**YANGON UNIVERSITY OF ECONOMICS**

**DEPARTMENT OF ECONOMICS**

**MASTER OF DEVELOPMENT STUDIES PROGRAMME**

# A STUDY ON THE CONDITIONS OF THEDEVELOPMENT OF YANGON REGION (2011-2022)

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**EMDevS – 9 (7th BATCH)**

**AUGUST, 2023**

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# A STUDY ON THE CONDITIONS OF THE DEVELOPMENT OF YANGON REGION (2011-2022)

**A thesis submitted as a partial fulfillment towards the requirement for the Degree of Master of Development Studies ( MDevS )**


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# YANGON UNIVERSITY OF ECONOMICS

## DEPARTMENT OF ECONOMICS
## MASTER OF DEVELOPMENT STUDIES PROGRAMME

This is to certify that the thesis entitled "**A Study on the Conditions of the Development of Yangon Region (2011-2022)",** submitted as a partial fulfillment towards the requirements for the degree of Executive Master of Development Studies has been accepted by Board of Examiners.

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## ABSTRACT

This study mainly focus on the conditions of economic development in Yangon Region. This study examines the conditions of the growth of Yangon Region through some key economic statues and infrastructure. Some economic sectors such as population growth, household unit's growth, product and per capital GDP, production, service, export value of Yangon Region, hotel industry, market, banking and infrastructure such as construction of road, bridge, electricity distribution and water supply are examined in this study from 2011 to 2022. The study used descriptive method. It is found that Yangon has rapid growth of population and household units, roads, bridge, markets, banks and tourism industry during 2011 and 2022. The water supply and electricity implementation work of Yangon Region is distinctly improved in that period. This city has higher population density due to more accessible and positive economic situations than other areas. However, Yangon Region's growth was occurred slowly during the Covid-19 period. As Yangon is the city achieved with the largest economy and with an international gate way to Myanmar, and in order to occur for the sustainable development of Yangon city, it is need to provide reliable and convenient urban life and to encourage economic development and industrialization. By enhancing trade, infrastructure, service and distribution of the goods, the condition of economic development and employment will more increase in Yangon Region as the largest economy in Myanmar.

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## LIST OF ABBREVIATIONS

| | | |
|---|---|---|
| CBD | - | Central Business District |
| DHSHD | - | Department of Human Settlement and Housing Department |
| FDI | - | Foreign Direct Investment |
| GDP | - | Gross Domestic Product |
| JICA | - | Japan International Cooperation Agency |
| MDGs | - | Millennium Development Goals |
| MOC | - | Ministry of Construction |
| MOEE | - | Ministry of Electricity and Energy |
| SEZ | - | Special Economic Zone |
| YCDC | - | Yangon City Development Committee |
| YESC | - | Yangon Electricity Supply Corporation |
| YTP | - | Water Treatment Plant |

# CHAPTER I
# INTRODUCTION

## 1.1 Rationale of the Study

Urban areas produce 60% of a country's gross national product on average worldwide. Urbanization can enhance the capacity of a country to sustain productivity, enhance resident living conditions, and manage natural resources sustainably if it is managed effectively. According to Wolchover (2011), one of the five major changes that will occur in the world throughout the twenty-first century is urbanization, which is mostly being driven by developing nations.

One of the least developed transitional economies in Southeast Asia is the Republic of the Union of Myanmar, despite the fact that the country's urbanization rate has dramatically expanded since the early 1990s. According to the World Bank 2021, its urbanization increased from 22% in 1968 to 25% in 1990 to 31% in 2019. A tremendous cultural transformation has occurred in the most recent decade, which has included privatization and the democratic transition in the political realm in 2011. This fast urbanization was sparked by the nation's economic liberalization, which began in the late 1980s. With a population of 5.14 million, Yangon is Myanmar's major economic hub and is undergoing fast urbanization and accelerated development as the country moves toward democracy. The existing outdated infrastructures are under greater pressure as a result of the current fast urbanization.

The city expanded urban built-up land rapidly from 1990 to 2000, slowed down from 2000 to 2010, and regained momentum again for 2010–2020, with most newly added urban built-up lands appearing to be converted from farmland and green land in both 1990–2000 and 2010–2020.

The population of Yangon is expanding, and there are more people and automobiles on the roadways. There are more people taking rests in the parks than ever before, and there are more people walking on the sidewalks and driving on the roads than ever before in Yangon. All of this stands in stark contrast to the Yangon which it was condition in 2013, when it seemed like the most delightful place to live, a very green,

calm, and beautiful city with an aura of peace that permeated the deepest core of our being. There were only a few cars and a few people there, and there was enough space for everyone. There were wide open spaces, peaceful corners, and empty roads everywhere people went. 8% of the people living in the union were served by Yangon City. With a current population growth rate of 3.4%, Yangon's population will reach almost 10 million by 2030. The increase in urban population has begun to put a severe strain on cities, particularly Yangon, and the needs for affordable housing, infrastructure and services.

Transitional economy in Myanmar has experienced rapid urbanization in the past decades due to the economic transition that fundamentally changed the function of economy and social development especially in infrastructure development. Urbanization and economic development have complex relations and pose great challenges for Yangon. The urban growth of Yangon and found that the expansion in early 1990s was largely due to the establishment of many new towns. The newly established town of Dagon alone was larger than the whole Yangon in the 1980s.

Infrastructure is critical for economic growth. It facilitates trade, connects markets, enhances mobility, and boosts productivity. The current state of infrastructure development in Yangon remains developing, acting as a key constraint on growth. While there has been significant growth in the country’s paved road network, the vast majority of the network remains to improve infrastructure in Yangon.

The condition of development in Yangon Region is still lead in the phase of urbanization. This brings many opportunities to shape cities for sustainable growth and poverty reduction. An inclusive approach will help to ensure that Yangon grow in an equitable way that will bring significant benefits for peace and stability.

## 1.2 Objective of the Study

The main objective of the study is to study the conditions of development of Yangon Region through economic status and infrastructure development, and to examine the development potential in the Yangon Region.

## 1.3 Method of Study

This study mainly focus on development of Yangon Region through the examine of economic condition and infrastructure development of Yangon Region. The study used the descriptive analysis method based on secondary data. The Secondary data is obtained

from reports and data source from Yangon City Development Committee and General Administration Department, libraries and websites.

## 1.4 Scope and Limitation of the Study

This study area is conditions of economic and infrastructure development in Yangon Region. The study based on statistics and information from Yangon City Development Committee (YCDC) and General Administration Department. Information and data are gathered from the years 2011 to 2022 for this study. As the limitation of the study, in measuring economic development of Yangon Region through economic condition and infrastructure condition there are not fully covered in this study.

## 1.5 Organization of the Study

There are five chapters in this study. Chapter I presents rational, objective, method, scope and limitation of the study and organization of the study. Chapter II is literature review. Chapter III is the over view of Yangon Region which includes the background history of Yangon Region, brief historical overview of Yangon, population distribution in Yangon, the number of rural and urban households in Yangon Region and expansion of Yangon City. Chapter IV presents the trends of economics and infrastructure development in Yangon Region. It describes the profile of Yangon Region and YCDC area, economic condition of Yangon City, infrastructural development of Yangon City and Development Potentials of Yangon City. Chapter V is the conclusion which includes the finding and suggestion.

# CHAPTER II
# LITERATURE REVIEW

## 2.1 Urban Development Definitions

Urban Development means development which is not of a rural character and is differentiated from rural development by its scale, intensity, visual character and the dominance of built structures. Urban development may also be characterized by a reliance on reticulated services such as water supply, wastewater and storm water and by its cumulative generation of traffic. For the avoidance of doubt, a resort development in an otherwise rural area does not constitute urban development, nor does the provision of regionally significant infrastructure within rural areas. Urban development also means the social, cultural, environmental, economic and physical development, and management of, a city, including urban planning, the development of human settlements and the implementation of urban sustainability.

Today, some 56% of the world's population – 4.4 billion inhabitants – lives in cities. This trend is expected to continue, with the urban population more than doubling its current size by 2050, at which point nearly 7 of 10 people will live in cities. With more than 80% of global Gross Domestic Product (GDP) generated in cities, urbanization can contribute to sustainable growth through increased productivity and innovation if managed well. However, the speed and scale of urbanization brings challenges, such as meeting accelerated demand for affordable housing, viable infrastructure including transport systems, basic services, and jobs, particularly for the nearly one billion urban poor who live in informal settlements to be near opportunities. Rising conflicts contribute to pressure on cities as more than 50% of forcibly displaced people live in urban areas.

Once a city is built, its physical form and land use patterns can be locked in for generations, leading to unsustainable sprawl. The expansion of urban land consumption outpaces population growth by as much as 50%, which is expected to add 1.2 million $km^2$ of new urban built-up area to the world by 2030. Such sprawl puts pressure on land and natural resources, resulting in undesirable outcomes; cities represent two-thirds of global energy consumption and account for more than 70% of greenhouse gas emissions.

Cities play an increasingly important role in tackling climate change, because their exposure to climate and disaster risk increases as they grow. Globally, 1.81 billion people (that is 1 in 4 people) live in high-risk flood zones. Exposure is especially high in the densely populated and rapidly urbanizing river plains and coastlines in developing countries, where 89% of the world's flood-exposed people live.

Cities are also in the frontline of combating epidemics. The COVID-19 pandemic was a massive challenge for cities and their citizens, rich and poor alike. Its impact and the measures taken to control the spread of the virus had disproportionate impacts on the poor, marginalized and vulnerable, revealing fault lines in cities' economic structure, preparedness for such a crisis – especially the state of their public health and service delivery systems.

Building cities that "work" – green, resilient and inclusive– requires intensive policy coordination and investment choices. National and local governments have an important role to play to act now, to shape the future of their development, and to create opportunities for all.

