in Myanmar, finding related materials 2) Organizing construction plans, investigating similar projects 3) Investigating existing documents, and slmilar projects

8.5. Environmental and Social Consideration Survey Results

Table 108 shows the survey results for environmental and social considerations.

Table 95 Environmental and Social Consideration Survey Results

<table>
<tr><th>Affected topic</th><th>Survey results</th></tr>
<tr><td>Air pollution</td><td>
1) In Myanmar, the ‘National Environmental Quality (Emission) Guideline: NEQG’ was enacted in December 2015. In the guidelines, for projects that are likely to emit large volumes of air pollutants, they may be released to the extent that they do not exceed the national atmospheric environmental standard (or the WHO air quality guidelines when these do not exist). It is requested that the contribution rate does not exceed the emission amount of 25%. In addition, the following table is set as the air pollution emission standard applied to a factories.
Table A Air pollution emission standards applied to factories
<table>
<tr><th>Item</th><th>Average Period</th><th>Reference value</th></tr>
<tr><td>SO_2</td><td>10 mins</td><td>0.5 mg/m^3</td></tr>
<tr><td></td><td>24 hours</td><td>0.02 mg/m^3</td></tr>
<tr><td>NO_2</td><td>1 hour</td><td>0.2 mg/m^3</td></tr>
<tr><td></td><td>1 year</td><td>0.04 mg/m^3</td></tr>
<tr><td>PM_{10}</td><td>24 hours</td><td>0.05 mg/m^3</td></tr>
<tr><td></td><td>1 year</td><td>0.02 mg/m^3</td></tr>
<tr><td>$PM_{2.5}$</td><td>24 hours</td><td>0.025 mg/m^3</td></tr>
<tr><td></td><td>1 year</td><td>0.01 mg/m^3</td></tr>
<tr><td></td><td>8 hours</td><td>0.1 mg/m^3</td></tr>
<tr><td>Ozone</td><td>-hour daily maximum</td><td>0.1 mg/m^3</td></tr>
</table>
(Reference): Myanmar: National Environmental Quality (Emission) Guidelines (December, 2015).
2) Regarding impact during construction, it is expected that dust and air pollutants (NO 2, SPM) will be generated from construction vehicle operation, such as from machine operation and material transportation. However, the construction period is a total of ○○ months, and impacts are expected to be temporary.
3) According to the traffic volume predictions for the time of business operation, the new traffic volume generated by hospital visitors and hospital transportation etc. is expected to be about 100 to 130 units/day (about 7 to 10 units/hour). The direct impact on road traffic around the hospital is not considered to be significant. However, it is considered that after the opening of the hospital, there is a possibility that current road conditions and intersection capacities may not be able to accommodate future traffic volume, so it is considered necessary to take measures to improve traffic around hospital roads.
4) In this project, we plan to install a dry distillation gasification incinerator on the premises. This means that combustible gas is generated by dry-distilling waste, and complete combustion of waste at a high temperature and in a stable manner in an incinerator can
</td></tr>
</table>

Affected topic	Survey results

suppress the generation of harmful substances such as dioxin, and significantly reduce waste (3% or less). Furthermore, it is an incinerator that can greatly reduce the emissions of air pollutants such as PM 2.5 etc by passing emissions through a bag filter after treatment with activated charcoal or slaked lime, before releasing the exhaust gas. In addition, since the waste itself burns using the its own material as fuel, it is possible to reduce the amount of fuel used. Based on the actual performance of this device as used at Ishii Hospital (Isesaki City), this process is expected to operate 1 to 2 times/day (3 to 4 hours/process).

The results of analysis of exhaust gas and incineration ash produced by a compact dry distillation gasification incinerator (MGB type) decive, and the large size GB type device (both of which are under consideration for installation in this project) are shown in the table below. There is no hydrogen chloride, nitrogen oxides, sulfur oxides, soot or dust in the results of the MGB type device, and we can see the value of both parameters are lower than the reference values of Japan and Myanmar.

Table B The results of analysis of exhaust gas and incineration ash from dry distillation gasification incinerators

Item	Value	Unit	Reference value in Japan	Reference value in Myanmar
Small MGB type				
Exhaust gas dioxin concentration	0.037	ng-TEQ/Nm^3	5	
Incinerated ash concentration of dioxins	0.012	ng-TEQ/g	3	
Large size GB type				
Exhaust gas dioxin concentration	0.00000087	ng-TEQ/Nm^3	5	
Hydrogen chloride	3	mg/Nm^3	200	
Nitrogen oxides	81	ppm	250	156 (gas)* 224 liquid)* 317 (solid)*
Sulfur oxides	4	ppm	Depends on the areas	700*
Dust	Less than 2	mg/Nm^3	150	150
Incinerated ash Concentration of dioxins		ng-TEQ/g	3	

<table>
<tr><th>Affected topic</th><th>Survey results</th></tr>
<tr><td></td><td>Note: Emission concentration converted in standard state (mg / Nm 3 → ppm)
Source: Kinsei Industry Co., Ltd. Myanmar Emission Guidelines (December 2015)</td></tr>
<tr><td>Water pollusion</td><td>1) Myanmar Emission Guidelines (December 2015) defines wastewater standards. Also, the "Water and Air Pollution Control Plan" issued by the Ministry of Industry (MOI) in 1995 has a wastewater standard to be applied to factories affiliated with the Ministry of Industry.

Table C National Emission Guidelines and Wastewater Standards set by the Ministry of Industry

<table>
<tr><th>No.</th><th>Items</th><th>Unit</th><th>Target Value set by MOI</th><th>Guideline Value set in NEQG</th></tr>
<tr><td>1</td><td>BOD (5 days at 20 ºC)</td><td>mg/L</td><td>20</td><td>50</td></tr>
<tr><td>2.</td><td>Suspended solids (SS)</td><td>mg/L</td><td>30</td><td>50</td></tr>
<tr><td>3.</td><td>Dissolved solids</td><td>mg/L</td><td>2,000</td><td>-</td></tr>
<tr><td>4.</td><td>pH Value</td><td>—</td><td>5 - 9</td><td>6 – 9</td></tr>
<tr><td>5.</td><td>COD_{Mn} Permanganate value</td><td>mg/L</td><td>60</td><td>-</td></tr>
<tr><td>6.</td><td>COD_{Cr}
Dicromate value</td><td>mg/L</td><td>-</td><td>250</td></tr>
<tr><td>7.</td><td>Sulfide (as HS)</td><td>mg/L</td><td>1</td><td>1</td></tr>
<tr><td>8.</td><td>Cyan de (as HCN)</td><td>mg/L</td><td>0.2</td><td>0.1 (free), 1 (total)</td></tr>
<tr><td>9.</td><td>Oil and grease</td><td>mg/L</td><td>5</td><td>10</td></tr>
<tr><td>10.</td><td>Total coliform bacteria</td><td>MPN/100 mL</td><td>-</td><td>400</td></tr>
<tr><td>11.</td><td>Tar</td><td>-</td><td>None</td><td>-</td></tr>
<tr><td>12.</td><td>Formaldehyde</td><td>mg/L</td><td>1</td><td>-</td></tr>
<tr><td>13.</td><td>Phenols and cresols</td><td>mg/L</td><td>1</td><td>0.5 (Phenols only)</td></tr>
<tr><td>14.</td><td>Free chlorine</td><td>mg/L</td><td>1</td><td>0.2 (total residual)</td></tr>
<tr><td>15.</td><td>Heavy metals (total)</td><td>mg/L</td><td>-</td><td>10</td></tr>
<tr><td>16.</td><td>Zinc</td><td>mg/L</td><td>5</td><td>2</td></tr>
<tr><td>17.</td><td>Chromium (Total)</td><td>mg/L</td><td>0.5</td><td>0.5</td></tr>
<tr><td>18.</td><td>Chromium (Hexavalent)</td><td>mg/L</td><td>-</td><td>0.1</td></tr>
</table>
</td></tr>
</table>

Affected topic	Survey results

19.	Arsenic	mg/L	0.25	0.1
20.	Copper	mg/L	1.0	0.5
21.	Mercury	mg/L	0.005	0.01
22.	Cadmium	mg/L	0.03	0.1
23.	Barium	mg/L	1.0	-
24.	Selenium	mg/L	0.02	0.1
25.	Lead	mg/L	0.2	0.1
26.	Nickel	mg/L	0.2	0.5
27.	Insecticides	-	None	-
28.	Radioactive Materials	-	None	-
29.	Temperature	ºC	40	<3 (increase)
30.	Color and Odor	Co-Pt	Not objectionable when mixed in receiving water	-
31.	Total Nitrogen	mg/L	-	-
32.	Ammonia	mg/L	-	10
33.	Fluoride	mg/L	-	20
34.	Iron	mg/L	-	3.5
35.	Silver	mg/L	-	0.5
36.	Total Phosphorus	mg/L	-	2

(Reference): MOI Water and Air Pollution Control Plan (1995)
Myanmar: National Environmental Quality (Emission) Guidelines (December, 2015).

In Myanmar Emission Guidelines (December 2015), the following standards are defined for wastewater during the construction period.

Table D Site Runoff and Wastewater Discharges (construction phase)

parameter	Unit	Maximum Concentration
Biological oxygen demand	mg/l	30
Chemical oxygen demand	mg/l	125
Oil and grease	mg/l	10
pH		6-9

Affected topic	Survey results

Total coliform bacteria	MPN/100 ml	400
Total nitrogen	mg/l	10
Total phosphorus	mg/l	2
Total suspended sol ds	mg/l	50

(Reference): Myanmar: National Environmental Quality (Emission) Guidelines (December, 2015).

2) Provide temporary drainage ditches and balancing ponds at appropriate locations in the construction site, and perform appropriate drainage. Generation of muddy water is expected, especially during the construction work period. Regarding construction work that is expected to generate muddy water, we plan to avoid this work as much as possible during the rainy season, but if necessary, we plan to set up a sand pond at the site. For sewage and domestic wastewater that is expected to be generated from the construction site, a simple septic tank will be installed, and the wastewater treated to contamination levels below the aforementioned standards, then discharged to public drianage.
3) The wastewater generated in the facility is categorized as domestic wastewater, kitchen wastewater, inspection wastewater, infectious wastewater, and rainwater & springwater drainage. Domestic wastewater, kitchen wastewater, inspection wastewater, and infectious wastewater are collected and filtered in a combined septic tank (flow-control type filtration and circulation system). Kitchen wastewater, after passing through an oil trap, flows into the combined septic tank. The oil trap is periodically cleaned by a specialist and discarded as sludge waste. Also, inspection wastewater flows to the septic tank after neutralization treatment, and infectious wastewater flows to the septic tank after sterilization treatment. The discharge destination is a creek flowing from east to west on the south side of the planned project site.
For the septic tank, we plan to introduce a flow-control type filtration and circulation system of the same processing capacity as that introduced at Ishii Hospital (Isesaki city). The results of the water quality test (conducted twice in 2017) of the discharged water from the septic tank for 200 people at the hospital are as follows. These contamination levels are lower than the reference values, except for the number of colitis germ legions when compared with the wastewater standard (see Table C) set by the Ministry of Industry and the Myanmar Emission Guidelines. (The number of colitis germ legions is below the Japanese wastewater reference value.)

Table E Water Quality Results of Discharged Water from Combined Septic Tank of Ishii Hospital (Isezaki city)(2017)

	Unit	April 2017	October 2017	National Emissions Guidelines	Reference value of MOI
pH		6.8	6.9	6-9	5-9
BOD	mg/L	12	7	50	20
SS	mg/L	14	12	50	30
No. colitis germ legions	Units/ mL	Less than 10	480	400 MPN/100 mL	--

Affected topic	Survey results
	n-hexane extract mg/L Less than 1 Less than 1 -- -- (Reference): Ishii Hospital (Isesaki city) Also, since the predicted daily average water usage is 210m^3/day in our project plan, it is assumed that an equivalent amount of wastewater will be generated, and 76,650m^3 (210m^3 per day average) of wastewater is expected to be generated annually.
Waste	1) For laws relating to waste management in Myanmar, the Environment Protection Act (2012) and the Detailed Regulations of Environmental Protection Law (2014) can be cited. These stipulate that the Ministry of Environmental Protection and Forests shall promote the establishment of waste disposal facilities, and regulate the environmental standards concerning waste management, and the criteria concerning hazardous waste. Business operators are obliged to ensure that waste is disposed of in a manner that does not cause environmental pollution, etc. Meanwhile, in Yangon City, the Cleaning Rules (1996) and the Yangon City Pollution Control and Cleaning Rules (1999) are in place, and define regulation regarding the discharge of garbage to designated places, and the responsibilities and constraints of the municipal government, business operators and citizens concerning the collection, transportation and disposal of waste. 2) In Yangon City, waste collection and disposal are under the jurisdiction of YCDC, waste management within the YCDC Region is managed by the Pollution Control and Cleaning Department (PCCD). For collecting waste, this includes (1) collection from individual doors by push-cart and truck, (2) collection from temporary waste tanks, and (3) curbe-side collection via allocated waste bins etc. Major final disposal sites are Htein Bin and Htawe Chaung, and in addition to these, there are five other temporary disposal sites, but all facilities are operated via open dumping without environmental contamination countermeasures. The amount of waste collection and disposal in FY 2007-2011 was 1,250 to 1,400 tons / day. 3) The collection and disposal of medical waste in Yangon City is also under the jurisdiction of YCDC. Although YCDC collects medical waste daily from large hospitals and special clinics, collection from small facilities is on a once-per-week basis, or an on-call basis. Waste is prepared into three colors of collection bags, and collected separately. (I) blue or green: non-hazardous medical waste or household waste not contaminated with infectious agents or pathogens (food residues, paper/cardboard/plastic packaging), (ii) yellow: pathogenic waste, infectious waste and products used for medical treatment (Iii) Red: Sharp items such as disposable syringes and waste syringes with injection needles, old medicines, discarded medicines and items such as expired medical solvents, etc. Infectious waste is incinerated at the burial site, and sharp waste is placed in landfill, in the underground portion of the landfill site. Other waste is handled equivalently to household waste. For waste treatment, for the year starting April 2015, about 253 tons of medical waste was incinerated, and about 35 tons of medical waste disposed to the concrete pit. 4) Waste types generated during construction, and planned disposal methods, are as follows. ・ General waste from the office (garbage, paper garbage, plastic, etc.) → collection and disposal by YCDC ・ Construction waste (metal scraps, waste plastics, rubble, glass, wood chips, waste paper, cement, waste oil, sludge, etc.) → sold to a recycling company, or collected and disposed-of by an industrial waste disposal company. For waste management during construction, the following points should be considered ・ For general waste generated by construction workers, establish separate garbage bins, and have workers thoroughly separate waste into that recylcables, and non-recyclables.

Affected topic	Survey results

- For recyclable construction waste, sell as much as possible to a recycling company.
- For hazardous waste, accumulate in a sealed container, and store it separately with a label attached.
- As for the disposal of construction waste, it is entrusted to a specialized agency, but we need to confirm that it will be properly processed.

5) During hospital operation, the waste generated from the hospital facilities is as follows. We plan to separate, collect and dispose of this waste. Also, sludge generated from the septic tank is planned to be handled by the private sector.

Table F Waste disposal during operation

Waste Category	Form	Type/Content	Method of Disposal
Infectious waste	Sharpe	・Blood product / organ / tissue ・Injection needle, syringe with needle, surgical knife ・Petri plates, glass pieces ・Things used in chemotherapy, etc.	Outsourcing to the private sector or YCDC
	Liquid・semi-liquid	・Samples from medical inspections (blood)	Outsourcing to private sector
	Solid	・Items contaminated with blood, used for infection control · Syringes contaminated with blood or Body fluids · Infectious diapers · Gloves, gauze, etc.	Onsite Incineration
Non-infectious waste	Medical plastics etc	Items not contaminated with blood; · Medical plastic products · Drop packs etc.	Onsite Incineration
	Paper	・Items containing personal information	Onsite Incineration
	Medical glass items	Items not contaminated with blood; · Chemical bottles, glass products, thermometers, etc.	Outsourcing to the private sector
General Waste	General waste	・Raw garbage · Plastic products · Wastepaper, wood chips, etc.	Outsourcing to YCDC
	Recycables	・Tins ・glass bottles ・Newpaper, cardboard, etc	Recycling companies

The incinerator used for onsite incineration is a dry distillation gasifier, and our plan is to install one with a disposal capacity equivalent to that of Ishii Hospital (Isesaki city). The ash from the incinerator will be collected and handled by a specialized company

<table>
<tr><th>Affected topic</th><th>Survey results</th></tr>
<tr><td></td><td>having an intermediate treatment facility and sanitary landfill disposal site, according to international standards.

Waste management during operation will include the following;

・ Collect each waste type in a special box or plastic bag.
・ On containers of infectious waste, write "Infectious Waste", and display a biohazard symbol, making it understandable to everyone.
・ Store infectious waste separately from other waste.
・ Restrict entry and exit to infectious waste storage locations, and lock the storage cabinet.
・ Outsource management of infectious waste to contracts with collectors and intermediate processing contractors, and confirm as necessary whether they are appropriately managed and disposed-of.
・ All employees will be trained in waste management at the time of employment. (Separation method, protection and the methods of using protection, notes, countermeasures for emergencies, etc)
・ Display posters showing separation methods at each disposal site.
・ Although this project does not deal with radioactive isotopes, we plan to install PET-CT (positron emission tomography). Radioactive waste generated by PET examinations is sealed then stored in a controlled area for 7 days, and then discarded as non-radioactive waste.
6) Prediction of medical waste amounts generated during hospital operation: as shown in Table G, the amount of generated waste at the facility for this project (100 beds) was predicted using data from waste amounts generated in FY2014 at Ishii Hospital (Isezaki City) (188 beds).
Table G Prediction of generated medical waste
<table>
<tr><th></th><th>Waste generated (t) by Ishii Hospital (Isesaki city)</th><th>Expected wate generated (t) by this project</th></tr>
<tr><td>Infectious waste</td><td>3.315</td><td>1.76</td></tr>
<tr><td>Remnants of incineration treatment (ash, etc)</td><td>2.030</td><td>1.08</td></tr>
<tr><td>Medical glass scrap, concrete waste, ceramics waste</td><td>1.029</td><td>0.5</td></tr>
<tr><td>Waste plastic (recycled)</td><td>2.360</td><td>1.26</td></tr>
<tr><td>Sludge</td><td>0.005</td><td>0.003</td></tr>
</table></td></tr>
<tr><td>Soil contamination</td><td>1) Article 10 of the Environmental Conservation Law does not particularly address soil contamination, and standards concerning soil are not specified at present.
2) It is considered there is a potential risk of soil contamination, leakage of wastewater, solid waste, liquids and chemical substances. Fuel leakage is considered possible during construction, and waste water, infectious waste, chemical substance leakage during operation are considered possible.
3) However, in this project, we plan to implement the following measures.
During construction:
· Install a safe storage place away from the construction site for fuel.
· Use construction machinery/equipment with a low risk of oil leakage.
· Periodically check fuel containers and check for oil leaks.</td></tr>
</table>

<table>
<tr><th>Affected topic</th><th>Survey results</th></tr>
<tr><td></td><td>· Establish measures to cope with leakage of fuel and notify construction workers.

During operation:

· Establish safety rules related to the management of chemical substances, and make these rules known to relevant employees.
· In the event of leakage of chemical substances by any circumstance, establish measures to deal with the leakage and notify relevant employees.
· Collect medical waste and wastewater into specified containers, specify "Infectious Waste" on containers, and display biohazard symbols, which everyone understands.
· Store infectious waste and waste liquid separately from other waste, restrict entry and exit from these storage places, lock storage cabinets.
· Periodically inspect the fuel tank in the basement and maintain it properly.</td></tr>
<tr><td>Noize・vibration</td><td>1) In the National Emission Guidelines (December 2015) of Myanmar, noise standards are defined as follows. Noise levels emanating from the facility shall not exceed the following criteria or increase by 3 dB from background levels at the nearest receiver.
Table H Noise standards in Myanmar
<table>
<tr><th rowspan="2">Recept r</th><th colspan="2">One Hour LAeq (dBA)</th></tr>
<tr><th>Daytime (7:00-22:00)
(10:00-22:00 for public holidays)</th><th>Nighttime (22:00-7:00)
(22:00-10:00 for public holidays)</th></tr>
<tr><td>Residential, institutional, educational</td><td>55</td><td>45</td></tr>
<tr><td>Industrial, commercial</td><td>70</td><td>70</td></tr>
</table>
(Reference): NEQG (December 2015)

2) Surrounding the project site, there are residential areas to the north (across a two-lane road), residential areas to the west (across a single-lane road), and residential areas across the creek on the south. Also, a factory is located on the east side of the site. The distance between the site boundary and existing neighbouring residences is about 10m at closest, and about 26m on the west side.
3) Noise and vibration sources during construction are assumed to be transportation and operation of equipment for construction, and operation of heavy machinery. The construction period of this project is scheduled to be 24 months, during which noise and vibration to neighboring residences must be considered. At the start of the construction period, work is planned to set up temporary fences around the site.
4) Noise and vibration source during hospital operation may consist of the following.
· Increase in traffic volume by hospital employees, patients, and visitors, by private cars, ambulances, related vehicles, etc.
· Operation of boiler equipment (to be installed on the roof)
· Operation of private emergency generator

As mentioned above, the increase in traffic volume accompanying this project is expected to be around 100 to 130 units / day (about 7 to 10 units / hour), and the impact is not significant.</td></tr>
</table>

Affected topic	Survey results
Ground subsidence	1) From results of the interview survey on regional characteristics of the ground surrounding the project site, we understand that aquifers with potable water exist at about 50m in depth. Deeper than 50 meters, there are aquifers with high of turbidity and high salinity. 2) The total number of households using groundwater in Mayangon and Hlaing Township is 42.196 households, accounting for about 60% of total households. In addition, we cannot confirm the data on annual groundwater usage. 3) Although there is a high possibility of using groundwater during construction, according to the construction record of similar projects (hotel constructions) the amount of water used during construction was about 5 tons / day. During the construction period, we will monitor the groundwater level and ground subsidence levels. 4) Water used at the facility during hospital operation is planned to be provided by pumped groundwater, and as described above, the water demand is forecast to be 76,650m^3 per year (210m^3/day). In the future, when a water utility connection to this facility is made, it is planned to switch from groundwater to clean water. As in the construction period, we plan to monitor the water level (of the groundwater) and ground subsidence levels, to understand the impact of groundwater use during this period.
Odor	1) Works that cause offensive odors are not planned, but odors may occur due to improper management of waste. 2) Activities that cause offensive odor during hospital operation are not planned. However if management of waste and sludge is inappropriate, there is a possibility of generating bad odors.
Substratum	1) There is a possibility of inappropriate waste and drainage management affecting the substratum of an adjacent waterway. Therefore appropriate waste and drainage management is required.
Regional economy such as employ-ment and livelihood measures	1) This project involves large-scale construction work, and is expected to create new employment during the construction period. During construction, restaurants and the entertainment industry are expected to see an increase in activity accompanying the inflow of construction workers. 2) This project is to establishing a new hospital, therefore it is expected to stimulate the regional economy, such as in the creation of employment for staff and medical staff, the inflow of people from surrounding areas, the hospital business, the creation of new industries including support for patients and their families, etc.
Water usage	1) Although groundwater is planned for use, the proportion of households utilizing groundwater for domestic use in Mayangon and Hlaing Township is relatively high, about 50% and about 70%. 2) As described above in "Ground subsidence", the amount of water used during construction is estimated to be about 5 tons / day, and the influence on surrounding water supply is minor. 3) As mentioned earlier, the amount of groundwater used in this project (from 4 shallow wells in the facility) is estimated to be about 76,650m^3 per year (210m3/day). Although residents using groundwater in the surrounding area are confirmed, we are planning to understand the impact of our project by monitoring groundwater levels and ground level regularly. Also, in the future, if town water supply is connected to this facility, it will be an opportunity to switch to clean town water.
Existing social infrastr	1) The intersection of Insein Road which runs from downtown Yangon City to the northern part of Yangon, and the Hlaing River Road which is connected to the bridge across Yangon River to the west side of Yangon, is the planned location for this project.

Affected topic	Survey results
ucture and social services	According to the results of the traffic volume survey, the intersection of the main roads around the project area are already somewhat crowded, and traffic volume ratio already exceeds 0.8, depending on the time of day. 2) Regarding major social infrastructure and impact on social services during construction, there will be some traffic congestion, however the number of construction vehicles entering and exiting the project site is small compared to traffic during operation, so the impact is assumed to be minor. Also, we will arrange traffic controllers at the entrance, and try not to generate congestion and traffic accidents in the surrounding area. 3) As mentioned above, the new traffic generated due to hospital visitors and transfers during hospital operation is expected to be about 100 to 130 units/day (about 7 to 10 units/hour.) The direct impact on road traffic around the city is not considered to be large. Furthermore, from 2021 (the hospital opening year), traffic volume will increase regardless of the hospital's existence, so there is a high possibility that future traffic volume cannot be handled. Particularly for when the hospital is crowded, there are plans to implement appropriate traffic direction into the parking lot of the facility.
Worker safety and hygiene	1) During construction, the following occupational safety measures are planned for construction workers. · When employing construction workers, conduct safety and health education, and thoroughly enforce the safety regulations at the construction site. · Construction workers should wear appropriate protective equipment. (Helmet, safety harness, safety shoes, gloves etc) · On the construction site, establish a safety and health management system, assign responsible persons, reporting methods, etc. · On the construction site, install signs in hazardous locations that everyone can understand. · Check all machinery, tools, heavy machinery etc before starting work. · Implement safety patrols by construction work manager and others. · Organize and tidy up construction sites, clean regularly. · Confirm safety at the time of closing. · Drivers of construction vehicles will take safety driving training before starting work. 2) During hospital operation, plans for safety and hygiene of workers are as follows. · Establish a hospital health and safety measures manual, and update as needed. Store the manual in a specified place accessible to employees. · All employees receive safety and health education at the time of employment. Also, formulate safety and health education plans for all employees and implement them accordingly. · All employees receive Medical Checkups once a year. · Set up a hygiene committee in the hospital, and check the health condition of the employees (including radiation exposure levels) and presence or absence of occupational accidents etc at regular monthly meetings. · Create disaster prevention manuals for events such as earthquakes and fires, update them from time to time, and keep them in designated places accessible to employees. Employees receive training related to disaster prevention manuals and understand the contents. · For fire extinguishing facilities, in accordance with the regulations of Yangon City, planned according to Singapore's fire law, we will install sprinkler equipment, indoor fire hydrant equipment, wet risers (a deformed water supply system with a water supply installed in indoor fire hydrants) and fire extinguishers.
Public health	1) This project involves large-scale construction work, and involves many construction workers, so the risk of negative impact (spread of infectious disease etc) to surrounding public health will be increased.
Climate change	1) Myanmar ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 and subsequently ratified the Kyoto Protocol in 2003. In 2013, the

Affected topic	Survey results

Myanmar Climate Change Alliance Committee was established, centered on the Myanmar Climate Change Alliance Committee (MONREC), and established a national climate change policy and national climate change strategy and action plan (Myanmar Climate Change Strategy & Action Plan MCCSAP) 2017 - 2030).

According to the 2000 inventory (see table below), greenhouse gas emissions in Myanmar are largest for the land and forest use sector (54.3%), followed by agriculture (30.7%), and energy (10.6%). On the other hand, absorption by forests is higher than emissions, and total emissions are currently considered to be at a low level.

Table I Greenhouse Gas Emissions in Myanmar (2000)

Sector	CO_2 (Gg CO2-eq)			Percentage (%)
	Absorption amount	Total emissions	Net emissions	Total emissions
Energy	0	7,863	7,863	10.6
Industry	0	463	463	0.6
Agriculture	0	22,844	22,844	30.7
Land and forest use	142,221	40,405	-101,816	54.3
Waste	0	2,826	2,826	3.8
Total	142,221	74,402	-67,819	100.0

(Reference): GHG Inventory in Myanmar: INC Report (The 9thWorkshop on GHG Inventory in Asia)

2) Although the occurrence of greenhouse gas emissions due to transportation of material during construction and operation of heavy machinery is expected, the impact is temporary and limited.
3) Major activities that contribute to the generation of greenhouse gases during operation are: (1) burning incinerators, (2) biological treatment in septic tanks, and (3) increasing traffic accompanying this project. ① It is predicted that greenhouse gases such as CO_2, CH_4, N_2O are generated from incinerators, but because this project adopts a dry distillation gasification system, the amount of chemical fuel used for incineration can be drastically reduced, and it is possible to suppress the amount of greenhouse gas generated. ② Because the wastewater treatment volume in this project is limited to 210m^3/day, it can be said that the contribution to global warming caused by the operation of this project is minor. ③ The amount of traffic increase accompanying this project is estimated to be around 100 to 130 units / day, as described in "Air pollution" in the table, and contribution to global warming by this project will be minor.

8.6. Assessment of Environmental Impact

Table 120 shows the results of the simple environmental impact assessment, at this stage, based on the results of this research.

Table 96 Simple Environmental Impact Assessment Result

Classification	Item impacted	Evaluation at scoping		Evaluation based on the survey result		Reasons for evaluation score
		Before and during construction	During operation	Before and during construction	During operation	
Pollution control	Air pollution	B-	B-	B-	B-	**During construction:** Due to the operation of construction equipment and the running of construction vehicles, deterioration of air quality due to exhaust gas, dust is expected, however the impact is temporary and limited. **During operation:** Increased traffic volume will have a negative impact on the air quality due to exhaust gas from running vehicles, however the impact is small. Also, a negative impact on air quality due to the operation of the incineration facility is expected, however we estimate that the dry distillation gasification system introduced in this project can reduce the emission of air pollutants such as dioxin, and the impact will be sufficiently reduced..
	Water pollution	B-	B-	B-	B-	**During construction:** Turbid water accompanying construction work, and water pollution due to drainage from the construction site is expected, however impacts are mitigated by wastewater countermeasures such as setting up balancing reservoirs and settling reservoirs, and installing a simple septic tank on the construction site. **During operation:** Water quality deterioration due to wastewater generated from facilities and infectious wastewater is expected. While deterioration is expected, each type of wastewater will be subjected to appropriate wastewater treatment in the septic tank installed in the facility (and kitchen wastewater, test wastewater, and infectious wastewater will have an initial treatment prior to treatment in septic tank). Therefore the impact on water quality is reduced.

Classification	Item impacted	Evaluation at scoping		Evaluation based on the survey result		Reasons for evaluation score
		Before and during construction	During operation	Before and during construction	During operation	
	Waste	B-	B-	B-	B-	**During construction:** Waste from construction work and general waste from workers is expected to be generated. Regarding waste associated with construction work, generation of metal scraps, waste plastics, rubble, glass scraps, wood chips, waste paper, cement, waste oil, sludge, etc is expected. **During operation:** Waste generated during operation shall be appropriately sorted and discarded, and kept in the hospital. For infectious waste, sharp item disposal will be outsourced to specialists. Among solid infectious and non-infectious waste, solid plastics (etc) will be disposed by onsite incineration. Other general waste related to business operationis are collected and processed by Yangon City.
	Soil pollution	B-	B-	B-	B-	**During construction:** By taking measures to prevent oil leakage during construction, the risk of soil contamination can be reduced. **During operation:** Appropriate management measures for fuel, waste, liquid waste, and chemical substances can reduce the risk of influence of soil contamination.
	Noise・vibration	B-	B-	B-	B-	**During construction:** Sources of noise and vibration predicted for the construction period are pile construction, excavation, transportation of construction equipment, etc. Construction period is limited to 24 months, but during this time, impact on residential areas around the project area is expected. **During operation:** There is little influence on noise and vibration due to the increase in traffic volume by this project. On the other hand, there could be noise generation due to the operation of heating facilities.
	Ground subsidence	B-	B-	B-	B-	**During construction:** Land subsidence due to groundwater pumping is expected during construction. **During operation:** Land subsidence due to groundwater pumping is expected

Classification	Item impacted	Evaluation at scoping		Evaluation based on the survey result		Reasons for evaluation score
		Before and during construction	During operation	Before and during construction	During operation	
	Odor	C	C	D	D	**During construction:** Works that cause offensive odors are not planned, but odors may occur due to improper management of waste and domestic wastewater. Impacts are mitigated by proper waste management and wastewater treatment. **During operation:** Inappropriate treatment of wastewater from facilities and drainage from waste may cause foul odors, but the effect is mitigated by management of medical waste and implementation of appropriate wastewater treatment.
	Substratum	B-	B-	B-	B-	**During construction** If construction wastewater is not properly processed, there is a possibility that the ubstratum of the creek on the southern side of the site of the release destination may be affected. **During construction & operation:** If waste storage or wastewater treatment is not managed properly, there is a possibility that the substratum of the creek to the south of the site (the wastewater disposal location) may be affected.
Natural environment	Water	B-	B-	B-	B-	**During construction:** Works that cause changes to river water flow or riverbeds are not going to occur, but transient impacts are expected to occur from land modification. However, by introducing appropriate provisional drainage work and water balancing ponds to the construction site, the impact on water flow is reduced. **During operation:** Changes to the water environment after land reformation are predicted, however the introduction of appropriate drainage systems and balancing reservoirs reduces the impact on water flow.

Classification	Item impacted	Evaluation at scoping		Evaluation based on the survey result		Reasons for evaluation score
		Before and during construction	During operation	Before and during construction	During operation	
Social environment	Regional economy such as employment and livelihood measures	B+	B+	B+	B+	**During construction:** As this project involves large-scale construction work, it is expected to create new employment during the construction period. In addition, the influx of construction workers is expected to stimulate neighborhood restaurants and entertainment industries. **During operation:** A positive impact on the regional economy by hospital operation is expected.
	Water usage	C	C	B-		**During construction:** The amount of groundwater used during the construction period is limited, and the influence on water levels in the surrounding water is expected to be minimal. **During operation:** It is thought that the use of well water for this project's facility will impact the availability of groundwater in the surrounding area, but we plan to monitor the level of groundwater and the subsidence level of the ground regularly, and assess the impact on groundwater in the surrounding area. In the future, when water connection by YCDC is conducted, there will be an option to switch from using groundwater to using city water.
	Existing social infrastructure and social services	B-	B-	B-	D	**During construction:** An increase in construction vehicle traffic could temporarily affect access to social infrastructure and services. **During operation:** As the increase in traffic volume caused by this project is smaller than the total increasing traffic volume, it is thought that there is little impact on the traffic situation around the project site.
Health and safety	Worker safety and hygiene	B-	B-	B-	B-	**During construction:** As this project involves large-scale construction work, risks to safety and health of workers are involved. However, risks can be reduced by implementing safety and sanitation measures for construction workers. **During operation:** There are risks such as exposure to radiation, but risk can be reduced by implementing appropriate safety and health measures for employees.

Classifi-cation	Item impacted	Evaluation at scoping		Evaluation based on the survey result		Reasons for evaluation score
		Before and during construction	During operation	Before and during construction	During operation	
	Public health	B-	A++	B-	A++	**During construction:** It is expected there will be an impact on public health (expansion of infectious diseases, etc.) around the planned site during construction, due to the inflow of many construction workers. **During operation:** This project will see an improvement of medical services in the surrounding area, so a positive influence on public health is expected.
Other	Climate change	B-	B-	B-	B-	**During construction:** It is expected that generation of greenhouse gases will occur due to the operation of construction machinery and the running the construction vehicles, however the impact is limited. **During operation:** The operation of incineration facilities and the septic tank, and the increase of traffic volume are expected to generate greenhouse gases, however the impact is limited.

A+/-: Significant positive/negative impact is expected.

B+/-: Positive/negative impact is expected to some extent.

C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses)

D: No impact is expected.

8.7. Traffic Volume Survey

8.7.1. Purpose of the Traffic Volume Survey and Process

After construction of the hospital in Yangon by the private hospital project, once business operations start, traffic will be introduced from various sources not currently present in the area, such as commuting staff and visitors (of hospital patients). The objective of this survey is to evaluate how the traffic related to hospitals operations will influence the road traffic around the hospital.

In evaluating the influence on road traffic around the hospital, traffic volume surveys were conducted for intersections around the hospital, and current road conditions were investigated. We estimated future traffic volume based on surveyed current traffic volumes, and evaluated the influence of newly generated hospital traffic on road traffic around the hospital.

The outline of the traffic volume survey is shown in the flow chart below. First, ① Set the target intersection and assess by field survey the current road conditions, such as the number of lanes and the width of the road at each intersection, and the signal control situation. Next, ② Carry out a 16-hour traffic volume survey on weekdays and holidays, and assess traffic volume data. Using the results of the field survey in ①, and the result of the traffic volume survey in ② as input conditions, ③ Investigate intersection processing capacity in the current situation. In order to determine future intersection processing capacity, ④ Set future traffic demand, and ⑤ Estimate and consider future intersection processing capacity. Finally, ⑥ We will examine the proposed transportation policy.

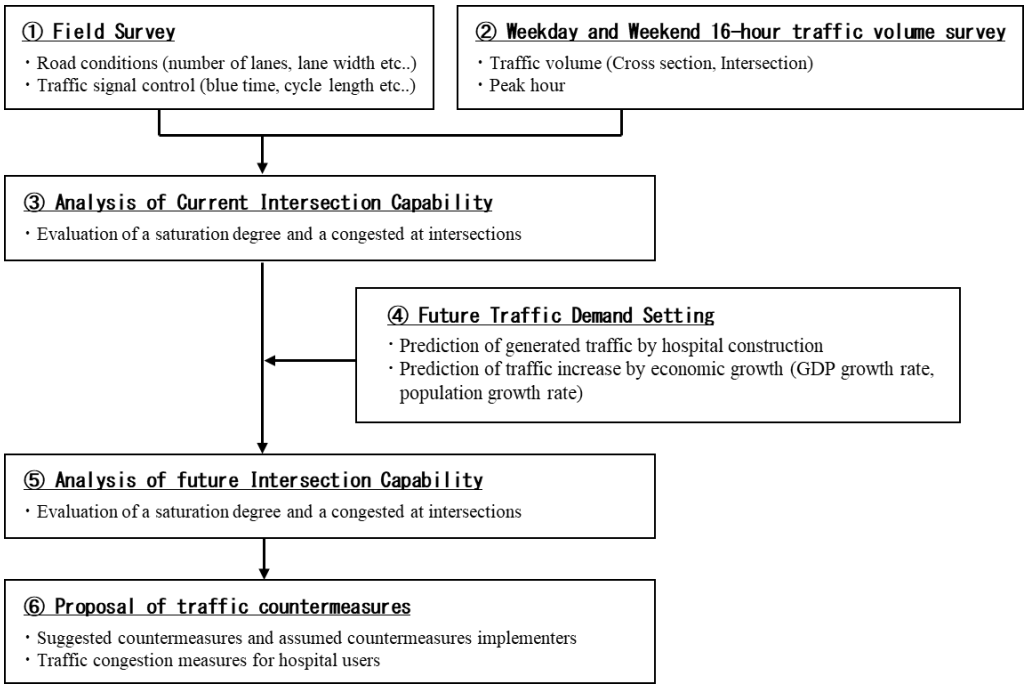


Figure 84 Process Flow of Environmental Social Survey

8.7.2. Position of Target Intersections

The intersection of Insein Road running from downtown Yangon City to the northern part of Yangon, and Thamin Train Station Road which connects to the bridge crossing Yangon River towards the west sie of Yangon, is the planned location for this project.

We surveyed four intersections located around the project site. All 4 intersections are 4-way intersections, and signal control is in place at all except for the # 3 intersection. Intersection positions are shown as #1 to #4 below.

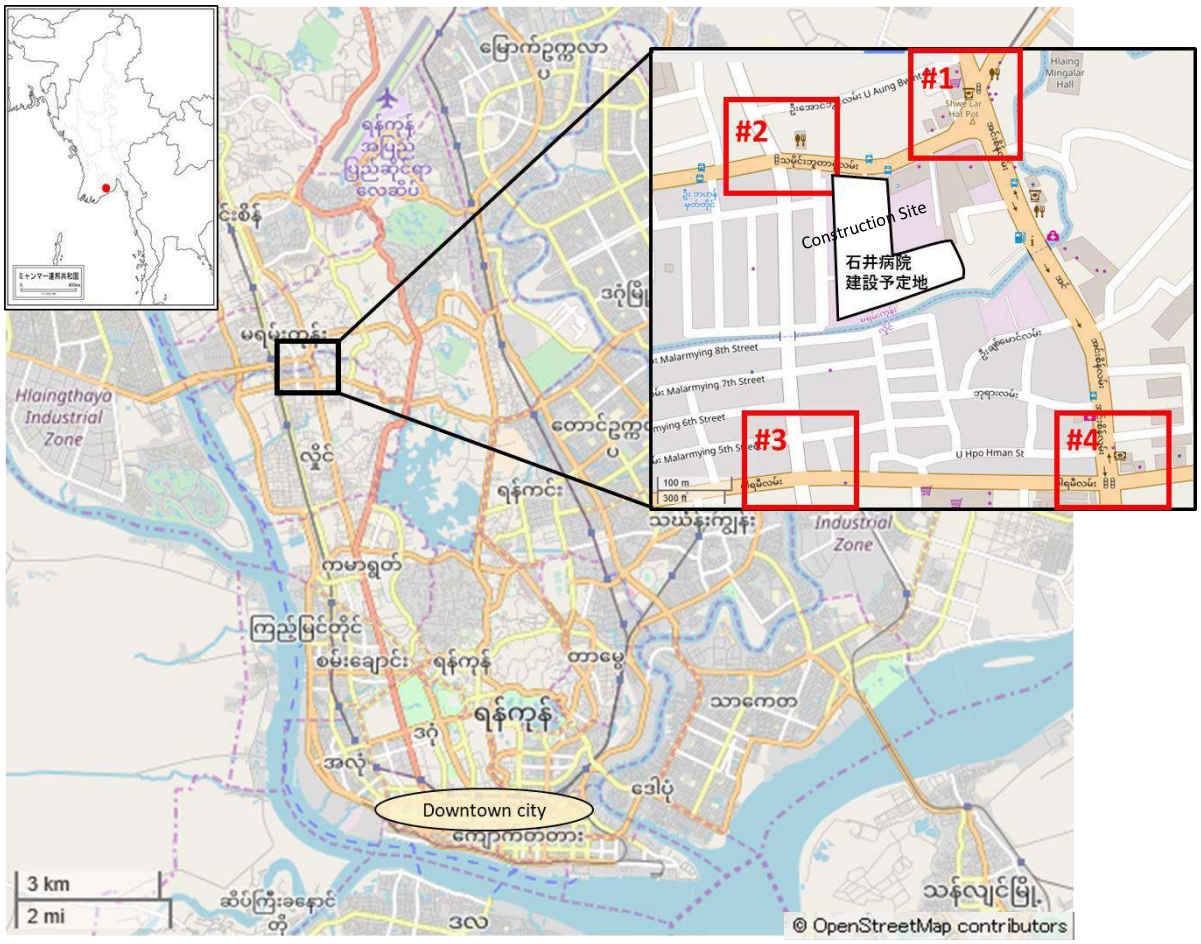


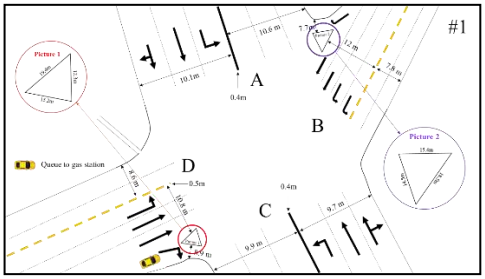
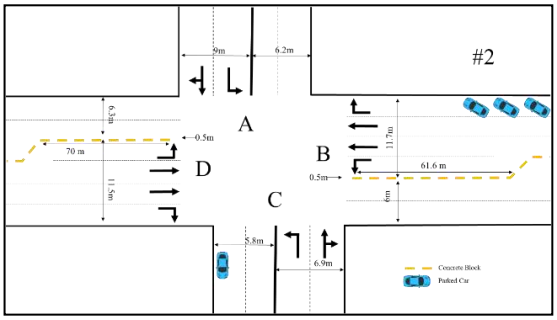
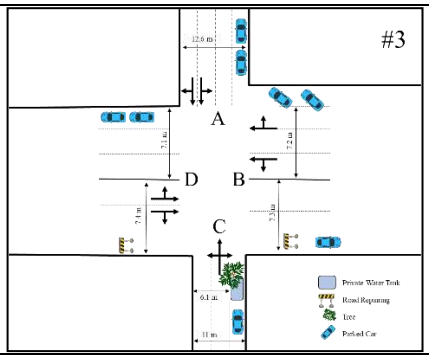
Figure 85 Survey target area location map

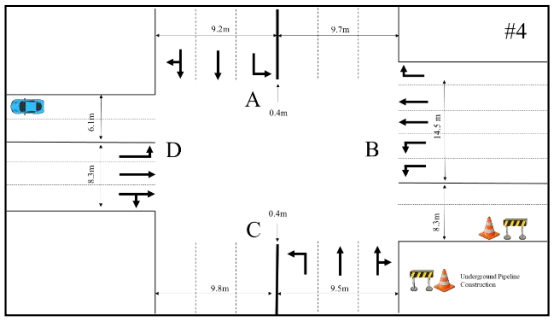
(Reference) Nippon Koei

8.7.3. Road Condition and Signal Control Situation at Target Intersections

The results of the present-condition surveys, such as the number of traffic lanes, the width of target intersections, and traffic light placements, are shown in the figures below. With regard to the traffic light surveys, countdown type traffic lights are installed at all target intersection except for intersection # 3. These traffic lights are performing timed control, and do not apply utilize timings depending on time-of-day or traffic volume fluctuations.

Table 97 Survey Results on Road Condition and Signal Control Situation at Target Intersections

Intersection	Road Condition of Intersection	Remarks
#1		Intersection # 1 has more traffic than the other target intersections. Regarding the signal control situation, the cycle length is long, at 170 seconds, and the green light (3φ) in the east-west direction is long, at 60 seconds.
#2		Street parking was observed near the intersection. In the future, if street parking increases, there is a concern that it will greatly affect the traffic capacity of the intersection. Regarding the signal control situation, the cycle length is 80 seconds, with 4 signal states. The green light (1φ) in the north-south direction is 20 seconds, which is a smaller percentage of time than the lane numbers might suggest.
#3		Lanes were blocked due to street parking and road maintenance, and the number of lanes was smaller, and traffic capacity lower than the intersection's normal condition. Intersection #3 is an omni-directional stop intersection, at which no traffic lights are installed.

#4		Intersection #4 has the higest traffic volume after that of #1. Regarding the signal control situation, the cycle length is long, at 220 seconds, with 6 signal states. In particular, the green light (1φ) in the north-south direction is set for 77 seconds. Also, the green light (3φ) of the inflow of road D and the green light (5φ) of the inflow road B can be improved by adjusting the signals states for the left-turn-only lanes. There is room for optimization of signal states.