The theories of urban development have evolved over time, with the classical theories having been followed by the postmodern thoughts. The classical theories of urban development include Von Thunen Model, Concentric Zone Theory, Wedge or Radial Sector Theory and Multiple-Nuclei Theory.

## 2.2 Factors of Urban Development

### 2.2.1 Political Factor

Constraints arise when "the growth, complexity and density of urban areas outpaces the development of governance and institutional structures to manage them" (expert comment). Particular challenges stem from managing and regulating the large populations undertaking diverse activities in close proximity, and the resulting heightened incidence of externalities2 (ibid.). A lot of attention is paid in the literature to the impact of combined pressures such as the challenging rate of urbanization in developing countries, migration, environmental and climate change, demographic changes, and in particular youth population "bulges" (Browne 2014; UN-Habitat 2014). Inappropriate policy responses attempting to prevent urbanization tend not to change the factors attracting people to cities, and can "severely affect" the shape of urbanization, and allow negative characteristics of cities (e.g. the development of slums) to flourish (expert comment; Fox 2013). An emerging literature considers the relationship between political

settlements and the political economy of urban development. There are urban political settlements as well as national political settlements, as illustrated by the distinct political form of Mumbai compared to Chennai or Kolkota (expert comment). In his analysis of empirical research on the political economy of Kigali's development, Goodfellow (2014) finds that using the concept of the political settlement illuminates aspects of urban development other political economy approaches do not call attention to. Also, it enhances understanding of features of the political settlement that are relevant beyond the city, particularly as Kigali is by far the preeminent seat of economic and political power in the country. This rapid review found one paper looking specifically at how urban political economy constraints are shaped in cities in post-war contexts. From his research on Kabul, Esser (2009) finds that post-war capital cities, over-flowing with donor funds and reconstruction programmes, become highly politicized arenas, with their governance shaped by the shared short-term incentives and interests of national and international actors, and the conflicts between them.

A central finding of Jones et al's (2014b) review is that policy incoherence and institutional fragmentation is particularly problematic in urban areas. The literature finds negative impacts on urban service delivery from the common experience of incomplete decentralization, when the provision of services is transferred to sub-national authorities but they do not have adequate resources, with the centre retaining (political and economic) power (Jones et al 2014a, 2014b; Eaton and Schroder 2010; Boex et al 2013; Resnick 2014). Meanwhile the proliferation of service providers – public and private, formal and informal – that is common in fast-growing cities can improve choice and availability. However, it also makes it virtually impossible for governing authorities to coordinate, regulate and monitor service delivery – and for citizens to hold the service providers to account (Jones et al 2014b; Boex and Edwards 2014). A special issue of the Development Policy Review (sponsored by UNU-WIDER) highlights the effect of city politics on the delivery of urban services and the urban population. It presents evidence from Senegal, South Africa and Uganda which shows that in "vertically divided" cities where opposition political parties are in control, central governments are not incentivized to help municipal governments improve their performance (Resnick 2014). Goodfellow and Titeca's (2012) case study of Uganda's capital Kampala explores how political configurations can subvert structures of city governance. They note that, "in developing country cities with highly informalized economies, the processes that underpin 'real' governance often reflect informal bargaining power much more than formal institutional frameworks" (Goodfellow

and Titeca 2012: 264). Another paper by Goodfellow (2013) shows how different political bargaining environments can incentivize state actors to implement urban plans and regulations (as in Rwanda) or override them in the interests of political or economic gain (as in Uganda). This evidence shows the importance of historically informed city-level political economy analysis for understanding divergent urban development outcome.

Jones et al's (2014a) review of the literature on the governance and political economy of urban service delivery provides a comprehensive overview of the state of the evidence. They summarize recent work on developing frameworks for analysing the political economy of service delivery. They find more research on political economy constraints in some sectors than others, with a significant amount on the water and sanitation sector, and some on housing and transport. Jones et al (2014a, 2014b) highlight the following issues from the sector literature:

- Urban water and sanitation: institutional structures; people's motives to get these services and free-rider problems; lessons for good public-private partnerships; and the opportunities and constraints to promote improved outcomes through regulatory frameworks.
- Urban housing: how the structure of the productive economy is behind housing problems in Singapore; how forces driving political and economic exclusion contribute to Indian slums; and links between political representation, democracy and housing.
- Urban transport: drivers of management and governance, and (as with other urban issues) how the economics and politics of urban land use affect planning and financing; effects of demographic heterogeneity leading to underinvestment; how the economic benefits of privatized services are sometimes used for patronage purposes; and in some cases the strong political incentive to provide affordable public transport.

The World Bank has undertaken a number of political economy analyses in the urban water and sanitation sectors. A study on the political economy of sanitation reviews urban experiences in Brazil and Senegal (WSP 2011). In their review of the urban water sectors in Chile, Ghana, Pakistan, Panama and Senegal, Manghee and Poole (2012) present detailed findings of the institutional and governance arrangements, historical legacies and path-dependencies, stakeholder interests, and social trends and forces. Other

World Bank case studies look at the political economy of urban water sectors in Palestine (Beddies 2009) and Yemen (Ward et al 2009).

### 2.2.2 Economic Factor

Economic activity is associated with a series of activities that people pursue to organize production, circulation, and consumption for their own survival and development. Materials and energy are collected, processed, and produced in economic activities to become economic products, some of which become consumer goods, and some of which are used to expand production. In this respect, people and societies at large turn natural materials and energy into products they need to meet immediate and long-term development needs. Thereby, industries are formed (Yao et al., 2015). The essence of the internal interaction of the complex system is the flow and transformation of material. Therefore, when considering economic factors in the process of urban innovation and development, this study mainly analyzes the material form of economic input and output, rather than their monetary form. The economic factors affecting the development of urban innovation mainly comprise economic level, technological innovation, industrial agglomeration, and industrial structure.

Economic level is mainly reflected in the city's economic structure and economic scale. Economic structure is, in fact, a complex and dynamically adaptable organizational process where its lock-in will lead to the decline of the city. In the process of urban development, lock-in occurs because the existing economic structure. It has severely hindered the generation of urban innovation capabilities, resulting in cities not adapting to the economic change process (Perkins, 2012, Zhang et al., 2020). Economic scale can be viewed as the soil from which innovation grows. It is necessary to first create a supportive environment for the development of enterprises to improve the city's innovation capability. A city with strong economic strength can provide enterprises with effective infrastructure as well as enabling infrastructure in terms of government procurement, tax incentives, and financial assistance, thereby creating more favorable conditions for enterprises to develop and become financially sustainable (Wen, 2011, Accetturo et al., 2019).

Industrial agglomeration will inevitably be accompanied by the agglomeration of innovation elements, such as innovative human resources and innovation capital. This is conducive to the innovation capital reservoir effect and the human capital reservoir effect. It also promotes the improvement of the city's innovation level (Chen et al., 2013).

Industrial agglomeration strengthens the cooperation between the industrial supply chain upstream and downstream ends, maximizes knowledge and technology exchange, promotes knowledge spillover, and promotes industrial development. The industrial agglomeration mechanism also results in different effects on urban development due to the difference in city location. In the case of China (Liu and Zhang, 2017), for the eastern region, both specialized agglomeration and diversified agglomeration help improve the innovation capabilities of cities in the region. In central and western regions, professional agglomeration significantly improves the innovation capabilities of the cities there. Both mechanisms can form a knowledge and technological environment conducive to R&D in the agglomeration area, promote the speedier transfer and diffusion of knowledge and technology, and form strong competition between enterprises. This ultimately encourages enterprises to improve their innovation level and the overall innovation level of industrial clusters.

In Industrial structure, an effective industrial structure can improve the quality and efficiency of technological innovation, thereby promoting urban innovation and development. The process of industrial restructuring is also a process of re-allocating innovative resources, which is an industry with a higher innovation level. In this process, innovation elements flow from lower to higher innovation industries. This is conducive to the rational allocation of innovation factor resources and improves the level of urban innovation (Yang et al., 2019). In the interview, government officials also pointed out that they will develop a regional industrial planning. What kind of industries will be introduced in the city should be set in advance, and the innovation chain will be deployed around the industry chain. In turn, the industry chain will be laid out around the innovation chain. There are two main ways to adjust the urban industrial structure: one is by relying on technological innovation to transform traditional industries; another is by introducing emerging industries and high-end service industries to replace traditional industries. The biggest gap in urban industrial restructuring is often technological. Therefore, industrial restructuring forces cities to develop technological innovation (Li and Yang, 2017).

In technological innovation, in the process of transforming the industrial economy to the knowledge economy of the 21st Century, scientific and technological innovation is an inevitable pathway to improve the competitiveness of urban centers. Technological innovation promotes technological progress, thereby improving the urban industrial and employment structure. For example, the development of informalization can enhance the integration of city level functions and the competitiveness of cities through

informalization. These are successful experiences observed in many countries and regions (Zhou et al., 2020). Zhang et al. also shows that technological innovation can affect the development of urban innovation, and the impact on eastern cities is greater than that on central and western cities. This impact is also related to the administrative level of the city (Zhang et al., 2018). The impact of technological innovation on urban innovation and development is realized by acting on industrial development. Technological innovation drives the upgrading of industrial structure and optimization of physical layout, improves energy efficiency, and promotes the greening of urban economy, together with the efficient and intensive use of urban space, energy, and resources. All this enables the innovative development of cities (Chen et al., 2021, Yuan and Zhang, 2020).

### 2.2.3 Social Factor

Social factors are the influencing factors included in the social system of urban innovation and development. The social system is restricted by population, policy, and social structure. Culture, scientific level, and traditional habits are all factors that must be considered when analyzing the relationship between social organizations and human activities. These factors are closely related to the innovation and development of cities and urban centers (Ma, 1984, Tan et al., 2008, Barrado-Timón et al., 2020). The qualitative analysis results identify the social factors that affect the innovation and development of cities to be cultural environment, administrative levels, government management, service measures, and population structure.