（Reference）Nippon Koei

8.7.4. Traffic Volume Survey Method

16-hour traffic surveys on weekdays and holidays were conducted at the target intersections. The purpose of these traffic volume surveys was to contribute obtained traffic volume data to the future volume forecasting, and to evaluate the impact of our project on the traffic situation around the project site. The methodology of the traffic volume surveys are shown below.

Inspectors were placed at the target intersections to perform field measurements. The survey schedule, measurement method, vehicle type classification, and number of inspectors at each intersection are as shown below. Before the survey was conducted, training was provided to inspectors on traffic volume measurement. In this training, we measured the traffic volume of the same intersection with two or more people, checked for errors, and correct measurement methods.

・Date	: 17th June 2018 (Weekend) , 19th June 2018 (Weekday)	
・Time	: 16-hour (AM6:00～PM10:00)	
・Method	: Count for each direction, time zone, vehicle type	
・Vehicle Type	: 4 classifications	
・Surveyors	: #1 Intersection	Surveyors：8 persons＋Supervisor：1 person
	: #2 Intersection	Surveyors：6 persons＋Supervisor：1 person
	: #3 Intersection	Surveyors：4 persons＋Supervisor：1 person
	: #4 Intersection	Surveyors：6 persons＋Supervisor：1 person
	Total	Surveyors：28 persons（Replacement：4 persons）＋Supervisor：4 persons ＝ Total 32 persons

8.7.5. Results of Traffice Volume Survey

All intersections in this survey are 4-way intersections. For the sake of convenience, as shown in the road condition diagrams for intersections in OO, the north direction of each intersection is A, the east direction is B, the south direction is C, and the west direction is D. Survey results of the 16 hour intersection traffic volume surveys at the target intersections, are summarized in the table below.

Table 98　16 Hour Traffic Volume Survey Results for Target Intersections

Intersection	Characteristics of intersection traffic volume for 16 hours (excerpts of weekday results)
#1	At intersection #1, traffic volume of private cars and light trucks travelling from east-to-west was about 16,000 to 18,000 units (for example, inflow section B and outflow section D). On the other hand, the volume of busses passing through the north-south direction is high, at about 1,200 busses, compared to less than 100 buses in the east-west direction.
#2	At intersection #2, the volume of private cars and light trucks travelling from east-to-west was as high as the volume for intersection #1, at about 15,000 to 19,000 vehicles, and bus traffic volume was as high as 1,000 busses or more. The north-south direction had an intersection traffic volume of about 1/3 to 1/2 of the east-west direction, and busses numbered less than 100.
#3	At intersection #3, the traffic volume is small compared to other intersections, and the traffic volume of private cars and light trucks for each direction is about 5,000 to 10,000. Particularly, the traffic volume of inflow at part C and outflow at part C were as small as 2,356 and 1,948.
#4	Intersection #4 had the 2nd higheest traffic volume after intersection # 1. In particular, volume of buses passing north-to-south was high, with about 1,800 in each direction.

(Reference) Nippon Koei

8.7.6. Analysis Results of Current Intersection Capacity

In order to estimate the project's impact on the traffic situation around the project site, it is necessary to model the traffic situation before construction, and compare it with the traffic situation after construction. In this section, we confirm quantitatively the intersection saturation levels and traffic volume ratios at the target intersections, that is, whether the intersections can process the current traffic volume or not. The peak-time traffic volumes of each intersection was used for caluculating the intersection saturation degree.

The peak-time zone traffic volume at each intersection was calculated from the measurement result of the current traffic volume. Peak time zone and traffic volume at each intersection on weekdays and holidays are shown in the table below.

Table 99　Peak-Time and Traffic Volume at Each Intersection (left: weekday peak, right: holiday peak)

Targeted Intersection	Weekday			Weekend		
	Peak Hour	Traffic Volume (pcu/hour)	Share Rate	Peak Hour	Traffic Volume (pcu/hour)	Share Rate
#1	9:00-10:00	4,663	6.9%	9:00-10:00	4,882	7.3%
#2	10:00-11:00	3,568	6.9%	14:00-15:00	3,860	7.5%
#3	7:00-8:00	1,792	7.3%	10:00-11:00	2,071	7.6%
#4	7:00-8:00	3,785	6.8%	14:00-15:00	4,177	7.1%

(Reference) Nippon Koei

For intersection #1, intersection #2 and intersection #4, which have signal control, we analyzed the intersection processing ability based on the traffic flow saturation rate and signal indication. Note that for intersection # 3 we calculated traffic volume separately, for no traffic lights, and analyzed the intersection processing capability.

The analysis results are summarized in the table below. Here, as evaluation indicators of intersection processing ability, the traffic capacity ratio and the intersection saturation degree for each lane are determined. Both indcators (traffic capacity and intersection saturation) start to indicate crowded intersections when they exceed 0.8, and when they exceed 0.9, it means that the intersection cannot handle the traffic volume.

From the same table, it can be seen that there are congested lanes in each intersection. From the field survey results, queues for the gas station were seen at the outflow of part C of intersection #1. Also, at other intersections, street parking, abandoned vehicles, and road maintenance works were observed. If these factors which cause such decreases in traffic capacity exist, there is a possibility that the intersections cannot handle the traffic volume, even in the inflow sections where the analysis results implied no congestion.

Table 100 Traffic Capacity Ratio and Intersection Saturation Degree (left: weekday peak, right: holiday peak)

Peak-hour on weekday(2018)		
Targeted Intersection	Congested ratio (Over 0.8 score)	Saturation degree
#1	Right & Straight Lane at Intersection approach C	0.691
#2	Right & Straight at approach A Right & Straight at approach C	0.622
#3	Left & Straight at approach D	-
#4	Left at approach B Right & Straight at approach D	0.795

Peak-hour on weekend(2018)		
Targeted Intersection	Congested ratio (Over 0.8 score)	Saturation degree
#1	Not applicable	0.621
#2	Right & Straight at approach A Right & Straight at approach C	0.567
#3	Right & Left & Straight at approach C Left & Straight at approach D	-
#4	Left at approach B Right & Straight at approach C Right & Straight at approach D	0.824

(Reference) Nippon Koei

8.7.7. Examination of Future Intersection Processing Capacity

In evaluating the impact on road traffic around the site after opening the hospital, we will forecast future traffic volumes for the period after the hospital's construction. The hospital opening year is assumed to be 2021, and years 2021 to 2025 are defined as the target years for the forecast. The future traffic volume in the target years of the forecast is considered to increase from the current traffic volume for the following two points. Respective estimation methods are shown below.

8.7.7.1. Future Traffic Volume Around the Hospital Site

The number of trips by road-transportation in Yangon from 2016 to 2035 is reported in the YUTRA survey (2014). Assuming that the number of trips and the growth rate of traffic volume are about the same, we set the annual growth rate of traffic volumes as 5.8% for combined car and taxi traffic, and 3.7% for bus traffic. Using these annual growth rates for the traffic volumes, we predicted the ratios of

the future traffic volume to present traffic volume, in the forecast target years as shown in the table below.

Table 101 Ratio of Future Traffic Volume to Present Traffic Volume (2018) for Target Years (2021 to 2025)

Vehicle type	Ratio to current traffic volume (2018)						
	2018	2021	2022	2023	2024	2025	Annual growth rate
Cars (incl. taxis)	1.00	1.19	1.25	1.33	1.44	1.49	5.84%
Busses	1.00	1.12	1.16	1.20	1.24	1.29	3.72%

(Reference) Nippon Koei

8.7.7.2. Additional Traffic Related to Hospital

When the hospital planned in this project is constructed and business operations start, traffic will be introduced from various sources not currently present in the area, such as from hospital visitors and transfers. According to the change in the number of hospital users as estimated from GDP growth rate, population growth rate and other variables, we estimated newly generated traffic volume around the hospital via the following procedure.

1. Assume hospital users' means of transportation will be cars (including taxis) and buses, and distribute hospital user numbers to car and bus categories based on YUTRA (2014) transport category ratios.
2. Convert number of hospital users using cars to additional traffic volume per day. Here, hospital users who use buses are included in the future traffic volume growth described in the previous section, therefore we don't include them as additional traffic here. In addition, hospital users can be categorized as outpatients and inpatients, but even for inpatients, it is considered that traffic will occur as families come to visit and care for the inpatients.
3. Calculate the amount of traffic generated per hour for peak hours, and extrapolate based on current traffic volume growth rates, to determine estimated additional traffic volume per day. Here, the generated traffic volume is assumed not to pass through a route not going towards the hospital (for example, a route turning right from the inflow part C of the intersection # 4).

Table 102 Transport and Traffic Volume of Hospital Users for the Target Years of the Forecast

Targeted Year of Prediction(year)		2021	2022	2023	2024	2025
The number of hospital users by car (persons/year)		36,963	39,426	42,058	44,869	47,873
The number of hospital users by bus (persons/year)		60,808	63,560	66,443	69,464	72,628
Total		97,771	102,987	108,501	114,333	120,501
Targeted Year of Prediction(year)		2021	2022	2023	2024	2025
Daily Traffic Volume by Hospital Users(Vehicles/hour)		101	108	115	123	131
Peak-hour Traffic Volume by Hospital users (Vehicles/hour)	#1	7	7	8	8	9
	#2	7	7	8	8	9
	#3	7	8	8	9	10
	#4	7	7	8	8	9

(Reference) Estimates based on YUTRA survey report (2014) and Hospital User Estimates

8.7.7.3. Analysis Results of Future Intersection Processing Capacity

As with the current intersection analysis, we analyzed the intersection processing capability in the target years of the forecast using future traffic demand, which was set based on the current traffic volumes obtained by the traffic survey. Here, it is assumed that the peak-time of traffic volume is the same as the present situation, even in the target years of the forecast. The analysis results of traffic volume ratio and intersection saturation degree by direction at each intersection in 2021 of the hospital opening year are summarized in the table below.

Based on the analysis results, it is estimated that the newly generated traffic volume due to hospital operation in the target years of the forecast (2021 to 2025) is expected to increase to about 100 to 130 cars/day (about 7 to 10 cars/hour). The direct impact on surrounding road traffic is not considered to be significant. On the other hand, traffic volume is on an increasing trend regardless of the construction of the hospital, so there is a high possibility that traffic volume cannot be handled in the future.

Table 103 Traffic Capacity Ratio and Intersection Saturation Degree in 2021 (Hospital Opening Year)

Peak-hour on weekday(2021)		
Targeted Intersection	Congested ratio (Over 0.8 score)	Saturation degree
#1	Left Lane at Intersection approach A Right & Straight at approach A Right & Straight at approach C Left at approach D	0.817
#2	Right & Straight at approach A Left at approach C Right & Straight at approach C	0.709
#3	Left & Straight at approach D Right & Straight at approach D	-
#4	Left at approach A Right & Straight at approach A Left at approach B Right & Straight at approach C Right & Straight at approach D	1.124

Peak-hour on weekend(2021)		
Targeted Intersection	Congested ratio (Over 0.8 score)	Saturation degree
#1	Left Lane at Intersection approach A Right & Straight at approach A Right & Straight at approach C	0.740
#2	Right & Straight at approach A Right & Straight at approach C	0.670
#3	Right & Straight at approach A Right & Left & Straight at approach C Left & Straight at approach C	-
#4	Left at approach A Right & Straight at approach A Left at approach B Left at approach C Right & Straight at approach C Right & Straight at approach D	1.107

(Reference) Nippon Koei

8.8. Consideration of Simple Traffic Countermeasure Proposals

In the planned hospital opening year, the influence of newly generated traffic accompanying the new hospital on regional traffic is low, at around 100 to 130 cars per day (about 7 to 10 per hour at peak). However, due to traffic accompanying general economic growth in Yangon City, there is a concern regarding further congestion of the surrounding roads due to an increase in general traffic volume. Factors of traffic congestion occurring in the vicinity of the hospital, proposed countermeasures, and assumed entities responsible for implementing the proposed countermeasures are shown in the table below. Since there is no concern about traffic congestion caused by hospital construction, we didn't include it in the table. If signs indicating direction to the hospital entrance are set up around the intersection #1 and intersection #3, and visitors avoid passage through intersection #4, it can be considered that traffic of hospital users can be facilitated.

Table 104 Consideration of Simple Traffic Countermeasure Proposals

Traffic congestion factor	Simple traffic countermeasures	Implementing entity
Queue for gas station on Insein Road	· Expansion of gas station · Expansion of lanes for gas station · Transportation management in front of gas station	・YRG, YCDC ・Gas station companies
Drivers Ignoring lanes at intersection #2	· Lane marking · Guidance on traffic manners	・YCDC ・Yangon Traffic Police
Parked vehicles at intersection #2 and #3	· Control of parking · Installation of parking prohibition signboard	・Yangon Traffic Police ・YCDC
Poor drainage at Thamine Rail Station Road	· Pavement repair · Maintenance of drains	・YCDC
Traffic light signals not optimized	· Optimization of traffic light signals · Introduction of traffic light control systems	・Yangon Traffic Police

(Reference) Nippon Koei

8.9. Summary (Environmental and Social Considerations)

In this survey, we investigated the potential impacts on the environment, of construction and operation of items relating to this project, but no significant problems were found. For some items such as water quality and waste, we can reduce the impacts by implementing countermeasures. Particularly during construction, there is a high possibility that there will be various influences on the environment, so we would like to take, as much as possible, various measures to control impact. On the other hand, when the hospital starts operatings, a very positive impact on public health is expected.

Moreover, as a result of estimating future traffic volume from 2021 to 2025 (after the assumed start of business operation for this project), traffic volume is expected to increase about 1.1 to 1.5 times from the present traffic volume, regardless of the establishment of the new hospital. After the opening of the hospital, traffic countermeasures for roads near the hospital will be necessary, because there is a possibility that future traffic volume cannot be handled by current intersection processing capacity and road conditions. On the other hand, as a result of estimating additional traffic volume generated by hospital operation, hospital traffic volume is expected to increase to about 100 to 130 cars/day (about 7 to 10 units/hour), so the direct impact of hospital traffic on surrounding road traffic is not large.

《Chapter 2 Plan》

9. Business Concepts and Provided Medical Services

9.1. Business Concepts

The main concept for our business is ‘To provide the best Japanese standards of health care in Yangon, Myanmar’. We are formulating designs for each service, and staff and management plans.

5 secondary business concepts to support the main concept are;

1. Trusted medical staff
   - Japanese staff and Burmese staff who are educated with Japanese standards
2. Japanese style operation and devices
   - Operational support by Japanese hospital
   - Operating during the day, and duty system at night
3. Available in Myanmar
   - Safe health care provided in Myanmar
4. Reasonable prices
   - Setting competitive prices to compete with other overseas hospitals
5. Social contribution
   - To contribute to the improvement of medical standards in Myanmar

As shown in Figure 86, near-to-home, low-standard services (above-left), or far-from-home, high-standard services (below-right) are currently available to Burmese people. Our new hospital is aiming to take advantage of the market by trying to achieve near-to-home, high-standard services (above-right).

As outlined in Chapter 4, Myanmar is at the stage of focusing on improving medical services, such as with the introduction of the latest medical equipment, mainly in private hospitals. Grand Hanthar Hospital and Kan Thar Yar Hospital, which opened in recent years, are hospitals which have advanced imaging diagnostic equipment and inspection equipment, as are hospitals with foreign hospital businesses as investors, such as Pun Hlaing Hospital and Ar Yu Hospital.

However, there is still room for improvement, in terms of services and operations, and even at major private hospitals like the ones listed above, most of the doctors are employed part-time only, and commonly work in public hospitals during the daytime. It is still common to see families, not nurses, giving meals to patients and providing other care at the hospitals.

Therefore, the new hospital aspires to a high international standard, not only in equipment, but also in services and business operation, and aims to become a pioneer in this market. Moreover, through human resource development, we will contribute to improving the level of healthcare in Myanmar. The goal is to build a solid brand for when the high-level medical services market is established in Myanmar.

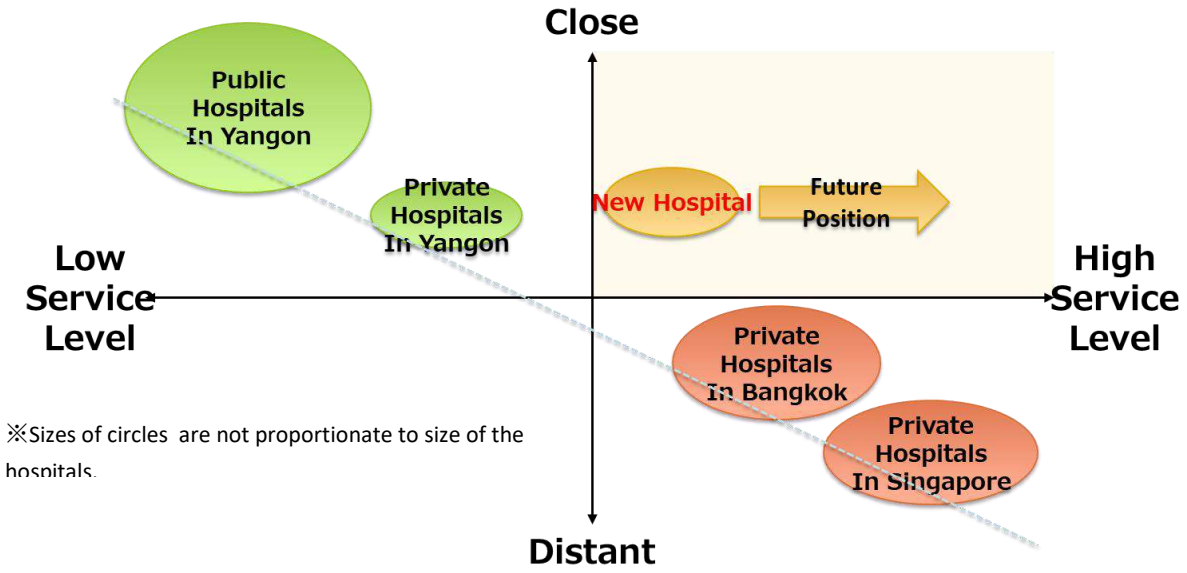


Figure 86 Market Position for Our New Hospital (1)

(Reference) Created by the research group

From the viewpoint of price and cost, although it is planned to operate the business with sufficiently competitive prices compared with hospitals in Singapore and Bangkok, many Japanese staff will be involved at the opening of the new hospital, and operational costs will be quite high – it is expected that operational costs will be higher than those of Myanmar's competitive hospitals, based on servives offered and service levels. Meanwhile, by continuing to train Myanmar's medical personnel, before the opening of business and into the operational period, we will gradually increase the proportion of Myanmar staff, and will lower the unit price of service. Therefore, we aim to be a hospital that can offer inexpensive high quality medical care (upper right of the graph).

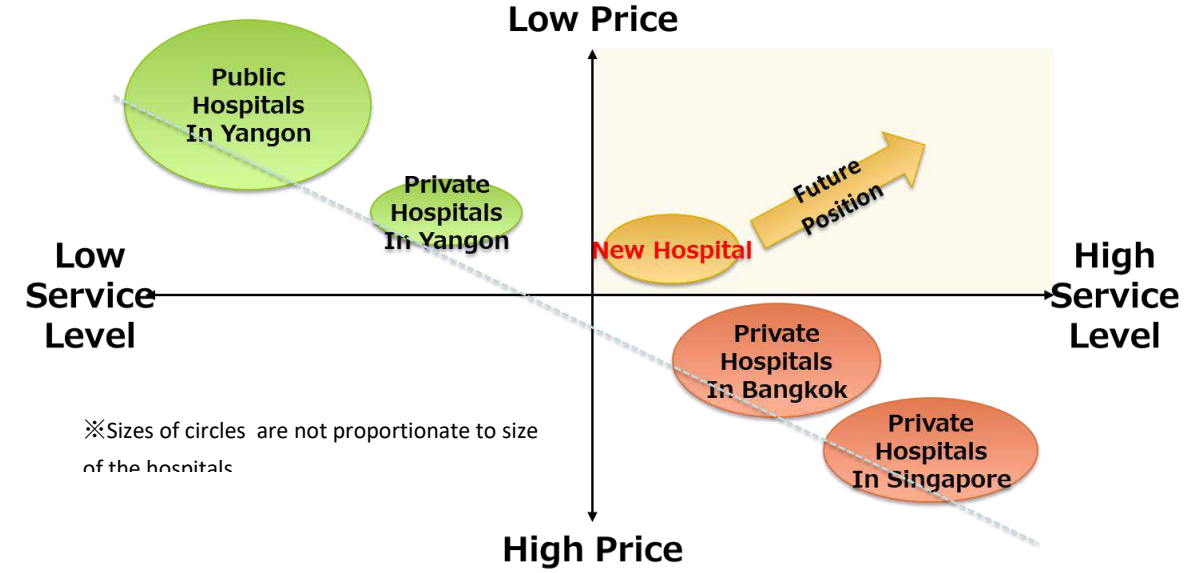


Figure 87 Market Position for Our New Hospital (2)

(Reference) Created by the research group

9.2. Provided Services Overview

In regards to services provided at our new hospital, we will summarize concepts, strengths, and details of treatments for each major medical department listed below.

9.2.1. Medical departments

i. Comprehensive Internal Medicine

- Concepts
  - Respond to internal medicine needs (including increasing lifestyle-related diseases) of Burmese patients and overseas expatriates
  - Provide patient-centered health care and holistic health care
  - Implement a hospital corporation in Myanmar modeled on Japanese rural medical cooperations, and gain the position of 'the first hospital a patient visits'
- Strength
  - Accurate diagnosis, examination, treatment and cooperation with specialists by Japanese doctors and Burmese doctors who have had extensive training in Japan
  - By providing patient-centered medical care and holistic medicine, it will be possible to deal with diseases which haven't been previously cured (as, previously, only treatments, and not prevention and lifestyle changes, were prescribed)
  - Japanese doctors with clinical work experience at public university hospitals (in Japan) will work as chief full-time doctors
- Procedures
  - Primary care for Internal medicine in general
    (Diabetes, high blood pressure, hyperlipidemia, pneumonia, asthma, gastrointestinal diseases, infectious diseases ,etc)
  - Comprehensive medical care supported by cooperation with domestic and foreign hospitals, and by taking advantage of specialty fields
- Details of availability of medical care
  - Gastrointestinal (hepatic, biliary, pancreatic) disease
    - Common non-viral liver diseases (Acute hepatitis, chronic hepatitis, alcoholic hepatitis) are treatable
    - For viral hepatitis, we need to verify available medicines. There are limited medicines available, it is not confirmed if this is treatable at the moment.
  - Gastrointestinal (gastrointestinal) disease
    - Treatment available for common diseases such as infectious enteritis
    - Conduct special outpatient examinations for inflammatory bowel disease etc for about 1 week per month. Available medicines require confirmation, and hospitalization for the diseases is available, too.
    - For acute abdomen (gastrointestinal disorders that requires surgery), treatment is not available, as there is no surgery department. Matters that require surgery should plan to transfer the patient to other hospitals.
  - Kidney disease
    - Treatment available for Infectious diseases such as nephrotic syndrome, acute pyelonephritis.
  - Respiratory / lung disease
    - Common lung diseases such as pneumonia can be treated.
    - For pulmonary tuberculosis, patients must be transferred to specialist hospitals, as is the case with other hospitals in Myanmar.
    - In the case of severe acute pulmonary thromboembolism, it is required to transfer the patient to another hospital, and they may require special treatment.
  - Heart disease

- Typical heart failures (mild to moderate) are treatable, however if the patient has a severe case, or if complications occur, they cannot be treated at our hospital, and will be transferred to another hospital.
- Arrhythmia, myocardial infarction, angina pectoris are the same as above. If it is a severe case, we are required to transfer the patient to specialist hospitals.
- Patients with diseases which require a high level of specialist skill, such as myocardial infarction, angina pectoris and cardiac tamponade are expected to be transfered to another hospital.

● Blood disease
- Treatment for anemia is available.
- For special blood disorders such as leukemia, drugs which can be used are limited, and so the patient will be introduced to another hospital.

● Lifestyle diseases such as hypertension, diabetes, hyperlipidemia
- If we can organize medicines for these diseases, treatments will be available as they are in Japan. Depending on distribution of medicines, the treatments might be a bit behind equivalent treatments in Japan.
- Education hospitalizations for diabetes are available.

ii. Orthopaedic Surgery

● Concepts
- Respond to orthopedic needs of Burmese people and foreign expatriates.
- As a major medical department within the new hospital, this department will provide basic treatment up to professional specialist treatments.

● Strengths
- Provide rehabilitation services, which are undeveloped in Myanmar. That way we can provide services to patients in Myanmar, and to Burmese patients who have come back from surgery in Thailand and Singapore.
- Various specialized treatments are available by cooperating with many Japanese doctors that Dr Kasai knows, and hiring them as part-time doctors.
- Available to respond quickly for diagnosis and treatment during the day, with 4 full-time doctors (2 Burmese and 2 Japanese doctors).
- Options are available for various orthopedic materials (for insertion into the human body).

● Procedures
- Out-patient, surgery, hospitalization, rehabilitation services at the same medical standards as in Japan.
- Installation of the latest regenerative medicine (in particular stem cell transplantation, PRP therapy) within a couple of years after opening.
- Implement thorough informed consent

● Details of availability of medical care

● External Injuries
- Treatment available for all kinds of fractures (incl. limbs and spine), dislocations, sprains.
- In conservative therapy and surgical therapy, explain everything sufficiently to patients and families, and treat them after obtaining consent.
- Surgical therapy implants should be prepared in various ways to meet the needs of patients.

● Spine Disease
- Treatment available for all kinds of spine diseases (infection, degeneration, tumor).
- Surgery is available, from minimally to highly invasive.
- Multiple-surgery cases such as for spinal cord tumors are also available.

● Joint Disease
- Treatment available for all kinds of joint diseases on upper limbs / lower limbs.

- Various kinds of artificial joints for knee and hip joints are available.
- Part-time doctors from Japan visit regularly and conduct advanced knee arthroscopic surgery, etc.

● Hand Disease
- Treatment available for general hand diseases.
- Finger re-adhesion surgeries will require us to transfer patients to a specialized hospital
- Aim for early social reintegration in close collaboration with the rehabilitation department.

● Bone Soft Tissue Tumor
- Diagnosis and initial treatments available for all kinds of bone soft tissue tumors.
- Prompt treatment is available based on an accurate diagnosis.
- For the case of anti-cancer drug treatment, it is necessary to transfer the patient to a specialist hospital

● Sports Orthopedics
- Basic treatments are available for general athletes.
- We will conduct detailed conservative treatment and rehabilitation.
- Japanese part-time doctors from Japan visit regularly to perform surgeries for competitive athletes.

● Arthritis and Collagen Disease
- Diagnosis and initial treatments available for arthritis and collagen diseases etc.
- Treatment with biological drugs requires us to transfer patients to specialized hospitals.

● Musculoskeletal chronic pain
- Provide accurate diagnosis and explanations; available for intractable patients as well.
- Conduct treatment that combines drug therapy, rehabilitation, cognitive behavior therapy.

iii. Medical Checkup

- Concepts
  - Respond to Medical Checkup needs to Burmese people and foreign expatriates.
  - Respond to trends for health consciousness in Myanmar.
- Strengths
  - Ability to provide a better Medical Checkup service than that offered in Thailand and Singapore, by making use of endoscopes (See details in Comparison of Medical Checkups)
  - Ability to respond to the need for cancer checkups, by using PET-CT scans, which are not prevalent in Myanmar yet.
  - Provide rapid and accurate results for medical examinations.
- Procedures
  - Provide general Medical Checkups, medical checkups and health checks for companies, to Japanese medical standards (1 day at hospital, and no required hospitalization)
  - Detailed examinations for those who require it.
  - Patients who have diseases whose treatments are beyond what we provide are introduced to other appropriate hospitals with letters of introduction.

iv. Foreign Expatriates Health Management Services (Services beyond Medical Checkup)

- Concepts
  - Respond to needs for health management to Japanese expatriates in Myanmar
- Procedures
  - Provide safety and sanitation management at the same standard as Japan.
  - Physically and mentally support Japanese expatriates (advice for lifestyle and mental health support based on the results of Medical Checkups)
- Strengths
  - Health management by doctors with industry experience as physicians in Japan.

- Consultation with doctors for patients who have high stress levels in the checkup, and who prefer to have a consultation in Japanese.
- Able to provide advice on how to improve office environments, and how office environments influence human health.

v. Hemodialysis
- Concepts
  - Respond to dialysis needs for Burmese people
- Strengths
  - Maintenance of precision equipment by Japanese clinical engineers, by cooperating with agencies of Nipro in Myanmar.
  - Installation of the latest high quality dialysis devices
  - Full-time specialist (kidney physician) is available
- Procedures
  - Provide general dialysis at Japanese standards

vi. Emergency
- Concepts
  - Implementation of emergency services that will become the first emergency reception destination, mainly for Japanese and regular patients.
  - Perform necessary first aid measures for general emergency patients according to the law
  - It is difficult to respond to patients suffering large amounts of bleeding, so we will prepare a cooperative network with peripheral medical institutions in advance
- Strengths
  - Japanese full-time doctors can give a sense of security to Japanese expatriates (including their families) and regular customers.
- Procedures
  - Respond to general emergency needs, make accurate diagnosis and take measures or make transfers based the diagnosis.
  - Respond to emergency service needs from dialysis patients who are treated at our hospital.
  - Response to maternity emergency needs of regular patients.
  - The detail fee scheme of the emergency services will be discussed later

vii. Obstetrics
- Concepts
  - Provide emergency services to Japanese and regular patients.
- Strengths
  - Japanese full-time doctors can give a sense of security to Japanese expatriates (including their families) and regular customers.
  - Respond to emergency service needs from Japanese expatriates.
  - Respond to emergency service needs from dialysis patients who are treated at our hospital.
  - Response to maternity emergency needs of regular patients.

viii. Plastic and Reconstructive Surgery
- Concepts
  - Provide basic surgery and cosmetic surgery.
- Strengths
  - Ability to minimize scarring on exposed areas, with suturing by plastic surgeons.
- Procedures
  - Create blood access for dialyses.

- Cosmetic surgery as needed
- Dealing with some dermatological issues such as burns, skin tumors etc.

ix. Dermatology

- Concepts
  - Treatments available for all kinds of skin diseases
- Strengths
  - Allocate specialized doctors for cosmetic surgery (stain removal, whitening etc.) (under consideration).
  - Provide treatment for specific skin problems for dialysis patients, who often suffer skin problems.
- Procedures
  - Treatments for all kinds of skin disease (infectious diseases, tumors, allergies such as atopic dermatitis, skin symptoms related to systemic diseases, skin symptoms due to aging, light burns, sunburn and other skin issues).
  - Treatment for skin problems to inpatients.
  - Part-time doctors provide services, and limited days for out-patients.

x. Doctors with industry experience as physicians

- Concepts
  - Provide occupational safety and health management equivalent to that available in Japan, mainly to Japanese companies
- Strengths
  - Ability to carry out health management and workplace environment management to a standard equivalent to that offered in Japan
  - Ability to provide support for physical and mental problems due to overseas relocation
- Strengths
  - Implementation of health management (Medical Checkups and post-consultation support & care)
  - Advice on workplace health management (work posture, place of work, method of work, how to spend break time, use of protective equipment, etc.) based on specialized Medical Checkups (back pain checkups, etc)
  - Advice on a wide range of matters such as lifestyle concerns (sleep, diet, exercise, smoking, drinking, oral health, hobbies, entertainment, how to spend your vacation, family relations, friendships, community activities)
  - Advice on vaccination, advice on countermeasures against spreading infectious diseases in the workplace (advice to prevent influenza epidemics etc.)
  - Health management of female workers
  - Mental health care (implementation of stress evaluations, leave of absences, advice on the necessity of workplace placement changes, response to depression)
  - Safety and health training for middle managers and staff
  - Advice on health management for night shift workers and shift workers
  - Advice on prevention of heat stroke, advice on prevention of infectious diseases in daily life
  - Advice on environmental management (air conditioning, desk and chair height etc) in the office workplace, advice on work management (work itself such as VDT work), workplace observation visits as necessary

xi. Remote Medical Treatment and Lectures

- Concepts
  - Provide collaborated services using IT, and network with Japanese medical services.
- Strengths

- Provide consultations with patient's family doctors in their home country, even though patients are located in Myanmar.
- Easily accessible interpretation of radiograms, and second opinions
- Ability to prepare a high-spec telecommunication environment by cooperating with Kyusyu University, KDDI and First Yangon Medical University
- Full time system engineers will be located in the hospital.
- Live lectures and discussion will be available

- Procedures
  - Provide remote examinations and lectures from Japan (use auditorium)

9.2.2. Paramedical Services

i. Pharmacy

- Concepts
  - Respond to pharmaceutical needs for each medical department.
  - Provide appropriate medicines to patients.
- Strengths
  - Operating a 'prescription' system, which is new to Myanmar, so that we can provide medicines which are not available at general pharmacies.
  - Ability to provide safe and secure medicines, by having pharmacists conduct medication counselling direct to patient (including in and out-patients).
  - Reduce side effects in patients by providing careful medication guidance.
- Procedures
  - Provide medicine purchased from distributors (trusted medical suppliers).
  - Prescriptions filled at in-hospital pharmacy.
  - Provide medication guidance to the patient (by the pharmacist)

ii. Nutrition

- Concepts
  - Provide appropriate nutrition to inpatients.
  - Respond to improving health consciousness for Burmese patients from a nutrition perspective
- Strengths
  - Introduce a 'certified nutritionist', which is new to Myanmar, so that we can provide specialized nutrition-related services.
  - Ability to provide special meals for diabetes and high blood pressure cases, depending on patients
  - Create recipes by combining ideas of nutrition balance and preferences.
  - Provide nutrition guides (can contribute to preventive medicine by providing guidance in nutrition)
- Procedures
  - Management of hospital meals.
  - Education hospitalization for diabetes.
  - Education and lectures in nutrition at the auditorium.

iii. Radiation

- Concepts
  - Provide patient-oriented services (reduction of exposure dose (optimization), explanation of radiography and its meaning, reduction of discomfort during examinations, efficient examinations).
  - Thorough management system for radiation (setting management area & leakage dose measurement, measurement of patient exposure dose, monitoring workers)

- Contribute to accurate diagnosis of imaging (providing high resolution images, sophisticated photographing techniques, and appropriate management of devices).
- Making use of medical IT (sharing images and developing a remote interpretation system, etc)

- Strengths
  - Safe, secure, accurate procedures, and reduced waiting time.
  - Contribute to early detection of malignant tumors, etc, by using PET−CT for screening examinations.
- Procedures
  - General radiography (chest, stomach, and skeletal system etc), X-ray photography (stomach fluoroscopy etc), X-ray CT photography, MRI, bone density measurement (DEXA method), mammography imaging, PET-CT.

iv. Laboratory Analys

- Concepts
  - Patient-oriented services (installing the latest devices, 24 hour availability for analysis, assuring explanations of the analysis, pain relief at the time of examination.)
  - Thorough quality control system (data management for each device by the system, manuals for troubleshooting, etc)
  - Contribute to accurate diagnosis (provide accurate and rapid data and advanced analysis technology)
  - Utilize medical IT (provide rapid data by installing various systems, ability to quickly detect abnormalities)
- Strengths
  - Quick access to accurate and rapid analysis results.
  - Ability to provide Japanese standards of analysis, with staff trained by Japanese medical workers.
  - Device management by Japanese staff (quality control, external quality control, inspections), regular maintenance by specialists (maintenance and inspections).
- Procedures
  - Blood analysis, urine analysis, fecal analysis, pathological analysis, bacteria analysis, electrocardiogram, ultrasound (heart, abdomen, carotid artery, lower limb etc.), ABI, respiratory function, nerve conduction velocity

v. Nursing

- Concepts
  - Providing detaild nursing care (meals, personal hygiene, sanitation) focusing on care, not just cure
  - Implement the 5 S system (sort, set-in-order, shine, standardize and sustain) and prepare a safe environment
  - Provide hospitality ‘omotenashi’ to patients
- Strengths
  - Collaboration with multiple medical professions and provide comprehensive and individualized medical and nursing care to patients
  - Superior personnel trained by adopting a partnership nursing system (PNS)
  - Safe and high-quality nursing based on detailed and accurate manuals (standards / procedures)
  - Safe surgery with thorough cleaning operations
  - Reliable cleaning / disinfection work and sterilization guarantee to provide high quality equipment
- Procedures
  - Ward Preparation for hospitalization · Understanding and analysis of in-patient status · Daily patient care

24-hour nursing based on assessment/evaluation by nurses, using a nurse paging system

- Outpatients Treatment and doctor's treatment support
- Operating theatresPreparation for surgery · Cleaning operations · Technical support
- Medical Checkup Implementation of blood collection, inspection support

vi. Rehabilitation

- Concepts
  - To acknowledge the importance of rehabilitation for various diseases: as part of hospital care, all departments introduce rehabilitation concepts (implement for all types of cases, as much as possible)
  - Early discharge and early ADL improvement (implemented in cooperation with wards)
  - Introduction of exercise therapy
- Strengths
  - Allocate clinically experienced physiotherapists and occupational therapists.
  - Rehabilitation devices (red code etc) which no other hospitals have.
- Procedures
  - Rehabilitation programs based on evaluation and assessment by physiotherapists.
  - Instruction for early rehabilitation, especially after orthopedic surgery , and follow-up therapy for out-patients (if this is not possible, provide rehabilitation guidance after discharging)
  - Provide focus on exercise therapy (physical therapy is easy to understand - physical methods of treatment are easily understood in developing countries)
  - Stroke outpatient rehabilitation (the biggest need for stroke patients and their families, and critical to the patient's wellbeing. The benefits of stroke patient rehabilitation are very visible, too.)
  - Lectures and education at the auditorium (on prevention, and Promoting rehabilitation)
  - Implement regular patient group gatherings, local classes (group exercises) etc
  - Send PT and advise on the renovation of houses
  - Visit rehabilitation patients

9.2.3. Other departments

✓ Other medical treatments

- Concepts
  - Conduct medical treatment for minor diseases (less common diseases), except for the aforementioned main medical treatments.
  - Effective utilization of space for out-patients at our new hospital.
  - Utilize the skills and strengths of local full-time doctors, and doctors on regular visits from Japan.
- Strengths
  - Ability to provide a variety of services (not limited to the regularly offered services), by conducting regular outpatient treatment promotions for specific ailments.
- Procedures
  - Treatment for outpatients with chronic intractable pain
  - Acupuncture (in cooperation with Japanese acupuncturists located in Myanmar)
  - Endoscope & sports orthopaedics

9.3. Details for Provided Medical Services (with Effectiveness of Development)

There are gaps between actual / potential demand in Myanmar, and the availabilities of provided services mentioned in 9.2. In regards to the promising services and medical departments we will provide at the new hospital, the below charts describe the background and significance of each topic, with the effects of their development. For each item, “Demand/Potnetial demand for the service” describes the local background, “Availability for the service” describes the local service quality or quantity, “ Issues for medical and soecial aspects” describes the current and future issues coming from the gap between demand and supply, “service and features wichi the nes hospital is able to provide” describes the solution for the issues and shrot-term / long term effects which the solution may trigger.

9.3.1. Rehabilitation

The composition of the family in Myanmar has been changing with the progress of economic growth and urbanization, and rehabilitation needs are predicted to increase. On the other hand, there are a limited number of hospitals and nursing homes which have specialized rehabilitation facilities. We will provide services mixed with physiotherapy and exercise therapy.

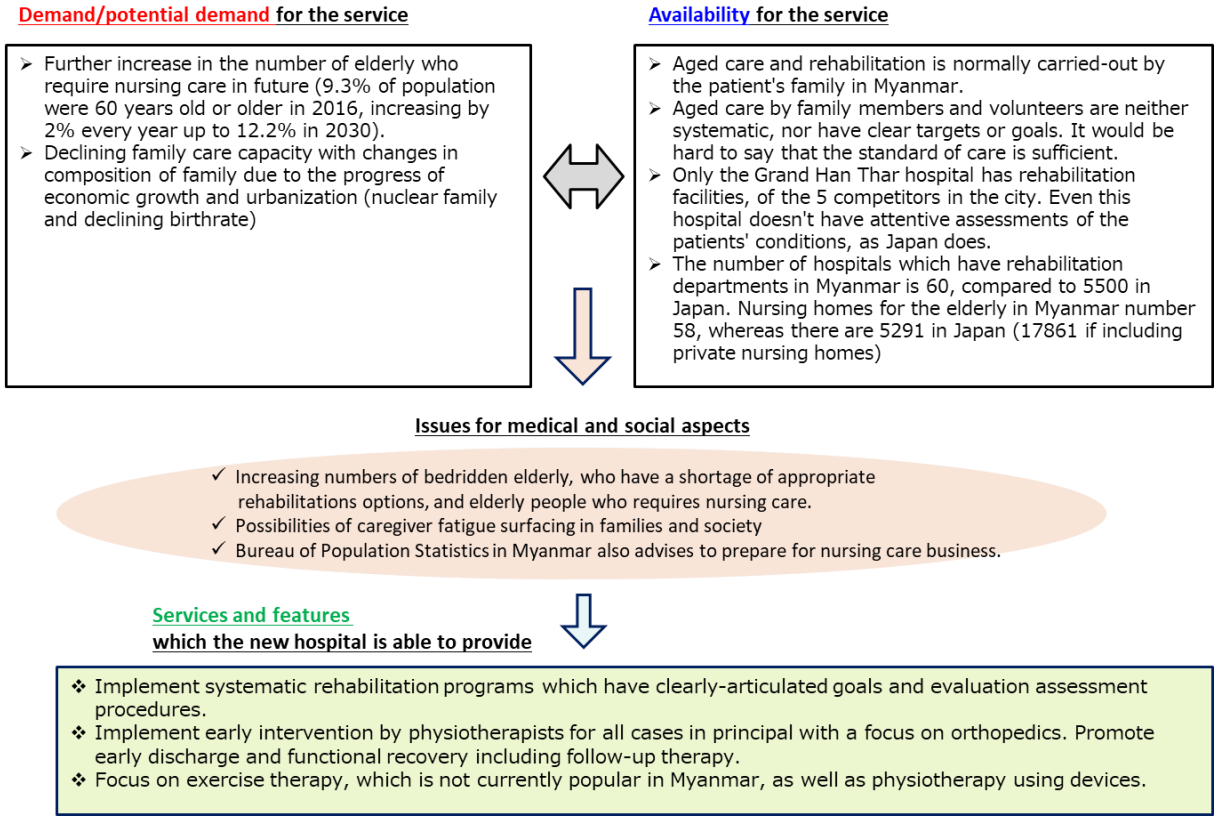


Figure 88 Issues and Services for Rehabilitation at the New Hospital

(Reference: Interviews by a research group ‘Current status and features of rehabilitation in Myanmar’) (https://1post.jp/427)

9.3.2. Endoscope

The number of people dying of cancer is increasing by 7% annually. On the other hand, there are only 4 hospitals (public hospitals) which are able to provide endoscope surgery. The supply is not enough. There are many cases of stomach cancer in Japan, therefore there are lots of specialists for this cancer. We will utilize these doctors to provide services.

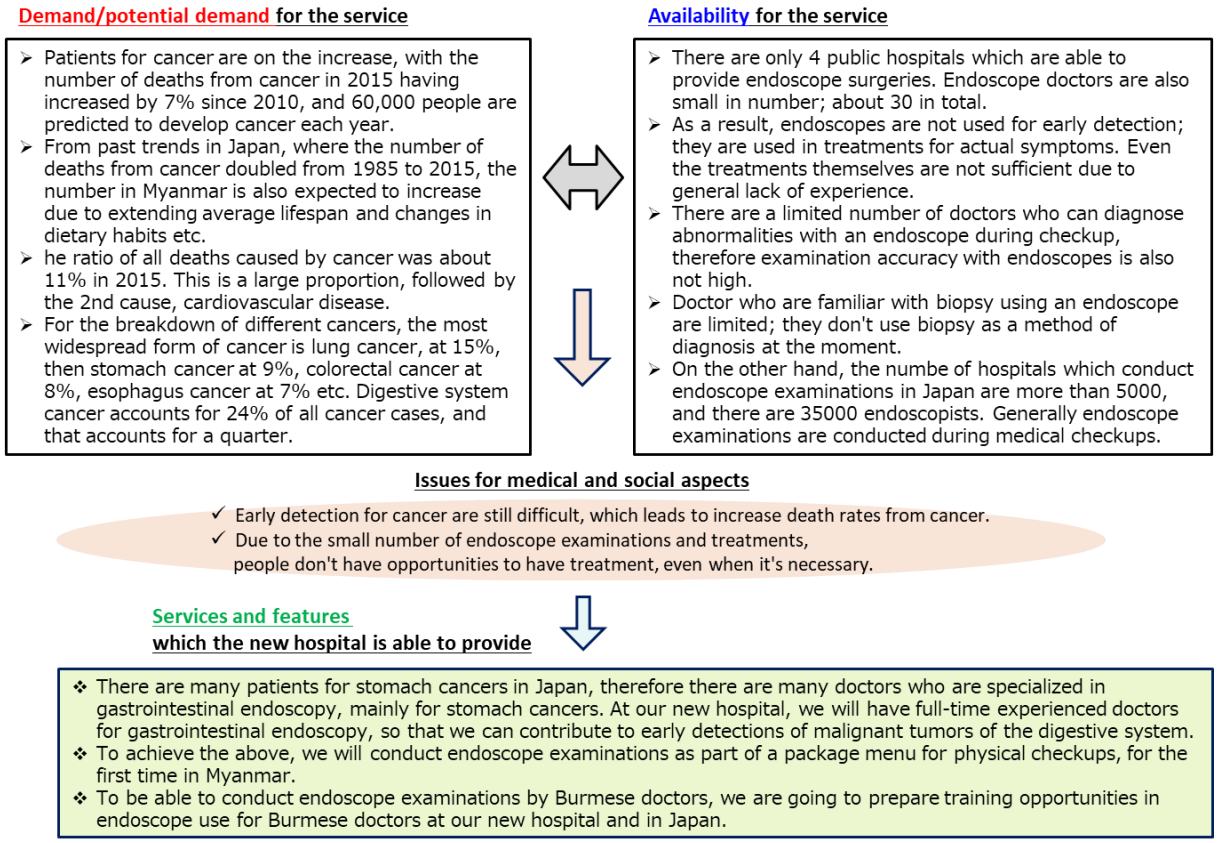


Figure 89 Issues and Services for Endoscope at the New Hospital

(Reference: Interviews by a research group, Fuji Film(2017)「FUJIFILM Myanmar Introduction of Activities(Medical)」)

9.3.3. Dialysis・Diabetes

Diabetes is widespread in Myanmar; the number of deaths due to diabetes is increasing rapidly. Treatments for diabetes have already penetrated Myanmar, however complication management and guidance for prevention are not sufficient. We are trying to take advantage of resources in other hospitals by providing comprehensive services via cooperation with kidney specialists, diabetes specialists.