The different administrative levels of cities are similar to geographical locations, thereby representing different resources. Indeed, most cities with a higher administrative level have convenient forms of transportation, sound infrastructure, and higher levels of physical openness. These advantages have promoted a number of other factors such as accumulation (Cartier and Carolyn, 2011, Wei, 2015), which, in turn, promote urban innovation and development. At the same time, in the process of promoting the development of local governments, the central government also tends to allocate more resources to the capital, municipalities directly managed by the central government, and cities specifically designated in the regional or national governmental plan. In this context, provinces and autonomous regions tend to favor province capitals as well as capital cities because they are the preferred locations for capital investments and other economic and social support mechanisms (Cainelli et al., 2021, Peng et al., 2016).

Culture has an important strategic position for the development of a city, with the cultural environment having a supporting and leading role in innovation and development (Lazzeroni et al., 2013). Moreover, cities with rich cultural assets and cultural industries are more likely to stimulate the vitality of innovative entities and generate new ideas leading to greater innovation capacity. For example, in China, Shenzhen's innovation and development has benefited from its rich, open, inclusive, and diverse entrepreneurial culture, which has created a supportive and enabling innovation environment (Gu et al., 2016). At the same time, interviews with enterprise personnel also indicated that the innovation model with enterprises as the main body and integrating production, education and research can attract all kinds of innovative and entrepreneurial talents, form an atmosphere of innovation, and stimulate the vitality of urban development.

The coordination strategy of supporting education levels as well as forms of diversity in populations can have a great influence on the city's innovation capability (Huang et al., 2014, Luca and Margherita, 2016). Indeed, a city population with a high density of educated inhabitants is more conducive to promoting regional economic growth (Glaeser, 1998, Armeanu et al., 2017). Therefore, the population education structure has a significant impact on urban innovation and development. Concentrating high-quality talents, frequent contacts, and exchanges with each other further stimulates the spirit of innovation, which is undoubtedly conducive to the generation of new ideas as well as the development of new technologies. In the process of interviews, government personnel also emphasized the importance of urban population structure and cultural quality. That is, a reasonable population structure can effectively control unemployment, reduce urban social instability, and promote urban social development. Government management urban innovation and development is a complex and dynamic process that requires long-term planning rather than short-term interventions. This process relies on the provision and coordination of supporting mechanisms and appropriate regulations and controls by governmental entities. The government's coordination and promotion role provides policy and a supportive environment for urban innovation and development. For example, in the early stages of the development of high-tech industries, there can be obvious market failures where government intervention and management becomes beneficial (MA et al., 2013, Neves and Branco, 2020). Cities with high quality social governance often have a higher quality of innovation and development (Liu et al., 2017). The report "Innovative Ideas to Promote the Modernization of Urban Governance System and Governance

Capability" also pointed out the need to promote the innovation of urban management methods, management models, and management concepts to make cities become smarter.

From a macro perspective, urban service innovation directly affects the image and charm of the city (Gammal and Abdelsabour, 2016). For citizens and organizations residing or working in the locality, their functioning makes the normal course of business of the whole city (Buhociu et al., 2011). In addition, effective legal and financial services are also important factors that attract the accumulation of innovative elements (Rybinski, 2016).

### 2.3 Sustainable Urban Development

Sustainability is a buzzword these days. That's because there's concern that future generations may not have access to the same resources as do now. The motivation for sustainable living is motivating many governments and businesses to change their practices. Sustainability has many definitions but it is understood as maintaining the demands of the current population without compromising on the demands of future populations. Sustainable living is meeting our needs now in a way that people in the future can also meet their needs. This huge goal requires attention at the environmental, societal, and economic levels.

**S**ustainable urban development is then a city’s use of resources and space in a way that meets the needs of its residents in the present without negatively impacting residents' needs in the future. This method of urban development aims to minimise damage to the environment while preserving as much of our resources as possible and transitioning to renewable resources where possible.

While there are numerous definitions of sustainable development, many start with the definition provided in the 1987 Brundtland Report: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The goals for sustainable cities are grounded on a similar understanding— urban development which strives to meet the essential needs of all, without overstepping the limitations of the natural environment. A sustainable city has to achieve a dynamic balance among economic, environmental and socio-cultural development goals, framed within a local governance system characterized by deep citizen involvement and inclusiveness. The newly adopted 2030 Agenda for Sustainable Development presents 17 Sustainable Development Goals that replace the previous Millennium Development Goals (MDGs). While cities were not specifically represented in the MDGs, Goal 11 of the new

Sustainable Development Agenda seeks to: “Make cities and human settlements inclusive, safe, resilient and sustainable.” This stands-alone goal on cities recognizes the transformative role of urban areas towards building sustainability in the post-2015 Development Agenda. A core component of a sustainable cities agenda is sustainable infrastructure— the interconnected physical and organizational structure, set of services and system that supports the daily functioning of a society and its economy. Sustainable infrastructure is that which is designed, developed, maintained, reused, and operated in a way that ensures minimal strain on resources, the environment and the economy. It contributes to enhanced public health and welfare, social equity, and diversity. Investment in sustainable infrastructure is pivotal in planning for the sustainable development of cities. Despite the importance of urban infrastructure, there is a clear under-investment as characterized by the backlog and state of deficient infrastructure. Globally, US$57 trillion is needed for infrastructure investment between 2013 and 2030 in order to support economic growth and urbanization. This is of particular concern with regard to developed countries, where many large cities experience serious congestion, and to developing countries, where improved basic socioeconomic conditions have been long overdue.

As population grows the urbanization of society is inevitable. Urbanization leads to an increased impact on the environment; the 'ecological footprint' of cities is spreading. The impact of growth on all areas of society must be acknowledged. Sustainable growth requires an evolution in the way urban areas carry out their activities such as resource use and the movement of people and goods. The physical infrastructure in addition to social and economic processes must evolve to acknowledge the challenges of growth.

Sustainable development has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. However, sustainable urban development implies a process by which sustainability can be attained, emphasizing improvement, progress and positive change, incorporating both environmental and social dimensions.

Sustainable urban development highlights the need for reform of market mechanisms to achieve environmental goals and the achievement of a balance with social and economic considerations. Several themes common to all definitions of sustainable urban development have emerged:

- A change in the quality of growth.

- The conservation and minimization of the depletion of non-renewable resources.
- A merging of economic decisions with those on the environment.
- A strong consideration of the needs of future generations.

"By the year 2000, half the world's people will be living in cities. The urbanization of society is part of the development process, and cities generate 60 percent of gross national product. A growing number of cities, however, are showing symptoms of the global environment and development crisis, …." *Agenda 21 ("The Earth Summit") and UN Sustainable Cities Programme.*

Cities should be healthy, providing housing and employment opportunities, meet environmental standards and be sustainable. Sustainability needs to be addressed on a global scale, reforms need to concentrate on the interaction of the urban environment with the global economy and environment.

Major development agencies such as the World Bank, the Asian Development Bank and the United Nations Development Programme undertake significant work on urban development, however, little research on urban sustainability has been conducted in Asia. Asia has almost 45% of the world's population and six of the world's largest cities and cannot allow research to lag behind Europe. Local and international debate on urban sustainability issues needs to be encouraged and sustainable development strategies for Hong Kong and other cities in China and the Asia-Pacific region developed.

In recent years, social sustainability has gained increased recognition as an important component of sustainable development. It has begun to receive political and institutional endorsement on the sustainable development agenda and in the sustainable urban development discourse (Colantonio and Dixon, 2009). According to Mehdipour and Rashdi Nia (2013), the concept of urban development is essentially a process concentrating on all elements of an area that contribute not only to the creation of a more environmentally friendly city but also to the provision of social equality and economic growth, which altogether result in a more sustainable urban space. They consider an urban development approach as a response to the opportunities and challenges presented by social, economic, physical and environmental changes. Hence, this fact can be reflected in that urban development must be translated first and foremost into its trend toward sustainable development. Social sustainability is broadly defined by Chiu (2003, 245) as “maintenance and improvement of the well-being of current and future generations.”

Others, such as Littig and Griessler (2005), suggest social sustainability means the satisfaction of basic human needs, the continual reproduction of humans and the subsequent continuation of culture.

## 2.4 Inclusive Urban Development

Inclusive prosperity is the idea that the opportunity and benefits of economic growth should be widely shared by all segments of society. Most cities fall well short of that ideal. While urban areas continue to afford new opportunities to employees and businesses from all walks of life, they are increasingly split between wealthy, high-skill knowledge workers and low-paid service workers.

Large cities like New York and Los Angeles, as well as leading tech and knowledge hubs like Seattle and San Francisco, have experienced gentrification, economic segregation, and a disappearing middle class. Even smaller cities like Portland, Nashville, and Austin are attempting to curb their own deep-seated divides. A recent Brookings analysis found that of the 30 U.S. metros that increased their productivity, average wages, and standard of living from 2010 to 2015, only 11 metros achieved inclusive economic outcomes.

This needs to change. The new form of urbanism is needed: an urbanism-for-all. It's tempting to see affordable housing and inclusionary zoning as the solution to improving accessibility among low- and moderate-income communities. They are certainly important components, but they are not enough.

Urbanization has been one of the most significant driving forces of recent global development. More than half the world's population now lives in cities, and this proportion will continue to increase rapidly to reach 70% by 2050. When handled properly, urbanization has the potential to create opportunities for a better life, provide a pathway out of poverty and act as an engine of economic growth. Indeed, cities are often focal points for activities that are critical to the development of an entire country, such as trade and commerce, government, transport, etc. Cities currently account for approximately 80% of GDP generated worldwide.