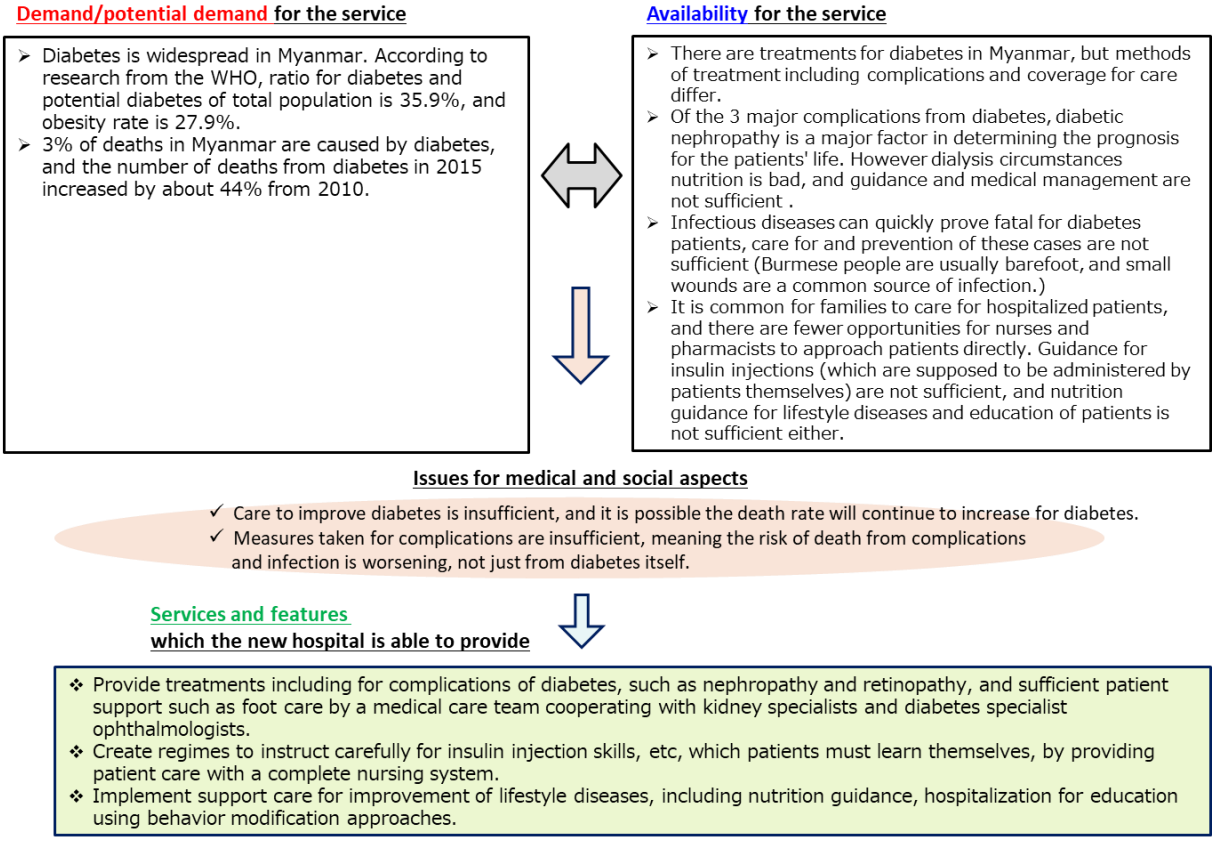


Figure 90 Issues and Services for Diabetes at the New Hospital

(Reference: Created by the research group from source: WHO (2014)「Reports on National Survey on Diabetes Mellitus and Risk Factors for Non-Communicable Diseases in Myanmar」)

9.3.4. Measures Against Infectious Diseases

Although it is said that infectious diseases are declining in Myanmar, there are still a number of prominent infectious diseases, such as those particular to the tropics, and tuberculosis. Additionally, infectious diseases which to date have not been prevalent in Myanmar, such as HIV, are also spreading. Patients do not have sufficient knowledge of healthcare, hand hygiene is not adequately practiced, infectious diseases are left unattended, preventive measures are not taken, and medical examinations are not sufficient, sometime diagnosing by symptoms alone. Due to these factors, some studies have shown that drug-resistant bacteria are increasing as a result of incorrectly prescribed medications. At the new hospital, we will arrange adequate diagnostic kits and inspection systems, treat and prescribe medicines based on accurate diagnosis, and differentiate ourselves from other hospitals with reliable medical treatments with high effectiveness, and utilize the auditorium facilities to actively educate citizens.

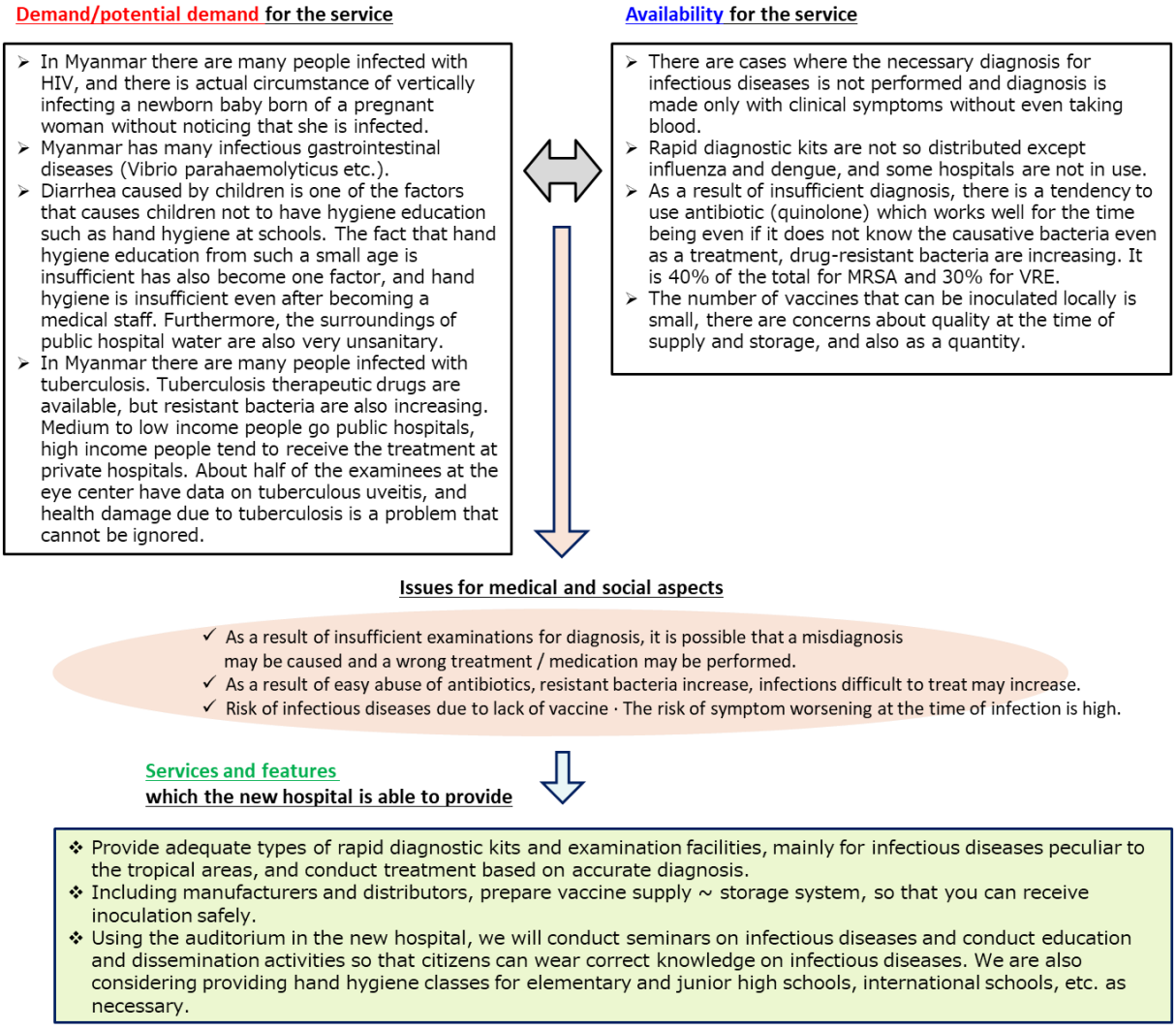


Figure 91 Issues and Services for Measures Against Infectious Diseases at the New Hospital

(Interviews by a research group, and created from Thiha,「Early Infant Diagnosis of HIV in Myanmar」Sidharta,「High Use of Private Providers for First Healthcare Seeking by DrugResistant Tuberculosis Patients」)

9.3.5. Preventive Medicine · medical Checkup

In Myanmar, the concept of preventive medicine is not yet widespread; it is common to go to a hospital only if you feel pain or an abnormality in the body, though Medical Checkups are gradually being introduced, mainly by companies. Unlike Japan, Medical Checkups are simple examinations, as there is insufficient equipment and human resources for the specialized and intensive examinations implemented for Medical Checkups in Japan. At the new hospital, emphasis will be placed on identifying diseases, and Medical Checkups will be thorough, including image inspection / biopsy / specimen examination. We will be providing equipment and personnel to enable thorough inspections, and this will differente our new hospital from other hospitals. Also, we will be contributing to the establishment of preventive medicine by offering not only diagnosis, treatment and cure, but also giving adequate explanations to the patient and their family regarding the results of checkup, and guidance on necessary prognostic measures etc.

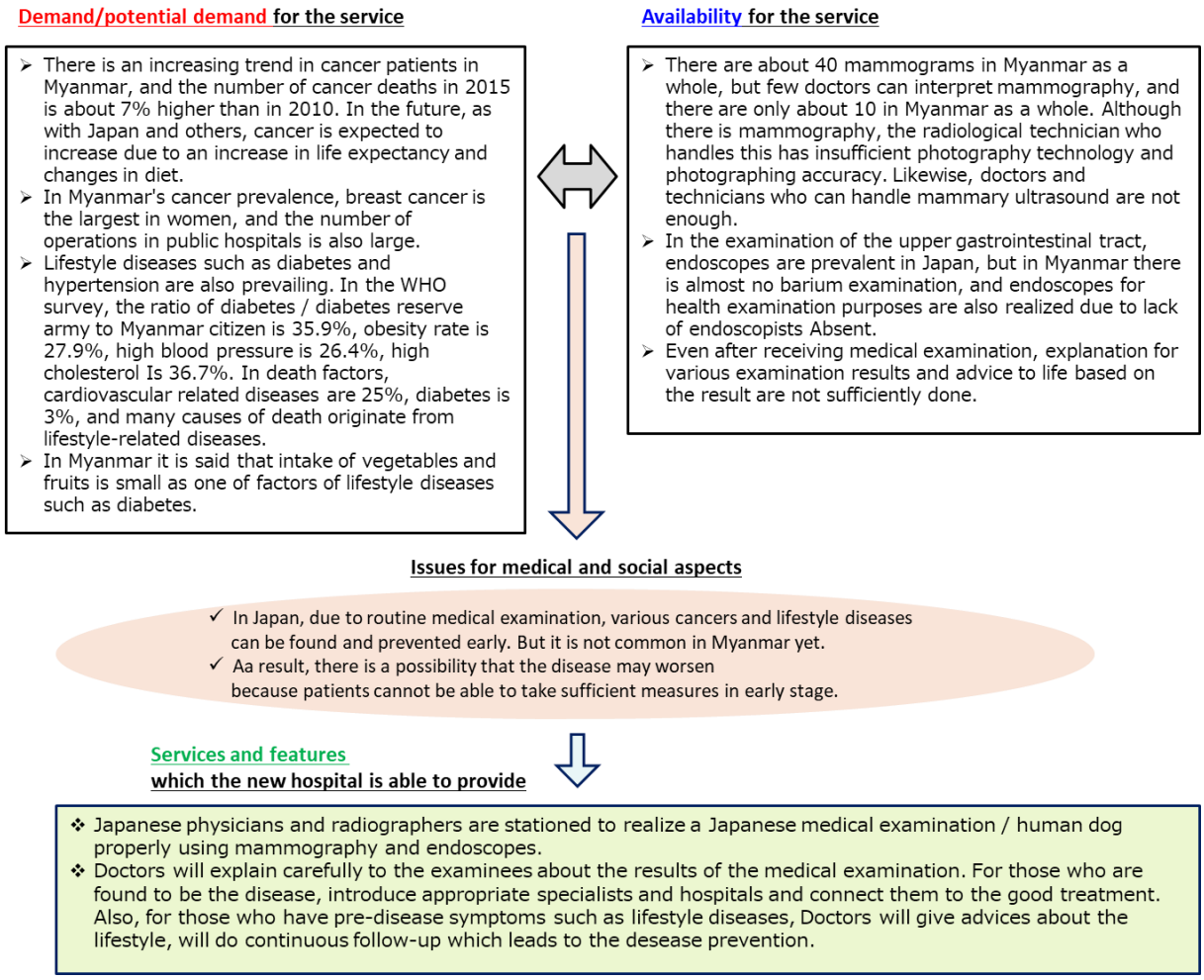


Figure 92 Issues and Services for Preventive Medicine · medical Checkup at the New Hospital

(Interviews by a research group, and created from BMJ Open (2016) e011649 doi: 10.1136/bmjopen-2016-011649、Grover ほか「The changing face of risk factors for non-communicable disease in Myanmar」)

9.3.6. PET-CT

As mentioned earlier, the number of deaths due to cancer is increasing, therefore early detection, treatment, and monitoring for metastasis after treatment, is crucial. However, use of PET-CT, which can be used in detecting cancers and as one of the most effective examination methods, is not progressing. There are only two scanner in use so far in Myanmar.

While the equipment cost is high, we believe the investment is profitable and it will be actually used many times. Pinlon hospital, which introduced PET-CT in July 2018, has seen 50 patients a month. Also some Myanmar patients visit hospitals in abroad to take medical check which includes PET-CT. If the new hospital provides same amount of PET-CT service to patients, considering that investment amount is 1,500,000USD, the price is 1,000USD/time and that variable cost including FDG is about 500USD/time, annual profit from PET-CT is estimated to be about 300,000USD. According to the calculation, payback period will be 5 years. Generally, large medical equipment is depreciated over 7 years, so 5 years payback period can be regarded as fine investment. Also, PET-CT can be used as normal CT, so it will substitute the normal CT when it is broken or occupied by another patient.

Providing technology at both stages of EPC · O & M from Japan and deploying inspection service of PET - CT with firm quality can be differentiated from the viewpoint of demand and advanced approach in terms of contributing to Myanmar.

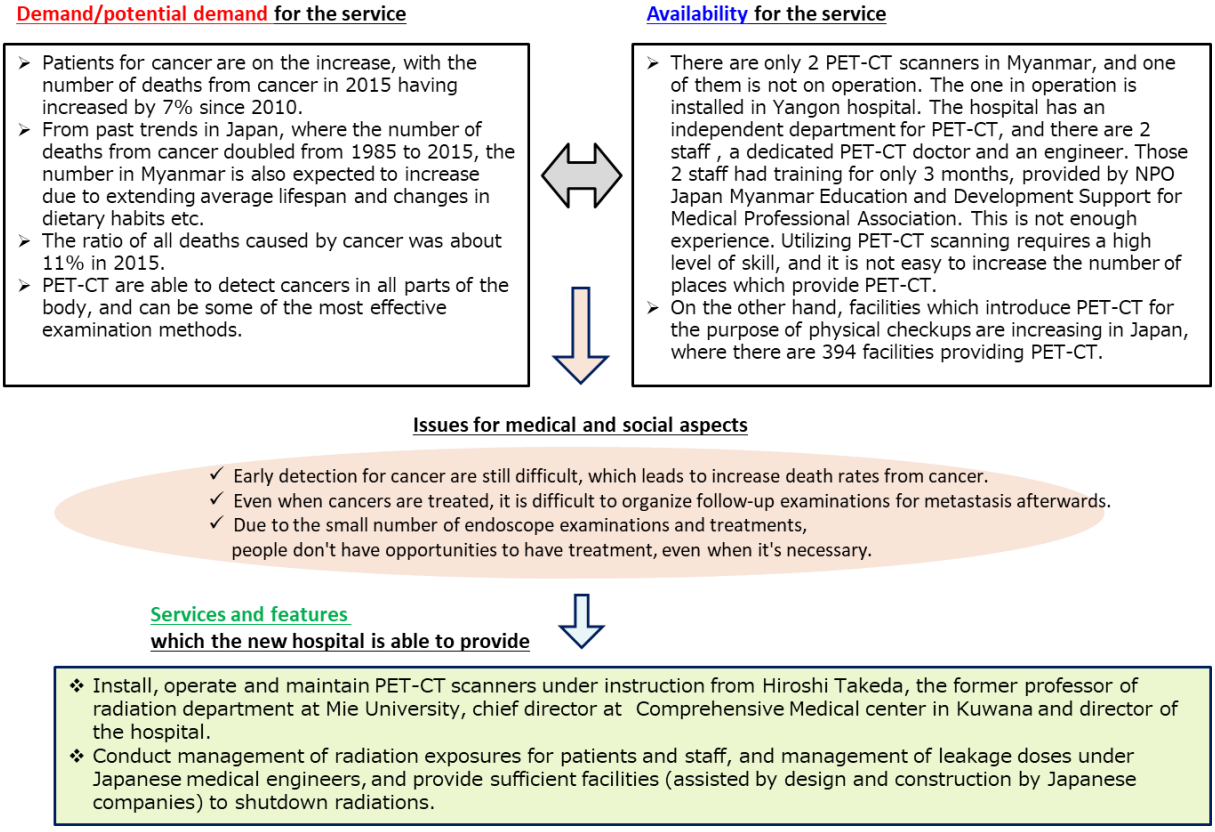


Figure 93 Issues and Services for PET-CT at the New Hospital

(Reference: Interviews by a research group, and created from a bulletin from NPO Japan Myanmar Education and Development Support for Medical Professional Association)

9.3.7. Clinical Pharmacists

At the moment there is no medication guidance and preparation of medicines at pharmacy departments in hospitals. There are also no prescription services at general pharmacies. That makes it possible for patients to access various medicines with prescriptions. We will reform this situation, and prevent the misuse of drugs, and introduce services to provide consultations and new medicines adapted to patients' symptoms. We will recommend ways of utilizing various new medicines to the Myanmar government.

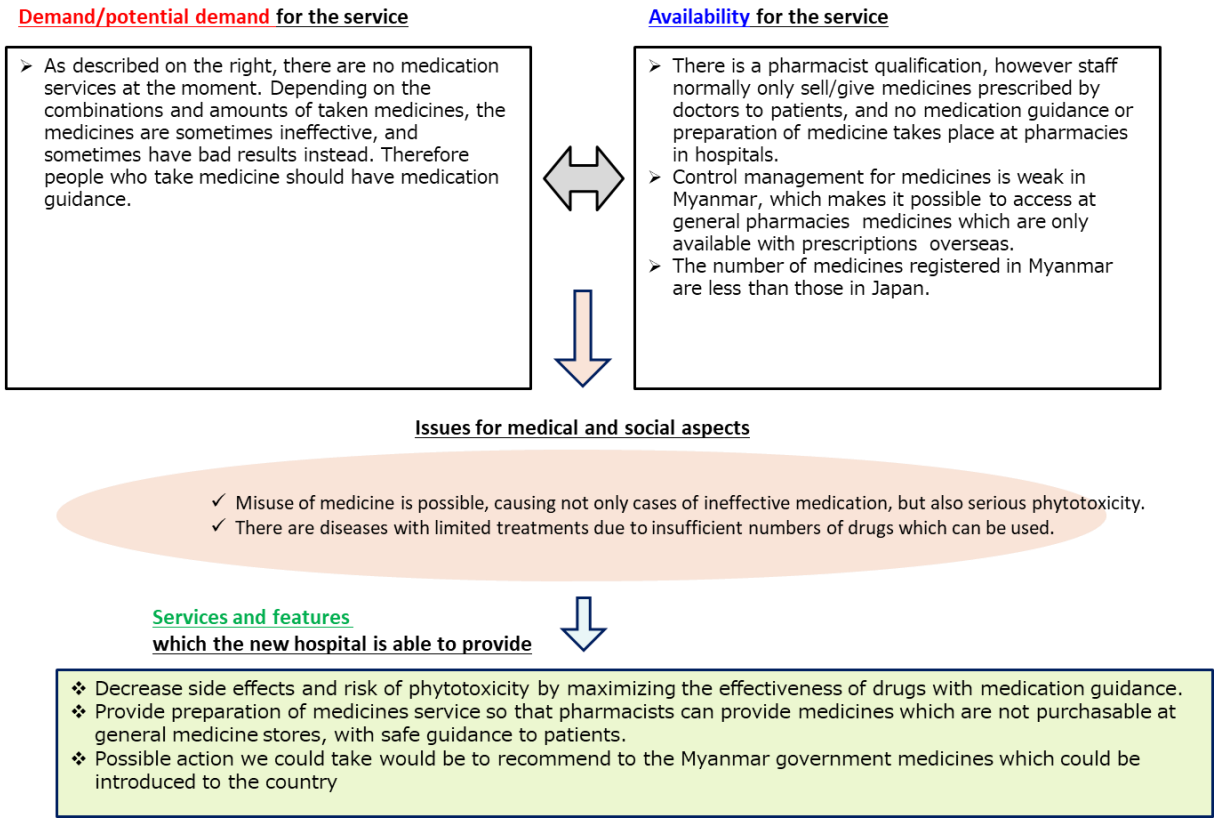


Figure 94 Issues and Services for Clinical Pharmacists at the New Hospital

(Reference: Interviews conducted by a research group)

9.3.8. Certified Nutritionists

As described above, diabetes is widespread in Myanmar, as are lifestyle diseases including high blood pressure. On the other hand there is no qualification for nutritionists, and no meal services at hospitals. We are going to provide professional nutrition-related services, which are not common in Myanmar, by hiring certified nutritionists, and contributing to the understanding and practice of disease prevention.

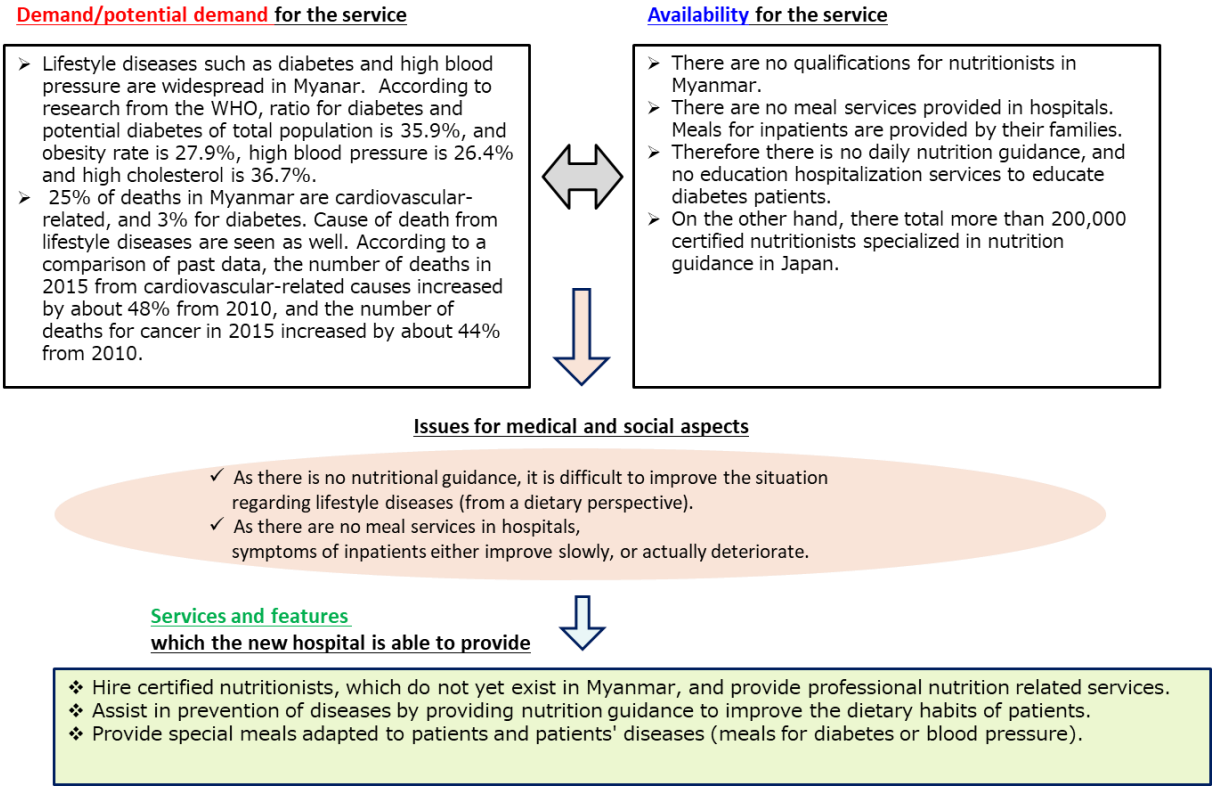


Figure 95 Issues and Services for Certified Nutritionists at the New Hospital

(Reference: Interviews and research by a research group, from source; WHO(2014)「Reports on National Survey on Diabetes Mellitus and Risk Factors for Non-Communicable Diseases in Mya nmar」)

9.4. Cooperationn with Other Medical Institutions

At the new hospital, although it will be possible in general to provide services for the treatments and medical departments mentioned in the previous chapter, we cannot accept patients needing attention from clinical departments not present at our hospital, and there will be cases where patients cannot be accepted due to unavailable hospital facilities / resources. It is there necessary to always consider coordination with other medical institutions. Below, we describe cases where medical cooperation is expected, and investigate options for medical cooperation with different parties.

9.4.1. Cases where Medical Cooperation is Required

9.4.1.1. Clinical Departments Not Present at our New Hospital

The clinical department and medical examinations provided at the time of opening of the new hospital are as described in 9.2. Therefore, it will be difficult to accept other clinical subjects represented below, and it will be necessary to transfer patients to other hospitals through medical cooperation.

- Internal medicine regarding tumors
- Gastrointestinal surgery
- Respiratory surgery
- Neurosurgery
- Pediatric surgery
- Gynecology
- Urology Department
- Psychiatry
- Ophthalmology
- Otolaryngology
- Dentistry · Oral Surgery

9.4.1.2. Transfusion Response Policy for Patients with Massive Bleeding

As described in 6.1.6., under the Myanmar blood law, private hospitals are allowed to store, provide and dispose blood and blood products. Also, private hospitals can directly take blood from donors and provide it to patients. It is confirmed that taking blood does not need any additional license. However, taking blood in private hospitals is allowed only for medical treatment purpose, not for trading purpose like Red Cross in Japan. In Myanmar, National Blood Center is the only organization specialized in blood bank.

While the law does not prohibit National Blood Center from providing blood to private hospitals, because of the government policy to make blood for transfusion free of charge, in general National Blood Center does not provide blood to private hospital in order to prevent them from taking money from the blood. Actually, we had some interviews with private hospitals and clinics in Yangon. They said it is possible to apply to National Blood Center to provide their blood and it does provide in some cases, but they it is rare to provide and private hospitals should not expect stable provision. As a result, at private hospitals, blood transfusions are mainly performed using blood from good faith donors, but due to insufficient equipment, screening tests and processing for preventing infectious diseases / side effects (NAT: nucleic acid Amplification test, and X-ray irradiation leukocyte removal) cannot be performed, and high-risk transfusion actions are widely performed.

In the new hospital, based on the concept of the new hospital, to provide the Japanese standard medical service, it is assumed that the following blood transfusion response policy will be implemented.

- ✓ Scheduled surgery (autologous blood is used)
  Collect the patient's blood before surgery, store it in a dedicated blood refrigerator with appropriate temperature setting, and use at the time of surgery if necessary. Also, we will consider to introduce equipment for operative blood salvage to mitigate the risk of excessive bleeding.

- ✓ In case of emergency
  Blood type and infectious disease screening tests are possible in facilities planned to be introduced at the new hospital, but blood treatments such as NAT and X-ray irradiation are not planned to be introduced as the equipment is too expensive for one private hospital to bear. Therefore, it is impossible to produce blood products of the same standard as that supplied by the National Blood Center. That is, there is a risk of infectious diseases, such as HIV, HCV, HBV, and a risk of serious side effects due to blood transfusions. It is difficult to provide safe medical treatment of Japanese standards, as planned in the new hospital. Based on the above, when an emergency transfusion is required – for example, in the case of an emergency patient with massive bleeding – a transfer to a public hospital shall be made.

On the other hand, private hospitals and clinics interviewed indicated that they do cooperate with neighboring public hospitals as necessary. There was a private hospital which had agreements with publich hospitals, such as borrowing blood from public hospitals when necessary, and returning blood of the same blood-type at a later date. We could not confirm the detail operation and its possibility as of now. But the cooperation between hospitals in such blood transfusions and exchange of blood products will also be examined from a feasibility perspective, after confirming actual details in the future.

In Japan and other foreign countries, blood products can be obtained at private hospitals, and in Myanmar the Ministyr of Heath is moving in the direction to arrange a system so that blood products can be obtained from blood banks in the future. We will keep careful track of trends and policy relating to blood transfusions and blood products in the future.

9.4.1.3. Other Prescribed Regulations

As described in "6.1.6. Regulations Relating to Medical Services", particularly for emergency patients, it is legally stipulated that we should transfer to hospitals of higher standards if necessary, and also that injured patients in criminal cases should be transferred to public hospitals promptly, with accompanying medical records. If we receive patients in these circumstances, they will be transferred according to the regulations.

9.4.2. Points to Consider in Medical Cooperation

Private hospitals in Myanmar are mainly staffed by part-time doctor who work full-time at public hospitals. Therefore, the main opening hours of private hospitals normally begin when part-time doctors (specialists) arrive after their normal working hours at public hospitals, which means opening hours of around 16:00 to 22:00, and on weekends and public holidays. There are a few doctors working during the daytime at private hospitals, but they are normally junior doctors, and not experienced, therefore they private hospitals are often quiet during the daytime.

Under these circumstances, unlike regional medical cooperation arangements in Japan, cooperation among hospitals in Myanmar is mainly linked to public hospitals and universities. However, because many of the public hospitals in Myanmar are able to provide medical treatments for free, there is an overcrowding of patients at all times; more than 200 emergency outpatients at Yangon General Hospital per day. Furthermore, in situations where the beds are packed into very narrow patient wards, and families of patients are occupying the small remaining space, we are forced to say that it is difficult to secure privacy for patients. In addition, hand hygiene of medical staff is not thorough, and there are concerns that rates of nosocomial infections by medical staff will rise. Furthermore, wild dogs are scattered on the premises, which is never a favorable situation for hospitalization.

Therefore, for medical cooperation, it is required to select a hospital suitable for the symptoms and condition of the patient, based on the characteristics of each hospital.

9.4.3. Medical Cooperation with Public Hospitals in Myanmar (mainly in Yangon city)

As mentioned above, since in public hospitals it is difficult to guarantee a high quality of medical care, and hygiene management is also at a low standard, basically there is some difficulty in transfering patients of our new hospital to the public hospitals. However, there are cases for consideration of medical cooperation, mainly in the emergency situations below.

A. When the specialty of a doctor working at a public hospital is urgently required
   In terms of facilities and hygiene, private hospitals are preferable for patients, compared to public hospitals, but because the senior doctors work during the daytime at public hospitals, when the expertise and skills of specific doctors are urgently required during the day, transportation to public hospitals is considered. Conversely, if it's not urgent, we will consider cooperation with private hospitals, or with Thai or other overseas hospitals.

B. Cooperation in cases of shortage of supplies, such as blood products
   Regarding blood transfusions, as described in the previous sections, private hospitals basically rely on non-profit and voluntary donation organizations for supply, but they are cooperating with neighboring public hospitals as necessary. In some cases, private hospitals have borrowed blood from a public hospital when necessary, and return blood of the same blood type at a later date.
   At the new hospital, we do not assume that surgery with risks of major blood loss will occur at the time of opening, but in order to guarantee safety, we think that there is a necessity to pre-arrange such blood-supply arrangements. On the other hand, assuming that such options are not available, autotransfusion is preferentially performed in the case of elective operations, and if a large amount of bleeding is expected in advance in for an elective surgery, we will consider introducing the paritent to a hospital in Thailand.

C. Cooperation in cases of emergency patients with massive bleeding
   In public hospitals it is comparitively easier to secure blood transfusions than in private hospitals, so in cases of injury or disease accompanied by a very large amount of bleeding, and where there isn't time for transportation overseas, we will obtain consent from the patient or their family members, and consider transferring them from our hospital to the nearby public hospital.

North Okkalapa General Hospital is the first candidate as a hospital for cooperation in the above cases. North Okkalapa General Hospital is a public hospital located 20 to 30 minutes by car from our new hospital site, and has 800 beds and all basic clinical departments. Among general hospitals in

Yangon city, Yangon General Hospital is the largest, and North Okkalapa is the second largest. OSC Hospital, which is a neighboring private hospital, has also agreed that we can transport patients to OSC Hospital for elective surgerys that predict (in advance) large amounts of bleeding, and for cases of massive bleeding due to traffic accident injury, etc. In addition, Ishii Hospital is acquainted with a professor of Hematology and Dentistry at North Okkalapa General Hospital.
Insein General Hospital is another neighbouring public hospital; it is located around 15 to 20 minutes by car from our new hospital. This also has an emergency departments and surgical departments, but North Okkalapa General Hospital is superior in terms of scale, facilities and equipment, and travel distances are not too different, so we consider North Okkalapa General Hospital as a public hospital to cooperate with.
Regarding other large public hospitals with more than 500 beds in Yangon city, these include Yangon General Hospital, Orthopedic Hospital, and San Pya General Hospital; travel time from our new hospital will be more than 30 minutes, so cooperation with these hospitals in emergency situations is considered to be difficult.

9.4.4. Medical Cooperation with Private Hospitals in Myanmar (mainly in Yangon city)

Although private hospitals in Yangon are superior to public hospitals in terms of facilities and hygiene, a lot of private hospitals employ part-time doctors who work full-time at public hospitals, so patients who go to private hospitals cannot sometimes receive adequate treatment and care when compared to our new hospital. Therefore, in the case of non-emergency patients which we are unable to treat at the new hospital, we will introduce these patients to a hospital in Thailand, but depending on the affliction condition and patient's budget, it may be necessary to cooperate with the following hospitals, to which we will introduce these patients.

i. OSC hospital

OSC Hospital is a middle-sized private hospital of around 100 beds in scale, located in North Okkalapa district in the northern part of Yangon City. Their targeted market is the middle income group of Myanmar. It is equipped with 4 operating theatres, a 5-bed ICU and 5 emergency outpatient beds, CT and ultrasound equipment in addition to X-rays facilities, and facilities corresponding to general clinical departments. Although hand disinfection is partly inadequate, hygiene control is adequate and it is considered to be a hospital with sufficient credibility as far as facilities are concerned. Like other private hospitals, doctors are mostly part-time doctors working daytimes at public hospitals. As described in "12.1. Selection of Local Partners", OSC Hospital and our new hospital are considering working as partners not only for medical cooperation, but also for recruitment of medical staff and education / training. Based on this background, we are considering introducing OSC Hospital as a reliable private hospital to patients who think our medical examinations are too expensive. Conversely, it is assumed that OSC Hospital may also introduce patients wanting more sophisticated medical care to our hospital.

ii. Pinlon Hospital / SSC hospital

Pinlon Hospital is a 300-bed private hospital located in the North Dagon district in the northeastern part of Yangon City, and SSC Hospital is a 200-bed private hospital located in the Gahan district in the central part of Yangon city. Both hospitals are managed by Pinlon Group. Pinlon Hospital focuses particularly on their oncology department, and in addition to their radiotherapy equipment, in July 2018 they introduced PET-CT, the first in any of Myanmar's private hospitals.
Pinlon Group is currently in discussion with Japanese IT vendors to introduce a simple electronic medical records system, and our new hospital also plans to install an electronic medical record system from the same vendor. Therefore, it is possible to share parts of the electronic medical record information with each other in the future, and it is assumed that regional cooperation will improve patients' care.

9.4.5. Medical Cooperation with Private Clinics in Myanmar (mainly in Yangon city)

Clinics in Yangon are various sizes, from small clinics privately operated by doctors, to large clinics which have major inspection equipment such as CT (etc), and have multiple branch clinics. Except for clinics owned and run by a doctor, clinics employ part-time doctors working full-time at public hospitals, in a similar arrangement to other private hospitals.

Considering points of scale and expertise, we do not expect to introduce patients from our new hospital to clinics, but there are possibilities to cooperate with them in that they could introduce their patients to us when the patients require further examination or hospitalization. At the moment, we are looking for cooperation with SML Healthcare, as described in the latter part of 5.2.3.5.

9.4.6. Medical Cooperation with Other Providers

Thilawa district is located south-east of Yangon city, about 1 hour by car. It is developed and operated by Myanmar Japan Thilawa Development Co. Ltd, and is a Special Economic Zone, the investors of which are JICA, major Japanese trading companies and major Japense banks. The main businesses operating there are Japanese companies within various industries such as construction materials, food, auto, electricity, packaging, sewing/garments, etc. It is said that the number of workers in Thilawa district was about 5000 in 2018, and will be 10,000 in 2019. Catering to health management for workers and to labor accidents in the construction industry, a medical institution is required for those workers. We are assuming cooperation with the following clinics, which are scheduled to enter Thilawa district.

i. SML Healthcare

SML Healthcare is a leading private inspction center, and also runs clinics and a dialysis business. As a medical inspection business, it has a history of more than 10 years, and has collection points (for inspection samples) in more than 50 locations throughout Myanmar, making it the largest-scale inspection system in Myanmar. They have also entered the clinic business, focusing mainly on Medical Checkups. They have several facilities in Yangon and Mandalay, and throughout the country, that can conduct both inspections and Medical Checkups.

SML Healthcare also established a clinic in the Thilawa district in March 2018, and mainly conducts Medical Checkups and handles inspection counter services. We intend to collaborate with them to accept inpatients from this clinic, especially as a hospital that meet medical standards required by Japanese companies.

9.4.7. Medical Cooperation with Private Hospitals in Neighboring Countries

As stated in the previous section, both public and private hospitals in Myanmar do not provide sufficient levels of medical care and patient care to the standard planned at the new hospital. Even in light of the burden of a transfer on patients, if we think the treatment of disease is the first priority, generally the most appropriate option is to transport to the hospital of the country where medical care is more developed. Among neighboring countries, Bangkok in Thailand is the first candidate to transfer to; it is located the closeset, about 1 and a half hours by plane from Yangon International Airport, and there are many advanced hospitals. We are assuming cooperation with the following hospitals.

i. Bangkok Hospital

As described in "4. Competitive Hospital Benchmark", Bangkok Hospital is a large hospital, with about 500 beds. 4 Burmese doctors, and many interpreters (for Burmese) work full-time. The hospital has an excellent ability to respond to the needs of Burmese patients; in fact it is one of the hospitals visited by many Burmese people, and many medical tourists from various other countries.

Bangkok Hospital and Ishii Hospital have been working together for several years. Dr. Tiraudt Kuhaprama, who is a visiting professor at Tokyo Medical and Dental University, is the director of the cancer specialty hospital affiliated with Bangkok Hospital, and agrees with the concept for our new hospital in Yangon. As a result of the examinations at the new hospital, when a malignant tumor is found, we will introduce the patient to Bangkok Hospital, and the patient will receive treatments such as surgery, radiation therapy / chemotherapy etc. at that hospital. We assume that in cooperation with Bangkok Hospital, when treatment is complete in Bangkok, the patient will return to our hospital for further medical care and rehabilitation.

ii. Bumrungrad International Hospital

As described in "4. Competitive Hospital Benchmark", Bumrungrad International Hospital is a large hospital with 600 beds. As with Bangkok Hospital, Burmese doctors and numerous, interpreters for Burmsese work full-time, and they have the ability to cater to Burmese patients, and also the ability to cater to patients of other languages, with consideration of the customs and religion of each country. There are also many foreign patients from various countries, as it is one of the most upmarket hospitals.

Bumrungrad International Hospital offers its own transportation arrangement services with Myanmar and other neighboring countries at a relatively low price, accompanied doctors who pick up patients at Yangon International Airport. Therefore, particularly for cases of severe afflictions (heart disease, cerebrovascular disease, infectious disease etc.) but who are highly likely to tolerate transportation, we will introduce patients to Bumrungrad International Hospital with consent from patients and their families. We are assuming a cooperative operation in which patients will be picked up from Myanmar by the hospital. There is a relationship between Japanese doctors who are already working at Bumrungrad International Hospital, and doctors who are planning to work at our new hospital, and discussions are continuing regarding a concrete basis for future cooperation.

9.5. Procurement Plans, such as for Medical Equipment and Medical Supplies

We are considering procurement of medical equipment, medical materials (disposable) and medicines for our business, based on services described in 9.2. Provided Services Overview. Procurement would be based on the below;

9.5.1. Procurement Situation for Medical Equipment and Medical Supplies in Myanmar

In Japan and Thailand, hospitals procure medical equipment from manufacturers or their authorized distributors, and engineers certified by the manufacturer are carrying out repair and maintenance inspections. Also, procuring medical materials such as consumable supplies can be complicated if purchased from each manufacturer individually, so it is common to purchase all supplies together from a specialized trading company dealing with medical products and materials.

In Myanmar, expansions of companies with foreign capital was not allowed by law for a long period, so there are few cases where manufacturers have entered Myanmar directly, selling, repairing and maintaining equipment. It is therefore common to procure medical equipment and supplies through local Myanmar agencies. These kinds of agencies import and install equipment, and educate and train medical staff during the installation period. These agencies also carry out maintenance of the equipment after installation, and repair in case of failure, and are collectively in charge of the equipment. Agencies in Myanmar also have engineers who are certified under the training of the manufacturer, and the quality of guidance to medical staff using the equipment, and quality of services for common problems, breakdowns, repair and maintenance of equipment, is considered to be almost equivalent to that in other countries. For the lead time of the introduction, we expect that it is about 2 or 3 month from issuing purchase order even for the bigger equipment. Thus, it will not affect our projest schedule or completion period.

However, stocks of core parts of equipment, and engineers with expert knowledge of the equipment, are limited in Myanmar. So if there is a serious equipment breakdown, it is necessary to dispatch an engineer and parts from a subsidiary of a manufacturer, such as from Singapore or Thailand, and it is assumed that the time from failure to completion of repair will be long.

In addition, some manufacturers of medical equipment / medical supplies have branch offices in Myanmar, and even though they do not sell directly, they carry out marketing / sales activities and customer support activities in collaboration with agencies.

Although some of them are mentioned in 4.3.3. Major Suppliers, the main agencies contacted in this survey and the major medical equipment / medical supply manufacturers handled there are listed in Table 118 below.

A large number of hospitals are already operating in Myanmar, and in particular, public general hospitals and major private hospitals, in big cities such as Yangon and Mandalay, generally equip most of the equipment installed in hospitals in Japan. Additionally, Japanese and western medical equipment / supply manufacturers and pharmaceutical manufacturers have also made numerous entries to Myanmar through distributors. We couldn’t find examples of devices or materials which are common in Japan, but unavailable to procure in Myanmar. Even if we cannot find exactly the same product, we will utilize the substitute product obtained in Myanmar. By doing this we expected there is not big impact on our operation.There are however many materials and equipment which we don’t generally install in Japan (as infrastructure is more developed), but which are required in Myanmar, such as uninterruptible power supply equipment and voltage regulators.

Therefore, it is assumed that no particular inconvenience will occur regarding the procurement environment or agency environment in Myanmar. Although it is legally possible to import medical devices and medical materials that do not involve distributors, medical devices that require maintenance after purchase should not be handled without distributors considering the risk of failure .

Table 105 Main medical supply distributors and manufacturers they distribute for in Myanmar

Distributor	Manufacturer Distributing
AA Medical	NIPRO (syringe, needle)
	Pacific Medical
	Roche Diagnostic
	Zuellig Pharma
	Zydus Cadila
AMD	Alere
	COSMED
	ITO Physiotherapy
	KINETEC
	NIIVE
	Sysmex
AMTT	BELMONT
	CANON (Microscope)
	FUKUDA DENSHI
	HAMILTON
	KUBOTA
	SHIMADZU
	SKYLUX
	TOP
Concordia	Boston Scientific
	Leica
	mindray
	TERUMO (cardiac products)
	TOPCON
DKSH	johnson & johnson
	OMRON (Nebulizer, Thermometer)
	Ortho Clinical
	OSTUKA Pharma
	pfizer
	Roche Pharma
Everglory	Aiphone
	PLATZ
	Lundal
Gold Lite	CANON Medical
	KONICA MINOLTA
JDS	TERUMO (syringe, needle)
LION Myanmar	Siemens (Laboratory)
MEDITECH	Siemens (Imaging)
Myanamr American Vision	Carl Zeiss
Myanmar Yutani	NIPRO (hemodialysis)
	OG-GIKEN
	Paramount

	TOITU
NANOVA	Hologic
Ni Lay Naing	OMRON (blood pressure)
Okkar Thiri	Aesculap
	Drager
	HITACHI Medical
	Mizuho
SEALION	BD
	CENTRAL UNI
	DePuy
	GE
	Hill-Rom
	INTEGRA
	WELCH ALLYN
SNOW EVEREST	PHILIPS
	VARIAN
Yee Shin	HITACHI Aloca Medical
	KLS MARTIN
	NIHON KOHDEN
	OLYMPUS

(Reference: Created by the research group)

9.5.2. In Formulating a Procurement Plan

In formulating the procurement plan for medical supplies in this project, the gap between time of purchase of equipment, and time of opening, was pointed out in interviews and analyses in the survey.

Regarding the timing of procurement of medical supplies and medicines, we will make the initial procurements just after the procurement of medical equipment, just before the opening of the hospital. We have received comments from each local agency that they are planning to procure products from highly reliable manufacturers, such as Japanese or European manufacturers.

Based on this background, in formulating this procurement plan, we have focused on listing the necessary items first, without specifying specific manufacturers, model names or models.

We will continue to make contacts in the future, centering on major distributors mentioned in "9.5.1. Procurement Situation for Medical Equipment and Medical Supplies in Myanmar", or agents dealing with Japanese products, and continue to confirm details of available models, so that decisions can be made by comparing the price and models available from each company at the timing of purchase.

The current list of the equipment is for when the hospital is fully operational, but at the beginning of the start up, even fewer equipment can be adequately managed and procurement is carried out according to the operation plan. Likewise, the cost estimate also calculates all equipment on the purchase base, but it is possible to control the invest amoun by procuring some equipment by leasing.