But while urbanization is moving the global economy forward, rising inequality and exclusion within cities can derail development progress. In that context, the international community has acknowledged the need to create more inclusive cities, and to make sure that people can reap the benefits of urbanization. The World Bank's twin goals – ending extreme poverty and promoting shared prosperity – place the topic of inclusion

front and center. Likewise, Sustainable Development Goal 11 calls for “inclusive, safe, resilient and sustainable” cities.

Despite wide recognition and commitment, building inclusive cities remains a challenge. Today, one out of three urban residents in the developing world still lives in slums with inadequate services. In addition, the majority of future urban growth is expected to take place in Asia and Africa, regions that are home to some of the poorest countries in the world.

To make sure that tomorrow’s cities provide opportunities and better living conditions for all, it is essential to understand that the concept of inclusive cities involves a complex web of multiple spatial, social and economic factors:

- Spatial inclusion: urban inclusion requires providing affordable necessities such as housing, water and sanitation. Lack of access to essential infrastructure and services is a daily struggle for many disadvantaged households;
- Social inclusion: an inclusive city needs to guarantee equal rights and participation of all, including the most marginalized. Recently, the lack of opportunities for the urban poor, and greater demand for voice from the socially excluded have exacerbated incidents of social upheaval in cities;
- Economic inclusion: creating jobs and giving urban residents the opportunity to enjoy the benefits of economic growth is a critical component of overall urban inclusion.

The spatial, social and economic dimensions of urban inclusion are tightly intertwined, and tend to reinforce each other. On a negative path, these factors interact to trap people into poverty and marginalization. Working in the opposite direction, they can lift people out of exclusion and improve lives.

A prosperous city supports productivity, infrastructure development, quality of life, equity and social inclusion, and environmental sustainability. The foundations for competitiveness translate to cities that retain and grow their skilled labour, enhance their business attractiveness, and expand their economic base. As cities become more dominant and interconnected in the global economy, competitiveness at the local level becomes imperative for economic growth. In order to sustain inclusive economic growth, local governments are considering their capacity to foster important determinants of productivity, such as higher education, innovation, quality of life, and infrastructure for all. In light of the current dispensation, cities and city regions compete intensely for

investment, for the location of headquarters of transnational corporations, for hosting international agencies, for tourist streams, for large conventions, for major events such as the Olympics or the World Cup, or for major political meetings.

The key elements determining the attractiveness to investment of these cities include: the size and wealth of the city; the number of global firms with offices in the city; the depth and specialization of the financial market; and quality of life and security. It is worth noting that the most desirable cities are among the very largest in the region. While economic growth and prosperity bring many benefits to local economies, inequality and social exclusion may actually be on the rise, especially if the benefits of growth are not equitably distributed. The World Bank promotes shared prosperity or inclusive economic growth, which is at the core of sustainable development. Similarly, UN-Habitat has initiated a global city prosperity initiative in which equity and social inclusion are key dimensions of urban prosperity. The other dimensions are productivity, infrastructure, quality of life, environmental sustainability and governance.

## 2.5 Reviews on Previous Studies

Within the sustainability discourse, the definitions concerning sustainability are still multifold and competing depending on the context (Larsen, 2009). The triple-bottom line concept has gained popularity in the consideration of sustainability as a construct of ecological, economic and social pillars (see the Johannesburg declaration on Sustainable Development, 2002), and it has also become one of the main theories for the operationalization of sustainability (Peterson, 2016). More recently, the sustainability concept has been divided into more than three parts, and cultural and even spiritual pillars have been added in order to gain a more holistic approach to sustainability (Dessein et al., 2015). Krueger and Buckingham (2012) have formulated a framework for urban sustainability that uses the sustainability tripartite and links sustainability in urban contexts to environmental concerns, social justice and economic prosperity (e.g., markets supporting sustainability goals). They note, however, that in practice these discussions can conflict with each other. The economic pillar can take over, and there were examples where “ideas and innovation were captured by capitalist urban development” (ibid. 500). Since the late 1990s, sustainability has come to be the pervasive goal of urban planning (Yung et al., 2011). Because of the growing urban population, cities play vital roles in sustainable development (Dempsey et al., 2009). Human beings are the main focus in the

definition of a sustainability concept, but less attention has been given to the definition of social sustainability in built environment disciplines (Dempsey et al., 2009).

As multiple as the definitions of sustainability are, the definitions of social sustainability vary from the elaborate identification of the elements in social sustainability (Vallance et al., 2011) to considering social sustainability as an issue of social nature which is inseparable from and interwoven with ecological and economic questions (Peterson, 2016). According to Sharifi and Murayama (2013), social equity, engaged governance, social interaction, interpersonal relations, social cohesion, attachment to a place, community stability, health and well-being, inclusion, and security are the major relevant criteria for social sustainability in urban contexts. Bramley and Power (2009) introduce a conceptual framework for urban social sustainability. It includes two overarching typologies: social equity and sustainability of communities. The latter refers to social interaction through social networks in the community and pride, the sense of the place, safety and security. The sustainability of the community is defined as "the ability of society itself, or its manifestation as local community, to sustain and reproduce itself at an acceptable level of functioning" (Bramley and Power, 2009, 421).

Bramley and Power (2009) argue that these typologies of social sustainability are reflective of two recognizable, overarching concepts situated in the literature. Social equity issues are described as "powerful political and policy concerns," and the centre upon a distributive notion of social justice. Issues of sustaining the community are seen as more unclear. This model positions the achievement of social sustainability as being about attaining harmony and eliminating discord. This position has synergies with the Brundtland Commission's "we can have it all" definition that underplays social, environmental and economic tensions in processes associated with sustainability.

Open innovation has received increased attention over the past decade in development and innovation literature. Open innovation assumes that organizations should use external as well as internal ideas as they look to advance their innovations (Chesbrough, 2003; Chesbrough et al., 2006; von Hippel, 2005). The concept provides an important contribution to the understanding about the complex development processes in society, such as those of contemporary city development (Mattsson and Sørensen, 2015; Mieg, 2012). One aspect of open innovation is user driven innovation. User involvement may generate valuable ideas, speed up the innovation process and support the diffusion of innovations (Alam, 2002; von Hippel, 2005). Innovation research seems to be built on a fundamental assumption that innovation is always something good. Yet, the consequences

of an innovation may be intended or unintended, and further still these intended or unintended consequences may be defined as desirable or undesirable.

Certain stakeholders tend to more frequently influence the introduction of innovations while others are more often affected by them. These roles may also overlap to some degree; adopters may apply an innovation in unanticipated ways, thereby affecting it. Also, desirable and undesirable effects overlap and coincide; some adopters will find the innovation desirable, and features that some consumers love others may hate. (Sveiby et al., 2009.) The synergetic relationship between sustainability and innovation at the core of organizations drives the development of different kinds of innovations and in doing so creates long-term social, environmental and economic value (Boons et al., 2013). Thus, sustainable innovation refers to sustainable innovation as an outcome, but also refers to innovation processes where sustainability aspects are taken into consideration. The sustainable innovation processes often differ from conventional innovation mainly in purpose and direction. Whereas innovation often is intended to advance business performance and motivate economic growth, sustainable innovation aims to achieve this improvement through the integration of economic, environmental and social concerns (Fortkamp and Staffas, 2012). The sustainable innovation process is a process where different kinds of sustainability considerations are integrated into organizational systems from idea generation to research and development and implementation. The socially sustainable innovation process could be defined as the ability of a community to innovate processes and structures, which not only meet the needs of its current members but also support the ability of future generations to maintain a healthy community.

In urban planning many scholars also highlight the role of participation as important criteria for social sustainability in urban planning (Spangenberg, 2004; Choguill, 2008; Dempsey et al., 2009). Public participation promotes the innovative process that guarantees the efficiency of sustainable urban planning and enhances a sustainable new way of living in a community (Amado et al., 2009). The sustainability of a community involves social interaction between community members; the relative stability of the community, both in terms of the overall maintenance of numbers/ balance and of the turnover of individual members; the existence of, and participation in, local collective institutions; formal and informal levels of trust across the community, including issues of security from threats; and a positive sense of identification with, and pride in, the community (Dempsey et al., 2009).

Wood (2002) identifies two sets of reasons to support resident participation in urban planning. The first set comprises the managerial or pragmatic benefits of involving local people. The perceived managerial benefits derived from resident involvement include financial efficiency and effectiveness, such as the efficiency savings that might be derived from their inclusion. The second set consists of the notion that residents have a right to influence the decisions that affect them. This has been labelled the citizenship perspective. Across both of these perspectives lies the notion that participation improves social cohesion and leads to the development of more sustainable communities (Wood, 2002). Participation is a way to meet social sustainability. Regarding the fundamentals of sustainable development, not only is reconstruction not enough, but people's participation is also important. Sometimes pseudo-participation may result in public satisfaction, but it may not fully meet sustainable developmental goals in urban planning projects (Mahdavinejada and Amini, 2011).

# CHAPTER III
# OVERVIEW OF YANGON REGION

## 3.1 Historical Background of Yangon

Ancient buildings located in Yangon, such as Shwe Dagon Pagoda, Sule Pagoda, and the Botataung Pagodas, are believed to have been built by the Burmese people as early as the 6th century BC. In addition, the tombs of Shin Hmwe Loon and Min Nanda in Thanlyin Township, who are associated with the King of Yangon and Okkala, Thanlyin Township of Yangon, and Shin Hmwe Loon and Minnanda, etc., do not have specific evidence, but it is difficult to cancel the perceptions accepted by the public. During the Second World War, the emergence of the ancient Botataung Pagoda and the artifacts found at Melamu Pagoda are works from the Pyu period.

The latest findings are the excavation of the former High Court (Supreme Court of Myanmar) located on the east side of Strand Road and Sule Pagoda. On the first upper floor, works from the 19th century colonial period, on the second floor, works from the late Konbaung period, and on the lower floors, materials that can be identified as works from the Mon period were found. Based on the findings above, the perception that people have been living around Yangon for more than 2,000 years ago may be correct.