9.6. Summary (Provided Medical Services)

This section confirmed the concepts and details of medical services provided at the new hospital. As already outlined in "2. A Study of the Medical Markets in Myanmar", the medical care in Myanmar is still underdeveloped compared with neighboring ASEAN countries, so we have an advantageous opportunity to introduce Japanese-standard medical treatments. Meanwhile, it is impossible to treat all ailments at the new hospital, and necessary medical cooperation is planned accordingly. We assume we will cooperate with public hospitals and private hospitals in Yangon City, and overseas hospitals (mainly in Thailand), and assist by identifying patient's symptoms and conditions.

We investigated the procurement situation of medical equipment and medical supplies in Myanmar. We confirmed that a number of manufacturers including Japanese, European and American companies are entering the market in Myanmar through agents, and that distributors have secured service engineers certified by equipment manufacturers. As such, we could not find any concerns regarding procurement and maintenance that would be fatal to our business. Regarding medicines, although many drugs are supplied under different names in Japan, they can be verified by the active ingredient of the drug, though it may take some time. We are planning to confirm the medicines in Myanmar to match what we use in Japan with the pharmaceutical agents.

For the future, it will be necessary to thoroughly plan operation activities before starting operation of any services. That is, for each medical service, it is required to establish concrete clinical operational plans, and confirm medical treatment prices. For coopeation with other medical insitutions, it will be necessary to confirm procedures of transferring patients and sharing patient information. Work will also be required for the procurement of medical equipment, selection of supplies, drugs, and devices, bidding, transportation and installation of equipment.

10. Workforce Planning and Management Plan

10.1. Organizational System and Operation Rules of the New Hospital

10.1.1. Organization Structure of the new hospital

The organizational structure of the new hospital is assumed to be as shown in the figure 36, based on the planned medical departments and general structures in Japan. For major positions, we will arrange Japanese staff; mainly doctors and nurses from Ishii Hospital.

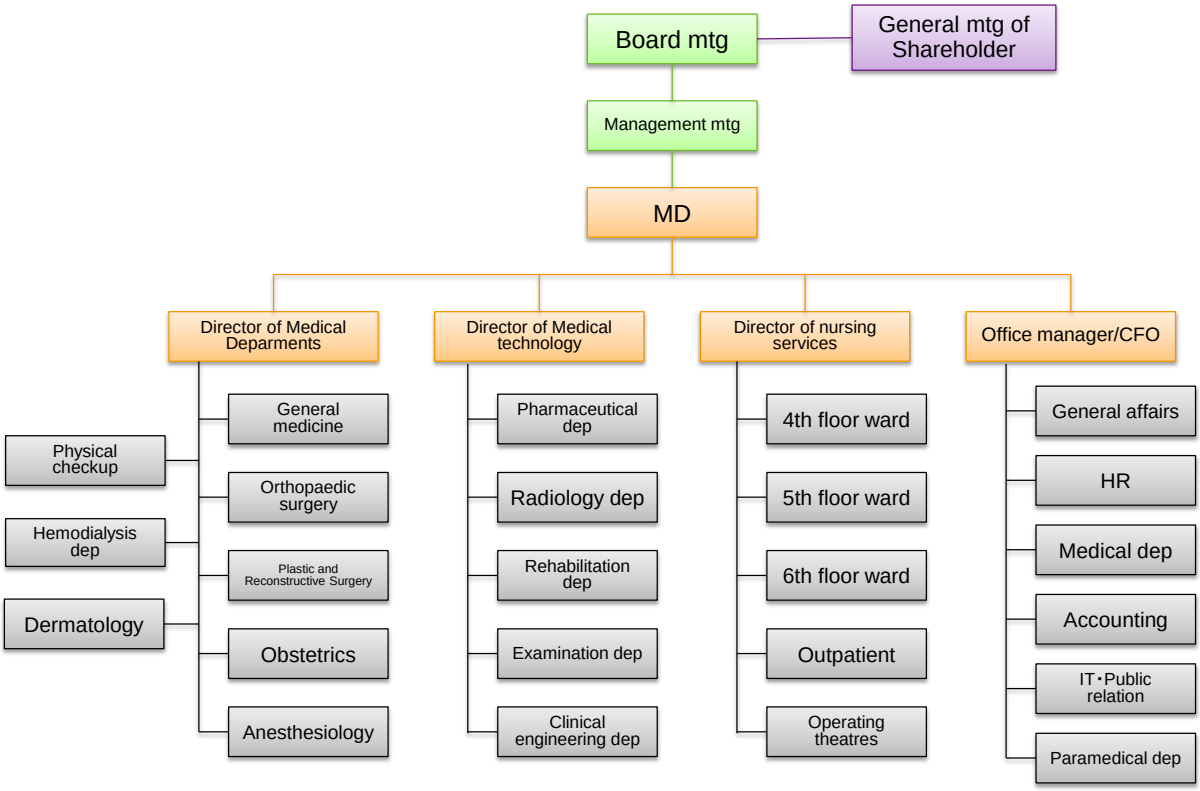


Figure 96 Organizational Chart for the New Hospital

(Reference) Created by the research group

10.1.2. Management Rules

The various regulations, rules, manuals, and forms used at hospitals are basically mutatis mutandis copies of corresponding items from Ishii Hospital in Japan, amended to adapt partly to practices in Myanmar. The main modifications are the language of the regulations, compliance with local labor laws, the expense amounts, etc, and we believe that no major modifications in terms of content is necessary. The main provisions are as follows.

- Organizational regulations (including division of work)
- Authority provisions
- Committee regulations
- HR policy
- Document management provisions
- Information management provisions (including protection of personal information)
- Financial and expense related provisions

- Regulation management provision

We will regularly assess the actual condition of hospital administration, and establish committees to discuss, as necessary, any areas where decisions need to be made for the hospital. Members of each committee are selected from different departments, to implement a system where the opinions of all relevant departments are reflected in hospital administration. The committees currently planned are as follows. These various committees will regularly report to the management committee, and advise on the operational status of the hospital to management in a timely manner.

- Medical Safety Committee
- In-hospital Infection Control Committee
- Pharmaceutical Affairs Committee
- Ethics Committee
- Education Committee
- Hospital Management Committee
- Operating Theatre Management Committee
- Medical Equipment · Medical Supplies Purchasing Committee
- Medical Record Management Committee
- Culture and Language Committee
- Medical Treatment Cost Committee
- Remote Medical Care Committee

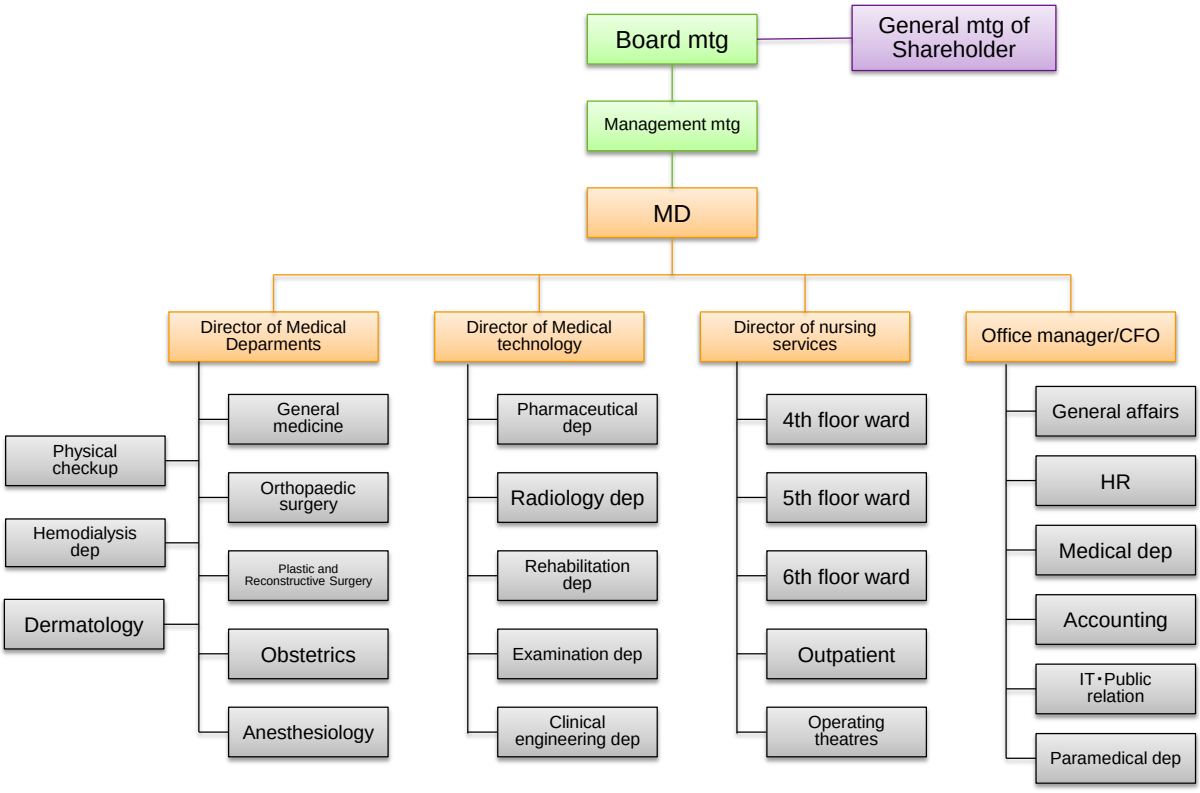


Figure 97 Committee Diagram of the New Hospital

(Reference) Created by the research group

10.2. Investigation of Insurance Matters

10.2.1. Overview of Myanmar Insurance Market

In Myanmar, as a result of the military coup in 1962 and socialism associated with the coup, in 1964 all private insurance companies were dissolved, and the insurance industry was nationalized. Since that time, until 2012, Myanmar Insurance monopolized the market and undertook all domestic casualty insurance and life insurance. From the democratization and economic reform from 2011, 12 private insurance companies with domestic capital received approval to be established in 2012. From May 2013, several domestic capital private insurance companies (8 consolidated with life and property insurance companies, 3 specialized life insurance companies, and the 1 remaining company postponing payment of capital) have begun operations.

Table 106 List of Insurance Companies in Myanmar

#	Company Name	Organization Type	Related Companies / Organizations
1	Myanmar Insurance	Public Insurance Company	Ministry of Planning and Finance
2	Aung Thistar Oo Insurance	Life & Property Insurance	Myanmar Economic Corporation
3	AYA Myanmar Insurance	Life & Property Insurance	Max Myanmar Group
4	Excellent Fortune Insurance	Life & Property Insurance	Excellent Fortune Development Group
5	First National Insurance	Life & Property Insurance	Htoo Group
6	Global World Insurance	Life & Property Insurance	Asia World Group
7	Grand Guardian Insurance	Life & Property Insurance	Shwe Taung Group
8	IKBZ Insurance	Life & Property Insurance	KBZ Group
9	Young Insurance	Life & Property Insurance	Youg Investment Group
10	Aung Myint Moe Min Insurance	Life Insurance	Myanmar Economic Corporation
11	Capital Life Insurance	Life Insurance	Capital Diamond Star Group
12	Citizen Business Insurance	Life Insurance	CB Bank Group

(Reference) Information gathering and confirmation survey related to the private health industry (JICA)

However the Myanmar insurance market has remained undeveloped due to the long-standing economic sanctions in Europe and the United States, and declining foreign investment associated with the economic sanctions. This situation and the state-owned monopoly system combine to produce a market scale, product variation, compensation content, insurance sales service (distribution network), and insurance payment service, which are all largely behind those of other ASEAN countries.

Specifically, there are restrictions on the kinds of insurance that can be sold, and the insurance rates that can be obtained from any insurance company are required to be equal. Insurance companies cannot sell customised insurance plans.

Table 107 Comparison of insurance penetration rate (ratio to GDP) with ASEAN countries (2015)

	GDP (10 billion US$)	GDP per capita (US$)	Non-life insurance penetration rate	Life insurance penetration rate	Life and non-life insurance penetration rate
Myanmar	76	1,406	0.07%	0.01%	0.08%
Cambodia	18	1,127	0.35%	0.00%	0.35%
Laos	12	1,767	0.44%	0.01%	0.45%
Vietnam	197	2,106	0.74%	0.82%	1.56%

(Reference) Trends in Myanmar Insurance Sector Reform and Related Legal System / Institutional Improvement Support (JICA)

As of 2018, the market is basically closed to foreign insurance companies. Under this circumstances, eight companies including three Japanese insurance companies have opened branch offices in Myanmar, and have urged the Myanmar government to support institutions and open up the market to foreign companies. In particular, Japanese insurance companies have been continuing this activity for a long time, since the 1990s, and as a result, they have been allowed to conduct business, limited to companies entering the Tirawa special economic zone, since 2015. However, because the insurance which can be provided there is also limited, flexible insurance plans have not been achievable. Meanwhile, it is possible to use the reinsurance system via Myanmar public insurance corporation, and foreign insurance companies are mainly handling insurance for companies in the special economic zone using this system.

Regarding the liberalization of the insurance market, though it has been under consideration within the Myanmar government for several years, it has not been implemented, as liberalization would have a large impact on existing domestic insurance companies. In interviews with Japanese insurance companies in Myanmar, we heard comments that concrete conditions for opening the market to foreign company capital are being prepared, and it is expected that the opening of the market and liberalization will be coming in the future.

10.2.2. Available Insurance Products

In Myanmar, private insurance companies and Myanmar Insurance (public corporation) provide insurance products. The products they provide are listed below.

As mentioned previously, there are restrictions on health insurance products that can be sold, and there are only 9 types of insurance products that private insurance companies can offer, and services are the same among all companies.
In addition, though the insurance products provided by Myanmar Insurance have more insurance types than private companies, insurance products cannot be designed or freely changed, and the service contents and prices of insurance have not changed for about 50 years. In inteviews with Japanese insurance companies, they said that the only insurance that could be worth purchasing here is fire insurance and car insurance.

Table 108 List of Insurance Products Sold by Private Insurance Companies

(1) Life Insurance
①Public Life Insurance
②Group Life Insurance
③Snake Bite Insurance
④Sports-men Life Insurance
(2) Fire Insurance
(3) Cash in Safe Insurance
(4) Cash in Transit Insurance
(5) Fidelity Insurance
(6) Motor Insurance
(7) Special High Way Insurance (Travel Insurance)
(8) Health Insurance
(9) Marine Cargo Insurance
(Marine Cargo Insurance, Inland Transit Cargo Insurance)

(Reference: Information collection and confirmation survey related to the private health field (JICA))

Table 109　List of Insurance Products sold by Myanmar Public Insurance Corporation

(1) Government Services Personnel Life Insurance
(2) Army Personnel Life Insurance
(3) Public Life Insurance
(4) Group Life Insurance
(5) Seaman Life Insurance
(6) Life Insurance for Personnel with Shore Job
(7) Sportsman Life Insurance
(8) Snakebite Life Insurance
(9) Health Insurance
(10) Fire & Allied Perils Insurance
(11) Burglary Insurance
(12) Fidelity Guarantee Insurance
(13) Cash in Safe Insurance
(14) Cash in Transit Insurance
(15) Personal Accident & Disease Insurance
(16) Workmen's Compensation Insurance
(17) Liability Insurances
a. Miners' Liability Insurance
b. Third Party Liability Insurance/Public Liability Insurance/ Comprehensive General Liability Insurance
(18) Contractor's & Machineries Insurance
a. Contractor's All Risks Insurance
b. Erection All Risks Insurance
c. Electronic Equipment Insurance
d. Machinery Insurance
(19) Deposit Insurance
(20) Marine Cargo Insurance
(21) Marine Hull & Machinery Insurance
(22) Aviation Hull Insurance
(23) Aviation Liability Insurance
a. Crew Personal Accident Insurance
b. Aviation Hull Deductible Insurance
c. Aviation Hull War & Allied Perils Insurance
(24) Travel Insurance
(25) Ship Owner and Ship Operator's Liability Insurance
(26) Tiger Fishing Barge Owner's Liability Insurance
(27) Oil & Gas Insurance
(28) Third Party Liability Insurance
(29) Comprehensive Motor Insurance

(Reference: Information collection and confirmation survey related to the private health field (JICA))

10.2.3. Other Available Insurance Products

The only insurance products that insurance companies are able to provide in Myanmar are those described in "10.2.2. Available Insurance Products"; 9 types from private insurance companies, and about 30 types from Myanmar Public Insurance corporation. Foreign insurance companies cannot provide these domestic insurance products, but it is possible to provide the products via a reinsurance system. That is, a Myanmar insurance company underwrites insurance, and a foreign insurance company (from Singapore, etc) operating from a branch office becomes the primary insurance product provider.

Specifically, only reinsurance underwritten by Myanmar Public Insurance Corporation is available, and overseas insurance companies assume the risks undertaken by Myanmar public insurance corporation. Regarding the burden ratio for risk, Myanmar public insurance corporation generally takes 30% and overseas insurance company takes 70%.

Domestically, insurance services are severely restricted, while for reinsurance there is no regulation on content. Therefore, if insurance content is included in the clauses of a plan, then theoretically any

insurance content can be commercialized. However, as a constraint, if the risk associated with the insurance content becomes concrete, unless the scale of the amount can be assessed, it is impossible to apply the insurance itself as it cannot substantially fulfill the contents of the contract. Therefore, basically, with regard to the range of insurance provided by the Myanmar Public Insurance Corporation, it is the reality that insurance contents can be freely designed only when we use the reinsurance system.

10.2.4. Insurance Plan

The insurance plan assumed for this project is as follows. Basically, by using the reinsurance system described in "10.4.3. Available Other Insurance Products", we will procure a plan with insurance equivalent to that which can be procured in Japan.

- ✓ Construction insurance (Insurance of buildings and construction period)
- ✓ Fire insurance (Insurance after construction of buildings and equipment)
- ✓ Compensation for damages (Insurance against accidents in buildings)
- ✓ Car insurance (Insurance for amburance and company cars)
- ✓ Theft insurance (Insurance for cash and safe in the building)

For those above insurances, we have confirmed with Japanese insurance company that they have already provided the same insurance scheme using the reinsurance system. So we can say that the reassurance system is working from both regulational point of view and actual operational point of view.

10.3. Summary (Workforce Planning and Management Plan)

In this chapter, we have developed an organizational structure and personnel plan that should be implemented for the operation of the hospital business. We also listed organizations and institutions with which we can cooperate in the opening and running of our business. Also we planned insurance procurement to reduce risks in managing the hospital.

Regarding hospital management, basically it follows Japanese hospital organization, rules and operations, since it will be Japanese personnel who manage the core of the organization. On the other hand, as a corporate form, it will operate as a public company, not as a medical corporation like in Japan, so we will combine these two management elements.

Regarding insurance, institutional reforms in Myanmar are progressing, and although there are some uncertainties regarding future prospects, it was confirmed that insurance coverage equivalent to that in Japan can be obtained using the reinsurance system.

As an issue to be addressed in the future, we think that it will be most important to process employment on time, and prepare training plans and curriculums for those human resources. In the current situation, recruitment is progressing faster than we expected, but in view of the labor market in Myanmar, which has high liquidity, we will ensure dedication of recruited human resource through implementation of human resource development in Japan and long-term training. It is also necessary to continue studying measures to increase staff retention, other than the measures described in processes for exiting staff. With regards to insurance, since substantial changes in the insurance system could become a risk factor, we will continue to communicate regularly, mainly with Japanese insurance companies in Myanmar, and make efforts to pay attention to the latest situational changes in the future.

11. Review of Development Effects

This project is to establish a hospital in Myanmar, equipped with Japanese-standard medical technology and services. The predicted effects that the implementation of this project will bring to Myanmar are listed below;

11.1. Contribution to the Health Sector

What is listed as the development effect of this project is the contribution to the health sector by the medical service business, which is the core business, and it is described below.

i. Providing medical services which are not yet popular in Myanmar

The new hospital can contribute to the improvement of medical standards and secure access to necessary medical services in Myanmar, by providing medical equipment, medical personnel and medical services which are widely used in Japan, but not yet fully adopted in Myanmar. Details of these services etc are as follows;

- ✓ Screening and surgery utilizing endoscopes
  Being able not only to directly observe the interior of the human body, but also having the capability to collect tissue for pathological diagnosis, is especially effective for early detection of cancer and polyps in organs, such as the stomach and the intestines. In Myanmar, however, the number of endoscopists is very limited, with about 30 people nationwide - which is 1/500th the number in Japan. There are also a small number of doctors in general in Myanmar. The endoscope is not normally used for medical examinations in Myanmar. At the new hospital, we can contribute to earlier disease detection by introducing endoscopic examination.

- ✓ Rehabilitation
  Rehabilitation is expected to have an effect on the recovery and self-reliance of patients after surgery, and play an important role in the reduction of the number of bedridden elderly people, which is expected to increase rapidly in Myanmar. In Japan, rehabilitation is widely popular not only in hospitals, but also in elderly homes and day care centers, as a result of the aging population; however few hospitals in Myanmar have rehabilitation centers, and future expansion is desired in terms of equipment and human resources.

- ✓ Clinical Pharmacists
  Appropriate selections of medicines and prescriptions / medications are very important in the treatment of patients. Clinical pharmacists can check how multiple medicines work in the body from the viewpoint of pharmacology and biochemistry, and play a role of giving instructions to patients for medication. Checks are made with doctors and nurses. In Myanmar, medication instruction is not widely given, so combinations of medicines etc are not sufficiently considered, therefore placement and training of clinical pharmacists is required.

- ✓ Certified Nutritionists
  Certified Nutritionists carry out appropriate nutrition guidance and catering

management for the patient's medical treatment, as well as carry out nutritional guidance with respect to health promotion and the prevention of disease. In Myanmar, there is no qualification equivalent to certified nutritionists, and catered food services in hospitals are rarely available. Lifestyle diseases such as diabetes and high blood pressure are quite common in Myanmar; therefore, providing nutrition guidance and education hospitalization by allocating certified nutritionists can contribute to the improvement of the current situation, and prevention of diseases.

- ✓ PET-CT
  Early detection is essential for the treatment of malignant tumors and malignant lymphoma. In addition to general X-ray imaging and X-ray CT imaging, PET-CT can be used to improve diagnostic ability and diagnostic accuracy. Currently in Myanmar there is only one PET-CT in operation, installed at Yangon General Hospital. Installation of a PET-CT scanner in the new hospital can contribute to earlier diagnosis and improvement of accuracy.

ii. Improvement of medical knowledge and skill through education of medical staff

The lack of medical professionals is one of the major development issues in Myanmar's health sector. Many previous medical education initiatives in Myanmar had to be implemented within a short period of time and with budget constraints. At the new hospital however, with a system of mainly Japanese doctors working in Myanmar, it is possible to educate and train medical staff over a longer term, so that we can contribute to the improvement of the standard of medical workers in the country through this project. In addition, there are potentially many medical staff in Japan who wish to contribute to society through medical treatment. Therefore we are also planning to utilize the new hospital as a platform, which we will be able to further contribute to the Myanmar medical industry. Specific training contents include the following;

- ➢ Implementation of on-the-job training
  Employees working at the new hospital can receive education through daily work from Japanese experts and experienced staff in each job category, including medical staff and non-medical workers (such as administrative staff, etc.)

- ➢ Implementation of various training programs
  Many Japanese doctors and medical staff, including those residing in Myanmar and business travelers, are scheduled to work at the new hospital, and various seminars and training programs will be scheduled and implemented by these experts. These programs plan to accept participants from outside hospitals and medical colleges, as well as workers at the new hospital.

- ➢ Implementation of distance education connected with Japan
  The new hospital has an auditorium facility and plans to implement remote lectures and conferences by connecting auditorium equipment with medical institutions and university hospitals in Japan.

- Collaboration with Japan Myanmar Medical Professional Development Association
  Ishii Hospital is a support member of Japan-Myanmar Medical Professional Development Association, which is a special nonprofit corporation focusing on improvement of medical care in Myanmar through the fostering of Myanmar doctors and medical staff based in Okayama Prefecture. The Association has been conducting activities such as dispatching Japanese doctors to Myanmar to educate Myanmar staff, and training of Myanmar medical staff in Japan, for more than 10 years. Through collaboration with the new hospital, we are planning to cooperate with the association, towards implementing these activities in a smoother form, such as provision of facilities and equipment, reviews before and after the trainee's training period.

iii. Providing medical services to the general public, including the underprivileged, through medical examinations and free medical courses.

By conducting medical courses and medical treatment activities within the scope of the profit generated from the new hospital project, we can contribute widely to the improvement of the health of the people of Myanmar. Yuichi Kasai, a full-time doctor at the new hospital, has a track record of performing over 400 operations in Myanmar since 2010, and the activities of the new hospital are positioned as an extension of Dr. Kasai's efforts.

Regarding specific activities, the following are expected;

- Implementation of medical courses for citizens
  To take advantage of the auditorium equipment of the new hospital, various lectures are planned to be held regularly for the public by Japanese doctors. The lectures are for the prevention of major infectious diseases such as AIDS, tuberculosis, and malaria, and for the prevention of lifestyle-related diseases such as diabetes, reproductive health problems, mental health issues, etc. We are considering content familiar with citizens.

- Free Medical Check Up
  The new hospital plans to provide free medical check up services for people in Myanmar including the poor. While detail programs will be discussed with governmental bodies such as MoHS or Yangon city, we plan to provide free mammography test (first arrival reservation) on the Pin Ribbon Day, free HIV test on World AIDS Day (first arrival reservation), and periodical free blood sugar measurement services for early detection of diabetes.

- Free treatment and operations in rural areas
  We plan to send some medical staffs to rural areas periodically to provide free medical treatment and operations for those living in the areas including the poor. We plan to also donate some medical equipment or implants that we use for the operations.

11.2. Contribution to the Economic Sector

Next, economic contributions by the operation of a business in Myanmar can be listed. The contributions are described below.

i. Contributing to Employment

In Yangon there are many citizens working in the informal sector; therefore, creating secure employment is one of the development issues faced. It is predicted that urbanization will continue in the future, and demand for employment in Yangon is increasing. With the establishment of the new hospital, we create employment for up to 200 people or more, including medical staff and non-medical workers (such as administrative staff.) Also, we can contribute to the profit of a wide range of industries, through hospital design and construction work, purchase of medical equipment and maintenance work, use of various services such as IT, cleaning, and security.

ii. Reduction of opportunity losses due to overseas medical tourism

Currently, more than 200,000 Burmese people every year are travelling to other countries, including Thailand and Singapore, for the purpose of receiving medical services, and expense of medical costs, accommodation and transportation etc are paid outside Myanmar. Compared to the current situation, our new hospital will benefit not only the new hospital receiving medical expenses, but also industries involved in accommodation and transport of patients and their families, leading to profit generated inside Myanmar.

11.3. Contribution in other fields

With regard to the staff plan, we are not planning to recruit doctors and medical staff from public hospitals that support the majority of the health sector in Myanmar, and the impact on public health will be minimum. The current policies and plans regarding human resources are as follows;

A. Doctors
We plan to hire 14 doctors for the opening of the hospital; 7 Japanese doctors and the remaining 7 Burmese doctors. Two Japanese doctors have already been confirmed, and we are recruiting for the remaining positions. For the Burmese doctor positions, two Myanmar doctors have already been confirmed and are currently training at Ishii Hospital in Japan. In addition to contacting multiple doctors who are already planning to retire, we are planning to promote recruitment activities, focusing on Myanmar doctors working outside of Myanmar.

B. Nurses
We plan to hire 36 nurses for the opening of the hospital; 4 Japanese nurses, and the remaining 32 Burmese nurses. 1 Japanese nurse has been confirmed, and we have been contacting Japanese nurses who have worked overseas, for remaining positions. For Burmese nurses, we are planning to provide training for a maximum of 4 nurses at Ishii Hospital in Japan; we are recruiting for these positions recruitment at the moment. We are focusing on hiring nurses who have retired, nurses working at other private hospitals, or graduates, and we've been having meetings with Japanese education facilities for nurses.

C. Other medical staff
We plan to hire around 27 medical staff such as midwives, physiotherapists, radiologists, pharmacists, clinical technicians, nutritionists, and assistant nurses. The composition for medical staff will be 6 Japanese and 21 Burmese. We are hiring Burmese people who have already retired, or are working at other private hospitals, and we have had meetings with occupation associations such as Myanmar physiotherapy association, Radialogist association, Medical engineers association, etc. We have also been meeting with Japanese education facilities for midwives and assistant nurses.

Regarding the above information, we submitted a report to Deputy Director General Thida Hla and Director Kyaw Soe Min, who work in the medical services department of the Ministry of Health and Sports, which oversees the hospital industry in Myanmar. It was held at the headquarters of the Japan International Cooperation Agency (JICA) at the Kojimachi in Tokyo on June 21, 2018. We obtained agreement for all the points above, and received from them the following comments;

- There are restrictions or limitations in reality regarding private hospitals providing free medical services, so the contents of the services needs to be more specific.
- It is possible to hire doctors and medical staff working at public hospitals, on a part-time basis.

Based on these comments, we will further clarify measures concerning development effectiveness and personnel recruitment methods in cooperation with related organizations such as Japan International Cooperation Agency (JICA), NGOs, and educational institutions, during the future investigation period, and will explain our findings to the director of the medical service department.

In this project, we are planning to cooperate with Kinsei Industry Co. Ltd., which is conducting a penetration / demonstration business in Thailand, for proper medical waste disposal using a next generation incinerator. We are also planning to cooperate with Kitajima Oxygen Co. Ltd., which conducts demonstration projects, and the dissemination of safe, high quality hygienic medical oxygen supply systems in Myanmar. We can expect effective outcomes from cooperation with these businesses.

11.4. Summary (Review of Development Effects)

In this chapter, we described in detail the development effects that this project will bring to Myanmar. Regarding this content, as already mentioned above, we have already reported to the Deputy Director of the Medical Service Department of the Ministry of Health and Sports, and no particular concerns have been raised at this time. However, in order to acquire licenses and continue good relations after the project, we will continue to materialize the above contents and continue to report periodically to the Ministry of Health and Sports, which is the supervising ministry, as much as possible. In the details of the operation, we will continue to work in cooperation with the Japanese Embassy and JICA, which has established close relations with the Ministry of Health and Sports.

12. Business Risk and Mitigation Policy

12.1. Risk Classification of Hospital Businesses

1) Features of Hospital Businesses

The hospital business is a so-called B to C business, but it is characterized by the expertise and public nature of the services to be offered to consumers. Technical expertise and know-how are required to provide medical services, and basically all medical services are provided by national qualification holders (doctors, nurses, medical radiology technicians, pharmacists, etc.) in Japan. In addition, hospitals have a role in social infrastructure, and medical treatment can be said to be one of the services that supports the foundation of society.

2) Risk of Hospital Businesses

From the characteristics of the hospital business, the business risk is considered to be divided into hospital-specific risks related to medical operations, and risks as a general B to C business. In addition, when we run a hospital business in Myanmar, there are risks that are specific to operating in Myanmar. The major risks are described below

12.2. Risks Related to Medical Operations

1) Risk for securing human resources
As mentioned above, medical services require high expertise, so human resources capable of providing services are extremely limited. Furthermore, specialized fields are also divided in detail, and personnel corresponding to each specialized field are necessary. If there are insufficient human resources for a medical operation, there is a risk that the service cannot be provided in the hospital.

2) Risks related to medical equipment / medicines / medical materials
In provision of medical services, not only human resources but also medical equipment, medicines and medical materials (expendables such as gauze) used in hospitals have special characteristics. There are limited suppliers, especially for medical equipment which requires regular maintenance. If the procurement department of the hospital cannot make the necessary procurement, there is a risk of not being able to provide appropriate medical services.

3) Hospital infection and medical accident risk
The hospital is a place visited by people with poor physical condition, and there is a risk of nosocomial infection due to visits by people with viruses or infections. In addition, since medical services directly affect the body of a patient by medication, surgery, etc, there is a possibility that the body may be adversely affected if there are mistakes when providing the service. These have the risk of evolving into litigation if we provide an inappropriate corresponding response after the incident.

4) However, we will implement double the countermeasures, or more, for these risks, therefore the number of cases of medical litigation should be less than the number of cases related to construction. In addition, the defense (ie – the hospital) often wins medical litigation cases, when compared with other kinds of litigation. This means as long as we, as a hospital, make the utmost effort to treat patients, this will be accepted in court. (See 9.7 Data relating to medical litigation in Japan)

12.3. Other hospital business risks

1) Attracting patients and empty-bed risks
There are risks that the hospital will not attract the patient numbers predicted, due to various reasons such as hospital reputation, location, services offered. If patients do not come to the hospital, and planned income cannot be obtained, it will be necessary to reassess the project.

2) Risk for costs exceeding budget (personnel expenses, capital investment, general administrative expenses etc.)
There are risks of costs exceeding planned budgets due to various factors such as rise in personnel expenses due to talent acquisition, replacements due to equipment failure, rising travel expenses due to seasonal airfare fluctuations, expenses due to regulatory changes.

3) Competitive hospital risk
There is a risk of outflow of patients due to new hospitals being established near our hospital site. This can also be considered a factor in the risk in attracting patients.

4) Compliance risk
Hospital businesses are highly public and professional, which means there are many regulations related to the business. Therefore, it is necessary to communicate clearly with authorities in order to ensure compliance.

5) Disaster risk
As hospital activities are conducted in buildings, the hospital is exposed to disaster risks, such as earthquakes.

12.4. Risks Specific to Myanmar

1) Country risks and obtaining permission risks
In April 2016 Myanmar changed from a military regime to a new administration. Since, there have been no major disruptions or coups, but we cannot deny the risk of major policy changes in the future. Also, in order to run a hospital business in Myanmar, it is necessary to obtain permission from Myanmar government. Currently, communication with the Myanmar government concerning this hospital case has been conducted smoothly, and there is no particular concern, but there is a risk that of finding out later that we are not able to obtain some permission required, or that permission will take more time to obtain than expected.

2) Macroeconomic risks such as interest rates, inflation, exchange rate fluctuations
When running a business in Myanmar, the business will definitely be influenced by the Myanmar economy as a whole. As a result, there are risks of economic growth stagnation and significant inflation etc in Myanmar; in that case there is a possibility that the projected profit cannot be obtained.

3) Local partner related risk
There is a risk that, when doing business with the local partner, that local partner cannot fulfill their expected role. At the moment, our local partners are expected to play roles of offering land and communicating with the Myanmar government.

4) Capital recovery risk
In Myanmar, the medical insurance system is not developed, so medical expenses for patients of private hospitals are basically entirely self-funded. Patients may not be able to pay medical expenses. In that case, there is a risk that we cannot receive payment for the service we provided.

12.5. Measures to Mitigate Risks Related to Medical Operations

Since the above risks cannot be excluded completely in the course of doing business, it is very important for the company to monitor and manage each risk. Below is a description of countermeasures focusing on medical operation-related risks;

1) Mitigating risk for securing human resources

Currently, securing stable medical personnel (especially doctors) is a difficult task even in Japan. In order to mitigate this risk, it is necessary to always contact a plurality of personnel providers, and to prepare a system capable of securing necessary personnel according to the services provided by the hospital.

At this stage, Ishii Hospital has secured several doctors to work in the new hospital in Myanmar (two full-time Japanese doctors, two full-time Burmese doctors, and a few part-time Japanese doctors). In addition, we are also beginning access to Okayama University, Mie University, Kyushu University, recruitment websites, etc, to secure additional personnel, and we are building a structure to secure personnel stability.

2) Mitigating risks related to medical equipment / medicines / medical materials

It is important to establish a system for ensuring stability for medical equipment (including maintenance services), medicines, & medical materials, as well as human resources.

Ishii Hospital has already investigated sales agents for medical equipment and medicines in Myanmar, and confirmed that it is possible to procure necessary equipment. On the other hand, many medicines are not distributed as much as in Japan, and we plan to increase the number of medicines that can be procured in collaboration with pharmaceutical companies in the future. After the establishment of the hospital, we will set up an equipment, medicine and medical material purchasing committee within the company, and manage procurement risk.

3) Mitigating Hospital infection and Medical accident risk

For nosocomial infections / medical accidents, we will take the following preventive measures;

- Thorough preventive procedures such as isolation of patients suspected of carrying infectious diseases, mask wearing, and staff education in prevention of medical accidents.
- Periodical monitoring of medical operations and continuous improvement by PDCA of various operation procedures, by establishing an in-house hospital infection control committee, medical accident prevention committee, hygiene committee, catering committee etc.
- Remove difficult operations, such as cancer removal surgery, from the list of provided services, and provide minimally invasive medical treatments such as medical checkups, endoscope examinations, rehabilitation, and microscopic surgery, as the main provided services instead.
- Ensure transparency regarding the hospital's behavior, by providing detailed explanations to patients, and thorough recording of treatment contents
- Ensure the objective soundness of various preventive measures by receiving external certification such as JCI

In the event that a medical accident happens, for example, due to a mistake within the hospital, after taking the above measures, we will respond as honestly as possible and pay medical fees etc accordingly. Ishii Hospital has been established for around 30 years, and until now, no major problems have occurred.

12.6. Measures to Mitigate Other Hospital Business Risks

1) Mesures for attracting patients and empty-bed risks
To cope with attracting patients and empty-bed risks, we will conduct a financial forecast. It is a most important matter to confirm the probability of patient visits, and to confirm that shortages of income do not occur even in the case of various environmental stresses. After opening the hospital, if we cannot attract the expected number of patients, we will try focusing on advertisements and adjusting service prices.

2) Measures to mitigate the risk of costs exceeding budget (personnel expenses, capital investment, general administrative expenses etc.)
Regarding costs, it is most important to complie necessary expenses in the financial forecast first. On the other hand, costs are easier for the company to control than income, so if some of the costs exceed what is planned, in principle, we will handle this by adjusting other costs to lower than what was planned.

3) Measures to mitigate competitive hospital risk
Currently, there are no hospitals in Yangon at the standard which we plan for our new hospital. A hospital partly funded with Thai capital opened in Yangon in October 2018, but the management style of the hospital is almost the same as the other ordinaly hospitals, and the doctors employed there are mainly part-time. As long as the hospital is operated by many part-time doctors, the hospital shares the same human resources with other hospitals, which makes it difficult to make difference in service menu. That kind of operation is not able to provide consistent and careful follow ups for patients. Ar Yu International Hospital has new building and equipment but so do Grand Hanthar International Hospital or Kan Thar Yar Hospital. Even some of its capital is from Thailand, its operation and management seem to be same as new local hospitals. Although its building and equipment are great, these new private hospitals competes in the same market with the same service quality level. Therefore, this hospital is not considered to be a competitive threat to our new hospital.
In the future, there is a possibility that hospitals with excellent human resources and operational know-how will enter the market. In that case, we will respond by making features of the hospital's medical treatment areas in this project. We will strengthen clinics and departments that future competitive hospitals do not have, or establish distinctive departments of medicine such as regenerative medicine, to attract patients with different features, to reduce overlap with competing hospitals.

4) Measures to mitigate compliance risk
According to the results of the legal survey, medical regulations are much simpler in Myanmar than in Japan. Therefore, the current compliance risk in Myanmar is considered to be relatively low. However, since regulations are frequently changed in Myanmar, we respond to compliance risk by closely communicating with the Ministry of Health and Sports, which is the jurisdictional agency of hospitals.

5) Measures to disaster risk
With regard to disaster risk, we will construct an earthquake resistant structure and take basic mitigation measures by taking fire insurance. In addition, we will reduce risks by conducting disaster education and evacuation drills for staff.

12.7. Measures to Mitigate Risks Specific to Myanmar

1) Measures to mitigate state risks and obtaining permission risks
At present, the administration of Myanmar is conducted at an acceptable risk level. We will continue to look at the political situation with care and respond to the risk of new state risks and licensing risks by continuously communicating with the Myanmar government.

2) Measures to mitigate macroeconomic risks such as interest rate changes, inflation, exchange rate fluctuations
Regarding Myanmar's macroeconomy, while looking at forecasts from the World Bank and IMF, we respond to various risks by conducting US dollar-based trading and asset holdings as much as possible. Financial instruments related to Myanmar Kyat interest rates and currency hedging have not yet been established, but in the future we will also utilize such hedging instruments to manage risks.

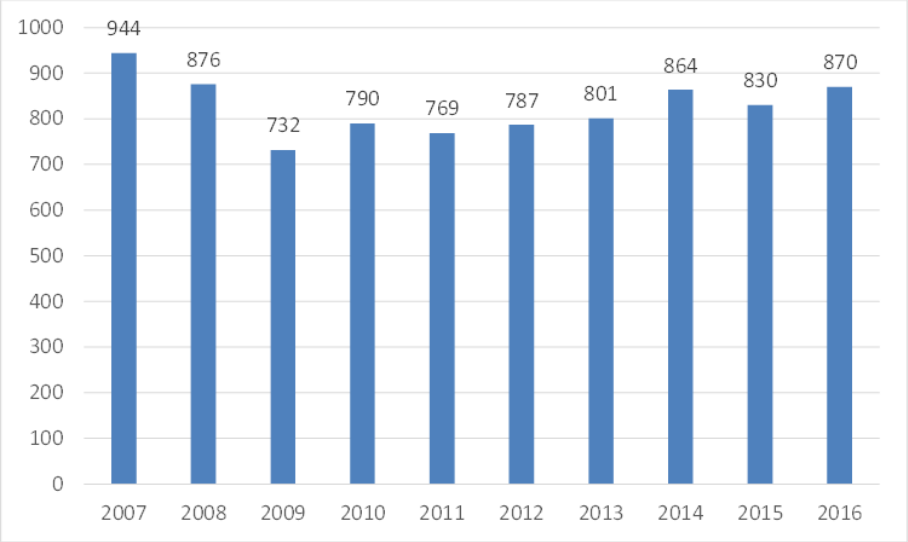
3) Measures to mitigate local partner related risk
Given the results of the credibility study, the current risk of the local partner candidate is considered low. However, there is a possibility that the financial soundness of the local partner will deteriorate in the future, so it is desirable to prepare a system that allows us to operate as much as possible without relying on local partners. After the establishment of the local subsidiary, we will respond to this risk by establishing locally relevant expertise in the local subsidiary, including in negotiations with the authorities.

4) Measures to mitigate capital recovery risk
Emergency treatment costs which are impossible to collect from certain emergency patients, need to be regarded as cost. Otherwise, credit checks against patients for general treatment, etc, can gradually respond to this risk by accumulating patient credit data.

12.8. Data Reference Relating to Medical Litigation in Japan (Data from courts)

The number of new applications for medical litigation has been around 800 each year. Because there are approximately 170,000 medical institutions in Japan (January 2017), the proportion of litigation per medical facility is 0.5% in one year (occurring once in 200 years).

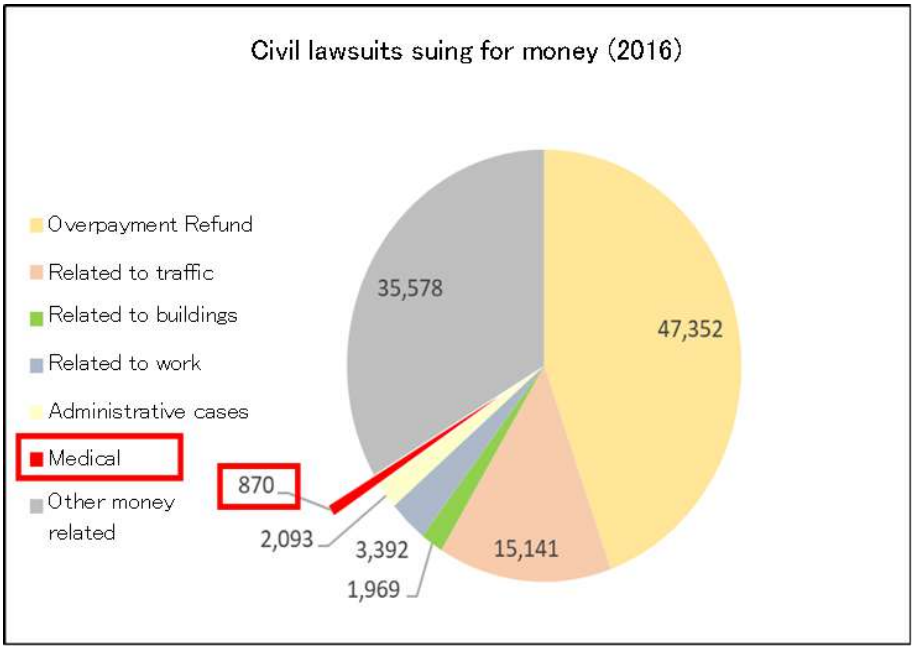
Figure 98 Changes in the Number of Medical Lawsuits in Japan



(Reference: courts in Japan)

Medical litigation accounted for 0.6% of total civil litigation in 2016. This figure is far lower than traffic related lawsuit (10.2%), building related litigation (1.3%), and labor relations litigation (2.3%)

Figure 99 Percentage of Medical Litigation in Civil Lawsuits Suing for Money



(Reference: courts in Japan)

The breakdown by clinical department of medical litigation is as follows; lawsuits in general are not biased to any specific department.

Table 110 Number of lawsuits by medical examination subjects

Clinical department	The Number of lawsuit settlements (2016)	Ratio
Internal Medicine	170	23%
Pediatrics	8	1%
Psychiatry	33	4%
Dermatology	14	2%
General surgery	114	15%
Orthopaedic Surgery	87	12%
Plastic surgery	25	3%
Urology	11	1%
Obstetrics	52	7%
Ophthalmology	15	2%
Otorhinolaryngology-Head and Neck Surgery	14	2%
Dentistry	91	12%
Anesthesiology	6	1%
Others	110	15%
Total	750	100%

(Reference: courts in Japan)

The win rate of medical litigations (plaintiff's win rate) is 20% to 30%, which is very low compared with ordinary litigation. This is because there is a tendency that settlement rates tend to be higher in comparison with ordinary litigation, and also due to the fact that the plaintiff needs to prove 3 things: "fact of damage", "negligence of medical staff", and "the relation of cause and effect of damage and negligence", in order for it to be accepted that medical personnel are liable for damages. It is due to medical staff not being held responsible, as long as they provide adequate explanation of the risks in treatment, and alternative means.

Table111 Changes in Win Rate of Medical Lawsuits and Civil Lawsuits(above) and Results of Medical Litigation and Civil Litigation Breakdown (2016)(below)

	2012	2013	2014	2015	2016
Civil Lawsuits	84.4%	83.6%	83.7%	83.3%	80.0%
Medical Lawsuits	22.6%	24.7%	20.4%	20.6%	17.6%
Raito	0.3	0.3	0.2	0.2	0.2

Result	Medical Lawsuits	Civil Lawsuits	Ratio
Judgement	35.0%	41.4%	0.8
Reconciliation	53.3%	35.8%	1.5
Drop	5.1%	16.0%	0.3
Others	6.6%	6.8%	1.0
	100.0%	100.0%	

(Reference: courts in Japan)

12.9. Summary (Business Risk and Mitigation Policy)

As mentioned above, there are many risks in operating a hospital business, but in particular concerning medical operation related risks, countermeasures have been established in Japan and it is possible to reduce the risk to an acceptable level. We will monitor the various risks at the corporate meetings, and establish a structure to correspondence and cooperate with Japan from time to time.