Yangon was founded as the city of Dagon by Mon Queen Shin Saw Pu in 6th century AD. In the year 1117 of the Burmese year of Kongbaung period (1755 AD), the old city of Dagon was built by the Alongphayar as Rangoon because he was able to attack and destroy the enemies. After the Second Anglo- Myanmar War in 1852, the King Bagyitaw had to hand over Yangon and Bago Province to the British. Since then, the commissioner responsible for the administration of Lower Myanmar moved to Yangon. In 1862, when the name British-Burma came into being, Yangon became a parish of Bago District and became the capital of British Burma.

The British then rebuilt the southern townships of Yangon into office, commercial buildings and middle-class residential areas. It was built according to the British Town Planning Concept, which was the most advanced in the world at that time, including systematic roads, drains and irrigation systems.

The square-shaped streets in the southern townships of Yangon have been called the Fraser Plan. Windsor Street (now- also known as Shin Saw Pu Street) was the street at the end of the city. At that time, places such as Kyi Myan Daing, Kamayut, Kukkai and other places existed as large villages on the outskirts of the city. According to the British Town Planning Concept, Eastern park, Western park and Fytche Square (now- Mahabandula Park) were situated in the inner city. Around the Kandawgyi lake, Dalhousie Park, now the Bogyoke Park, etc., were built with many hills of green areas. At that time, Yangon was famous as the cleanest and most beautiful city in Asia and was known as the Green City of Asia.

Around 1920, in conjunction with the construction of Yangon University, it was expanded to the vicinity of University Avenue, Golden Vallery Ward, Bahan Township, and Guttalik (now- Saysan Road). From that situation, after the independence of Myanmar, townships such as Yankin- Kambe were gradually annexed into Yangon.
According to the security and administrative plan established during the Revolutionary Council, in order to facilitate business operations, only one district of Yangon Division was taken out of Bago Division and designated as Yangon Division, and regional groups were formed.

In accordance with the provisions of the 1974 Constitution, the regions included in Yangon Division were set up as townships. On 18 October 1989, during the State Law and Order Restoration Council (SLORC) Yangon Division was divided into three township groups: Yangon Township, Hantharwaddy Township, and Insein Township.

Then, notification dated on 7 November 1992, the name of the township groups was modified to be administratively defined as district to clarify the term. In addition, with the agreement of the Union of Myanmar Government, Yangon was expanded into four districts: Yangon East District, Yangon West District, Yangon South District and Yangon North District.

Yangon Region is located in the lower part of Myanmar. Yangon Region is located between latitude 16 degrees 15 minutes to 17 degrees 50 minutes and longitude 95 degrees 42 minutes to 96 degrees 46 minutes. The area of the region is as follows.

Table (3.1) District wise area in Yangon (2022)

| Sr. No | District | Area in square miles | Total area of towns in the district in square miles |
|---|---|---|---|
| 1 | Eastern | 140.95 | 40.69 |
| 2 | Western | 47.91 | - |
| 3 | Southern | 1942.47 | 71.998 |
| 4 | Northern | 1809.55 | 361.39 |
| Total | | 3967.86 | 474.08 |

Source: Yangon City Development Committee

In terms of borders, Yangon Region is bordered by Bago Region to the east, Muttama Sea to the south, Ayeyarwaddy Region to the west, and Bago Region to the north. Yangon Region is located at an average elevation of 30 feet above sea level. The highest mountain is Kyemon Mountain in Taikgyi Township, Yangon Northern District, which is 1,500 feet high. The lowest part of the region is Seikyi Kha Naungto Township.

## 3.2 Population Distribution in Yangon

The density of economic zone (6) townships in the center of Yangon is about 1.8 million people per square mile, while the population density of the townships built after 1988 is only about 0.15 million people. Especially the new towns located in the eastern part of Yangon, which are the southern part of Dagon Myothit, North of Dagon Myothit. The average population in Dagon Myothit Seikkan and East Dagon Myothit is just over 7000 people per square mile.

### 3.2.1 The Number of Populations live in Yangon Region

Yangon Region is “the Economic Center of Myanmar”, accounting for 14% of the national population and 22% of gross domestic products in the country. It is based on the 2014 Myanmar Population and Housing Census and Data from Planning Department, Ministry of National Planning and Economic Development. (2010-2011).

Yangon City has experienced rapid population growth in the past decade. The average growth rate of population in Yangon City between 1998 (3.69 million) and 2014 (5.53 million) is 2.09% annually. With regard to each township group (the Central Business District, CBD, inner urban ring, south of CBD, older suburbs zone, outer ring

zone, northern suburbs, and new suburbs zone), while the average population growth rates of CBD and older suburbs zone are -0.10% and -0.03%, respectively, new suburbs and south of CBD have high growth rates, which are 6.93% and 6.01%, respectively.

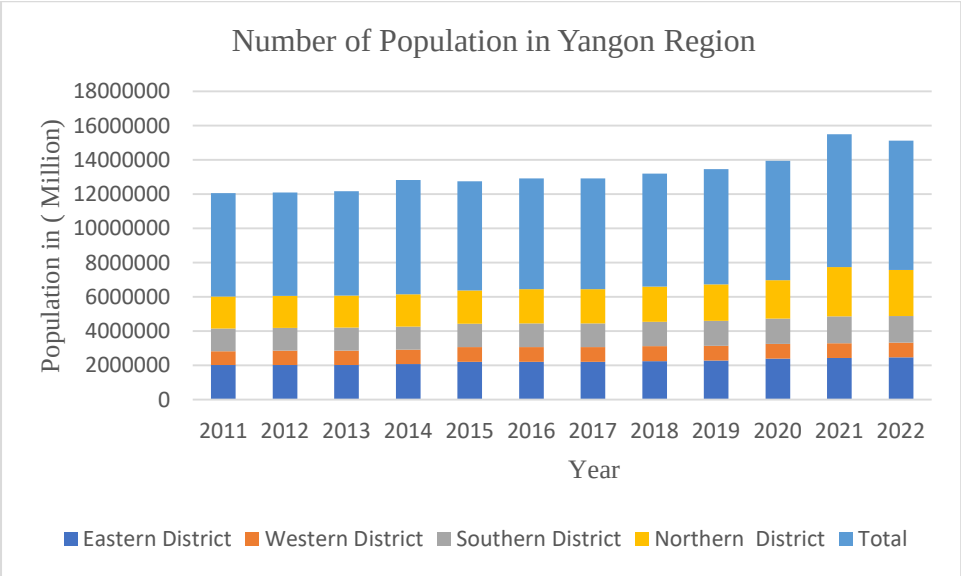
In the projection of future population for the Greater Yangon, population growth rate of 2.6% was adopted. As the population of 2014 is the baseline, future population for the Yangon Region is projected at 10.8 million (10,794,920) in 2040 by JICA report 2018. Population dynamics will be an important parameter in the plans and policies to give direction to Myanmar's further development.

Table (3.2) The Number of populations live in Yangon Region by District (2011-2022)

| Sr No. | Year | Eastern District | Western District | Southern District | Northern District | Total |
|---|---|---|---|---|---|---|
| 1 | 2011 | 2013745 | 819596 | 1321113 | 1873974 | 6028428 |
| 2 | 2012 | 2026318 | 835247 | 1325463 | 1867626 | 6054654 |
| 3 | 2013 | 2026937 | 838823 | 1338154 | 1877516 | 6080811 |
| 4 | 2014 | 2083257 | 839428 | 1341518 | 1891281 | 6661522 |
| 5 | 2015 | 2206983 | 857091 | 1358412 | 1953829 | 6376315 |
| 6 | 2016 | 2214023 | 859089 | 1386357 | 1995671 | 6455140 |
| 7 | 2017 | 2228504 | 864890 | 1407859 | 2026883 | 6528136 |
| 8 | 2018 | 2249202 | 867881 | 1426220 | 2053475 | 6596778 |
| 9 | 2019 | 2282736 | 866307 | 1459488 | 2120560 | 6729091 |
| 10 | 2020 | 2387917 | 860599 | 1486277 | 2234818 | 6969611 |
| 11 | 2021 | 2441717 | 856985 | 1553157 | 2894863 | 7746722 |
| 12 | 2022 | 2475905 | 855706 | 1548179 | 2682247 | 7562037 |

Source: General Administration Department (2011-2022)

Figure ( 3.1 ) Number of Population lived in Four Districts of Yangon Region




Source: General Administration Department (2011-2022)

The number of populations in Yangon Region in 2022 is as shown in the table below. There are 4 districts in Yangon Region, and the largest number of populations live in the Northern District, accounting for 35.47% of the total populations. The second largest number of populations reside in the Eastern District, accounting for 32.74% of total population. The third largest number of populations live in the southern district, accounting for 20.47% of total populations. The district with the fewest populations is the western district, which is only 11.31% of the total populations.

Table (3.3) The Number of Population live in Yangon Region by Districts

| Sr. No | District | Population | % Share of total population |
|---|---|---|---|
| 1 | Eastern District | 2475905 | 32.74 % |
| 2 | Western District | 855706 | 11.31% |
| 3 | Southern District | 1548179 | 20.47 % |
| 4 | Northern District | 2682247 | 35.47% |
| Total | | 7562037 | 100.00 |

Source: General Administration Department, Yangon Region (2022)

Population growth is an important factor for local environment change. More importantly, the consumption level and the technology assume to play a vital role in the overall economic, social and environmental change. Rapid population growth is one of the main reasons for increasing the number of people on the move for livelihood, and migration has been a major factor of rapid population growth in urban areas in less developed countries.

Table (3.4) Population and population growth rate in Yangon Region

| Sr No. | Year | Population | Growth Rate % |
|---|---|---|---|
| 1 | 2014 | 7340921 | 2.18 |
| 2 | 2015 | 7598018 | 2.20 |
| 3 | 2016 | 7763687 | 2.20 |
| 4 | 2017 | 7936637 | 2.20 |
| 5 | 2018 | 8113556 | 2.20 |
| 6 | 2019 | 8294107 | 2.19 |
| 7 | 2020 | 8477923 | 2.18 |
| 8 | 2021 | 8664431 | 2.16 |
| 9 | 2022 | 8853241 | 2.13 |

Source: Department of Population (2014 -2050) Estimate Population List

The population growth rate of Yangon is shown above table. It is based on the population according to the 2014 Census. The growth rate is increased since 2015 as of 2.20 % until 2018. The growth rate is reduced 1% in 2019 and 2020 respectively. It is distinctly seen the reduced of growth rate as 2.13 % in 2022.

While people are moving from place to place more and more, the world is undergoing the largest wave of urban growth in history. More than half of the world's population is living in cities and this is increasing at rate of 1.5 percent. This rapid urbanization coupled with population growth is changing the landscape of human settlement, posing significant risks on living conditions, the environment, and development.

### 3.3 The Number of rural and urban houses and households in Yangon Region by Districts

The number of households in Yangon Region in 2021 is as shown in the table below. There are 4 districts in Yangon Region, and the largest number of households live in the Northern District, accounting for 39.50% of the total households.

Table (3.5) The Number of rural and urban houses and households in Yangon Region by districts

| Sr. No | District | Urban and Rural | No. of Houses | No. of Household |
|---|---|---|---|---|
| 1 | Eastern District | Urban | 353529 | 545742 |
| | | Rural | 7019 | 10098 |
| | | Total | 360548 | 555840 |
| 2 | Western District | Urban | 78503 | 180588 |
| | | Rural | 0 | 0 |
| | | Total | 78503 | 180588 |
| 3 | Southern District | Urban | 104755 | 121869 |
| | | Rural | 269875 | 303362 |
| | | Total | 374630 | 425231 |
| 4 | Northern District | Urban | 248844 | 397228 |
| | | Rural | 287471 | 361074 |
| | | Total | 536315 | 758302 |
| Total | | Urban | 785631 | 1245427 |
| | | Rural | 564365 | 674534 |
| | | Total | 1349996 | 1919961 |

Source: General Administration Department, Yangon Region (2021)

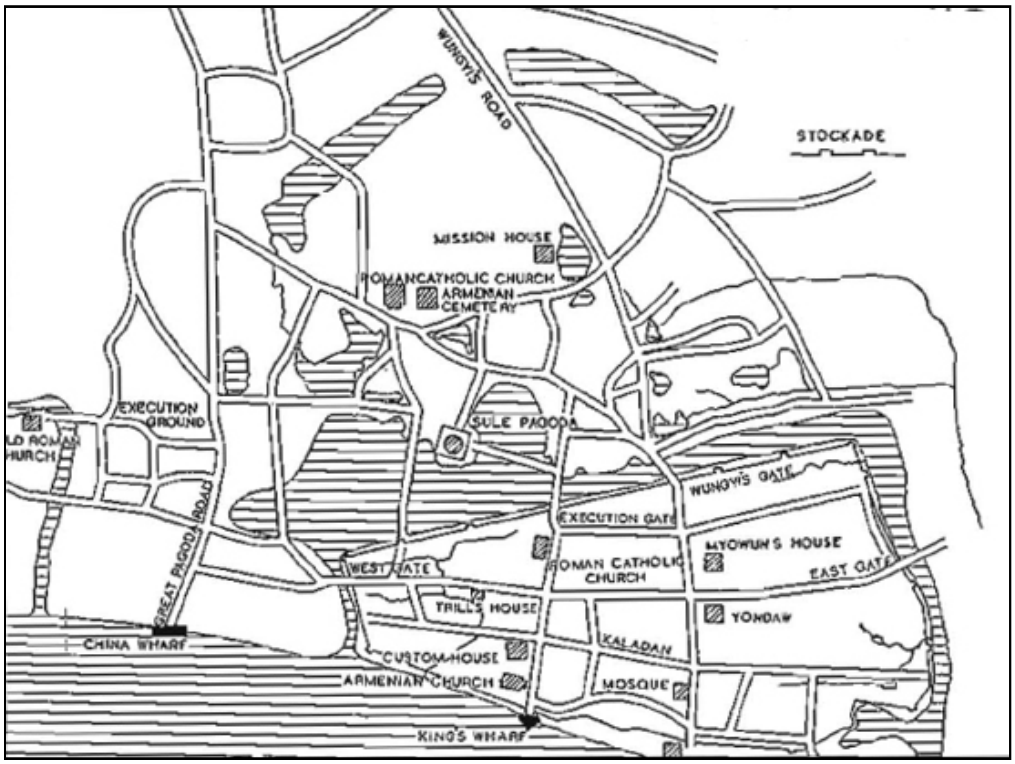
The second largest number of households reside in the Eastern District, accounting for 28.95% of total households. The third largest number of households live in the southern district, accounting for 22.15% of total households. The district with the fewest households is the western district, which is only 9.41% of the total households. The northern township of Dagon city to be studied is included in the eastern district.

### 3.4 Expansion of Yangon City

According to archeological analysis of the twins discovered from Shwe Dagon pagoda and Sule pagoda, Yangon's history can be traced back to a few centuries B.C. The Shwe Dagon pagoda and the housing units that gathered around it were all that existed in the pre-urban Dagon village that is today's Yangon. King Alaungpaya established a new town in Dagon in 1754, which later turned the quiet riverside village into a bustling neighborhood. Yangon, which translates as "all dangers or all enemies have been annihilated," became the new name he gave the town, and it stood for 90 years.

Yangon is located in the lowermost portion of the Ayeyarwaddy River's eastern delta. The city's center is far away only 34 kilometers upstream from the outfall of the Yangon River. Three east-west streets and two north-south streets made up the majority of Yangon. In addition, there were smaller streets running just to the north of Strand Street, the current Kannar Road. The next east-west route followed Merchant Street to the south. The main south-north road ran roughly parallel to what is now Mahabandoola Street, while Seikkantha Street served as the route of the other major parallel road. The town was located beside a river. For around 1,320 yards, its southern border went along to the riverbank. The total population of Yangon at that time was about 10000.

**Map (3.1) Map of Alaungpaya's Yangon**




Source: Yangon City Development Council

In the area that is now known as Kandawmin, King Tharyarwaddy founded a new city in 1842. The boundaries of this new city, known as Aungmye-Aunghnin Tharayarwaddy's Yangon, included the city wall built by Shin Saw Pu in the north, military offices and barracks in the east that face the zoo, Kyarku Hall in the south, and the current Ahlone Road in the west. Shwedagon is situated in northeastern part of the town. The current Dagon Township contained in the entire town. More than ten thousand people still didn't live there. The second Anglo-Myanmar war broke out in 1852. The battle seriously devastated the town's residential neighborhoods. Lower Myanmar's capital, Yangon, was formed after the British took control of lower Myanmar and set up their headquarters there.

As soon as Yangon came under British control, urgent plans and preparations were launched to rebuild it as a modern city. In conjunction with Captain Fraser of the Bengal Garrison engineers and Dr. William Montgomery of the British Military medical services, new city plans were developed. Construction started after a few alterations were made by the British colonial government. The town's boundaries were actually merely Gordwin Road (now Lanmadaw Road) to Judah EZakal (now Theinbyu Road) in the east, the River to Montgomery and Commissioner Road (now Bogyoke Aung San Road) in the south, and from there to the River. The Sule Pagoda served as the town's landmark.

As a result, the town had relocated to the west in comparison to Aloungpaya's Yangon. The city had a population of 36,000 and a land area of around 500 acres. At that time, the cantonment area was not included in the town plan. Despite 36,000 population target, the city's population quickly grew to 46,000 in 1856 and 60,000 in 1860. Thus, the settlement quickly got too big. In comparison to the east, extension moved faster in the west. Roads in the west swiftly approached West Road (now Aungyadana Road) due to the extension's rapidity.

The Mahabandoola Road, also known as Dalhousie Road, was extended to Pazundaung Creek in 1871. Dalla, with the exception of a government dockyard, was still underdeveloped. Up until roughly 1874, there were no houses in Kokkine. In 1855, Kyeemyindine had been set up using a chessboard layout. There were no sanitary or water systems in Yangon at that period. The locals relied on both public and private wells to provide water. The problems in this condition became increasingly severe as a result of the population growth. A Municipal Committee was then constituted in 1874 to deal with the issues and manage Yangon City's administration.

In 1876, the northern and eastern borders of the municipal territory were also included. The boundary extended along Hanthawady Road from its intersection with Pyay Road all the way to the Pazundaung Creek and Nat Chaung intersection. As a result, the eastern bank was covered by municipal boundaries. With the Cantonment excluded, the municipal areas were then around 13 square miles. The population of this large area was 89745 in 1872 and 100,000 in 1874, according to census data.

**Map (3.2) The Map of Yangon around 1897**


Source: Yangon City Development Committee

In the 1920s, a lot of land was reclaimed. Reclaimed land can be found in the west in the Kyeemyindine, Sanchaung, and Myaynigone areas, and in the east between the town center and Pazundaung Creek, including the Kandawgale and Theinbyu localities. Under British rule, Yangon was known as the most beautiful and clean city in South East Asia and was also known as the "Pearl of the Orient." Myanmar gained its independence on 4 January 1948. However, Yangon, once a model city in South East Asia, has fallen apart quickly. Multicolored insurgent groups first formed soon after independence. At Kanbe, which is today known as Yankin Township, a new settlement called Yankin Myothit was also founded.

In 1958, the State power was transferred to the Caretaker Government. Military personnel have taken the place of all administrative staff. Colonel Tun Sein was named Municipal Commissioner on December 1st, 1958, and immediate preparations were started. The removal of slums, the creation of new satellite towns near Yangon, and the building of a railway circuit by joining the Insein and Mingalardon railway lines were among the various rebuilding projects carried out by the Caretaker Government.

Late in 1958, the Okkalapa Project, which had two parts, north and south, was constructed as part of the New Yangon or Ngamoyeik Extension projects in the northwest along Ngamoyeik Creek. The region of North Okkalapa was 5 kilometers square. Thakata Myothit was later constructed in the east, between Pazundaung Creek and Bago River, east of Dawbon, and it encompassed around 2 square kilometers. At that time, Thuwunna Myothit was being prepared to become a new satellite town. Under the reign of Revolutionary Council government in 1962, hasty plans were made to expand the city's boundaries because the Yangon Municipal area was deemed insufficient.

The other factor was the need to relocate the industries from residential areas to areas outside the city because they had more or less developed. Because of this, there were incorporation of Thingangyun, Kanbe, Kamayut, Thamaing, North and South Okkalapa, and Thakayta into the Yangon Municipality in 1964. Thingangyun had an area of 6.65 square miles and a population of 17,760; Kanbe had an area of 7.02 square miles and a population of 22,312; and Kamayut had an area of 181 square miles and a population of 42,665.10. The municipal boundary was expanded to include Dalla and Khanaungto Townships in the south and Htauk-kyant Creek in the north. The Municipal area was around 78 square miles in 1964. Thuwunna Myothit, 2.5 square mile area, was created in 1965.

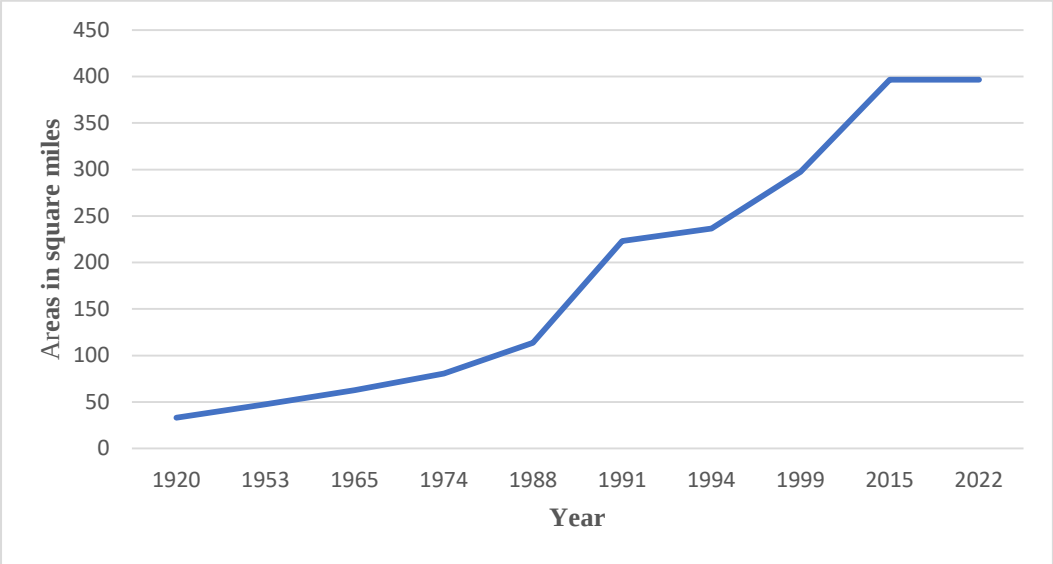
The Burma Socialist Programme Party (BSPP) regained the control of the government in 1974. In Yangon, numerous structures were erected between 1974 and 1988 as part of government programs. Before the State Law and Order Restoration Council (SLORC) assumed state power, Yangon City had a total size of 113.64 square miles and a population of more than 2.8 million. The government began building new town developments in the east and west, namely Dagon North and Dagon South in the east and Hlaing Tharyar and Shwe Pyi Thar in the west, in the late 1980s, which resulted in a significant change in the city of Yangon's land use.

Before 1988, Yangon had more than 80 square miles and a population of 3 million, but in 2014, it had a population of 5 million, and in terms of area, it expanded almost four

times in 20 years between 1990 and 2010. A city that has expanded 4 times in about 20 years has never been seen in the history of urban planning. Yangon has expanded about 4 times in about 20 years, but land prices in Yangon are still high. Yangon's population continues to grow at the highest growth rate among most cities in Myanmar. According to calculations, Yangon will continue to grow to more than double the current population in the next 30 years. Yangon's challenges include land prices, in addition to high house prices and high population growth, infrastructure constraints; difficulties in the transportation sector are also involved. Regarding water supply, only a part of Yangon people have water connection to their homes.

The following Figure (3.3) shows the expansion of Yangon City Development area during 1920 to 2015.

Figure (3.2) Expansion of Yangon City Development Area




Source: Yangon City Development Council

Yangon Region data was reported at 3967.86 sq mile since 2011 it was shown in Table (3. 6). This increased from the previous number of 297.55 sq mile for 1999. Yangon Division data is updated yearly, averaging 3967.86 sq mile from 2011 to 2022, with yearly observations. The data stay constant reached an all-time of 3967.86 sq mile between 2011 and 2022.

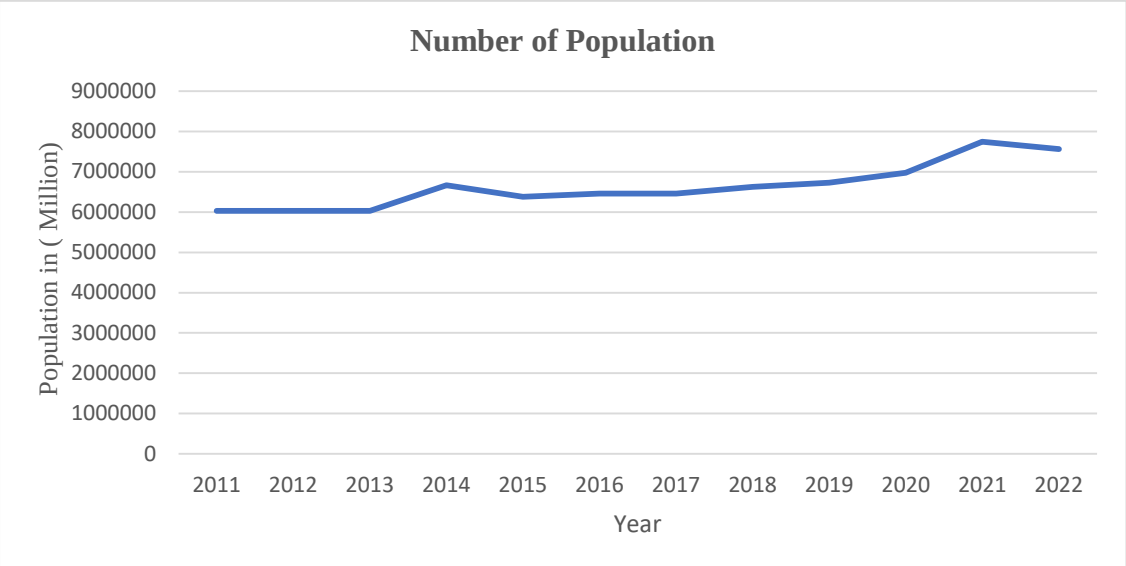
Table (3.6 ) Yangon Region Area Development

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area (sq. miles) | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 | 3967.86 |
| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |

Source: General Administration Department, Yangon Region.

Yangon City has experienced rapid population growth in the past decade. The average growth rate of population in Yangon City between 1998 (3.69 million) and 2011 (5.14 million) is 2.58% annually. With regard to the each township group (the Central Business District (CBD), Inner Urban Ring, South of CBD, Older Suburbs Zone, Outer Ring Zone, Northern Suburbs, and New Suburbs Zone), while the average population growth rates of CBD and Older Suburbs Zone are -0.10% and -0.03% respectively, New Suburbs and South of CBD have high growth rates, which are 6.93% and 6.01% respectively.

Figure (3.3) Population Increase in Yangon City Development Area (2011- 2022)




Source: General Administration Department

### 3.4.1 Resettlements in Yangon under the Socialist Government

The low class wards were eliminated between 1974 and 1988, and new buildings took their place in Yangon. Ngamoyeik, a residential transit camp, was demolished in 1982, and residents were relocated to 940 dwelling plots in the Thingangyun Townships.

In 1984, new four-story buildings were built in place of the temporary barracks at Kandawgalay in Mingalartaungnyunt Township. In 1986, residents of these barracks were replaced in 93 apartments. The "Italian ward" (now known as the Bo-Htunzan ward) and the New-aye ward were both abolished in 1985, and the replacement of residents took place on 335 housing plots. The operation was finished in 1986. The 360 detached homes were built in the 1980s at South Okkalapa, Thuwunna, and Tharkayta.

Community housing initiatives were started in Central Yangon, Kyauktada Township, and between 37th and 38th Street between 1982 and 1986. These were constructed in four-story structures and offered for sale to those in need of compartments. By extending North Okkalapa, Pyinmapin, Padamyar (Ruby) Myothit, and Thitseikgone at Mingalardon Township, Shwewarsan-Myay in Thuwunna Myothit, Hlaingtharyar in Insein Township, and Kyibwarye ward in Thingangyun Township, a total of 7438 housing plots were created between 1981 and 1986. A special project to develop a hamlet next to Ledaungkan village, which is currently a part of South Dagon township, was launched on December 13, 1986, and 480 houses were built in that year.

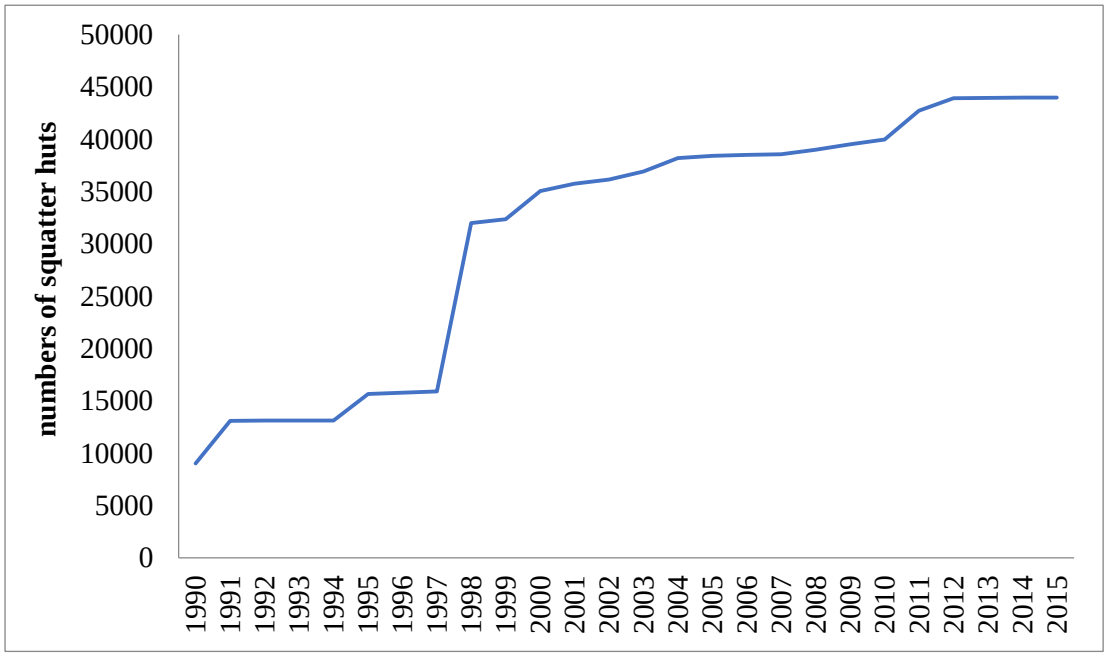
### 3.4.2 Establishment of New Satellite Towns in Yangon during 1988-2010

The government established new satellite towns and provided housing lots in an effort to address the squatter issues. The government began building new towns in the east and west in the late 1980s, including Dagon North and Dagon South in the east and Hlaing Tharyar and Shwe Pyi Thar in the west.

Department of Human Settlement and Housing Department (DHSHD) built 400,000 homes on 160,000 parcels of land in three new towns in Yangon between 1989 and 1994. Both some of the slums and these new communities have services provided by the government. Additionally, it has helped fund various renovation initiatives as well as the resettling of fire victims. Roads, sewers, electricity, and community tube wells are among the services available.

The government, according to DHSHD, financed the cost of the infrastructure. DHSHD also promoted the "helping the squatters" (slum to apartment program), which supplied 200,000 squatters with leased lots of land equipped with basic infrastructure. The housing provision made by DHSHD from 1993 to 2011.

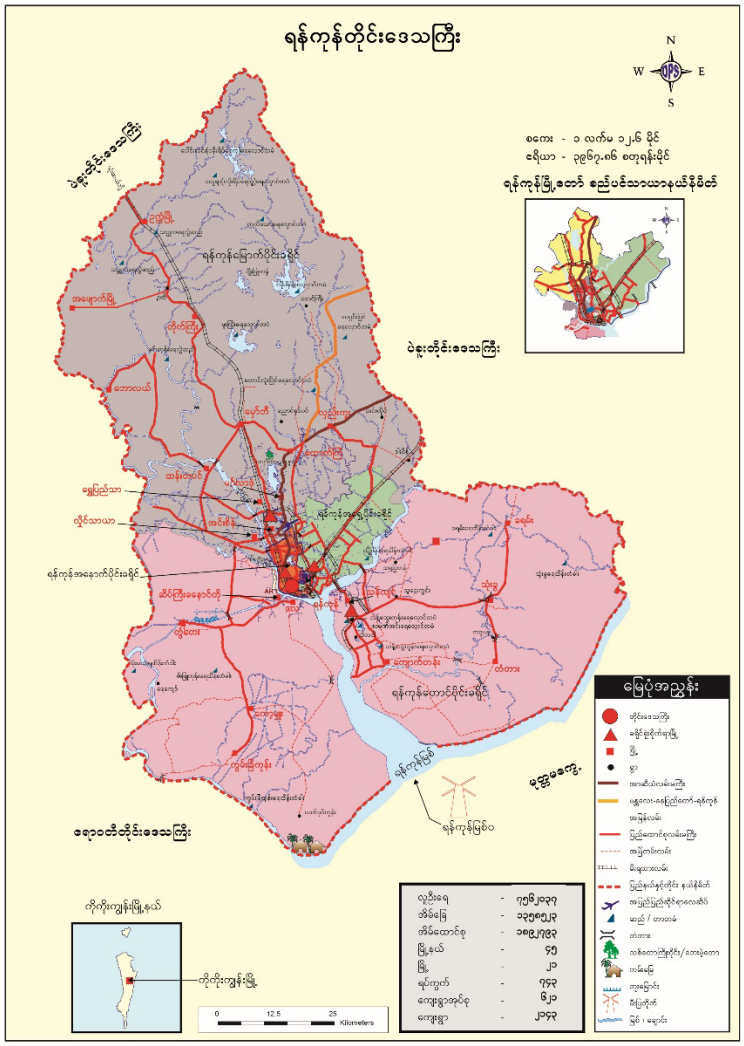
Figure (3.4) Numbers of Squatter Households in Yangon (1990-2015)




Source: YCDC (Yangon City Development Committee)

As shown in the graph above, there was an increased trend in the number of squatters from 1991 to 1997. The increased trend turn up during 1996 and 1997 because the news satellite townships are built therefore, the number of squatter households is distinctly increased during that period. In addition, between 1997 and 1998, there was a large surge that doubled. The slow growth then kept on till present. The incorporation of Hlaing Tharyar's data in 1997 is what caused the number of squatters to significantly climb. In terms of the populations of both formal and informal settlements, Hlaing Tharyar is thought to be the township in Yangon that is increasing the fastest. With around 500,000 inhabitants, it is already the most populous township in Yangon and has the highest proportion of squatter dwellings (16,000, though the actual figure may be much higher). In 1993, Hlaing Tharyar Township was created to shelter squatters who had to leave Yangon's central business district. Hlaing Tharyar has 868 factories and workshops, the second-highest number of any of the 39 Yangon townships, according to the YCDC JICA Master Plan (2013).

Map (3.3) The Map of Yangon in 2022




Source: General Administration Department (2022)

Generally, developing and upgrading a region, especially such a large city like Yangon, takes much time in making it an ideal image. To achieve the future urban image requires a long period. Currently, Yangon Region consists of a total of 44 townships, where, 33 townships are covered by YCDC service area, which is Yangon City. Yangon Region has a population of approximately 7.4 million with its area of 3967.86 sq miles, and YCDC has a population of approximately 5.2 million with its area of 895 km2. Applying an annual growth rate of 2.6%, the future population half a century later (year 2065) will be 27.2 million in the Yangon Region. Meaning, there will be an increase of 20 million in the population. To manage such large city and to accommodate such large number of population properly and actively, step-wise urban development with appropriate infrastructure provision must be conducted together with governmental

initiative in good relation with positive private activities and citizen's understanding and cooperation.

Two stand-alone new towns (Southwest new city, and Dagon Myothit (East) new city) and commuter new town (Dala new city) shall be developed to achieve an effective development in the suburb area. Additionally, Thilawa Special Economic Zone new city has been developing. Not only the development of sub centers and new cities, but also the renovation of the CBD is required to maximize the development potential of the Yangon Region. To actualize this, improvement of infrastructure and provision of better urban amenities including walkable spaces are needed.

For urban development of Yangon Region, according to population point, a developing area should correspond to population forecast (increase population) no to be over-scale development. Due to inflow of people from rural to urban and shortage of housings, informal settlements are spreading mainly the area along Yangon river. Therefore, provision of housings for low-income people and also provision of working opportunities near the residences are required.

As a development policy provision are laid down for low-cost housings to relocate people from informal settlements, provision of working opportunities for sustainable lives for residents and utilization of river side occupied by informal settlements. Because housing units for relocation from informal settlements has to be provided at first, development of large number of housing units for low and middle income people is required. In addition to housing development, working opportunities for residents has to be provided through development of commercial facilities at center of the developed area or industrial area development nearby to make the project sustainable. As middle term project, development of long-term and low-rate mortgage system for residents is also needed.

# CHAPTER IV
# THE TRENDS OF ECONOMICS AND INFRASTRACTURE DEVELOPMENT IN YANGON REGION

Yangon City, the largest economic center of Myanmar, has about 5.14 million population (2011) and is experiencing rapid urbanization and accelerated development as the nation moves toward democracy. The current rapid urbanization is putting more pressure on the existing old infrastructures in Yangon City and concerns for the deterioration of its urban environment are growing.

According to Myanmar's urban development pattern, there are also differences in development patterns within provinces. The difference in the percentage of the urban population is in Rakhine 17%, Chin and Karen have 21% and 22% and Yangon Region has up to 70% respectively. The average urban percentage of Myanmar is about 30%. The difference between the population of urban areas and rural areas within regions and states is showing the difference in development across Myanmar.

Urban population growth rates also vary from region to region. In addition, Nay Pyi Taw's urban population growth rate has been increasing annually 4.6 % since Nay Pyi Taw was established. Kachin State has the highest population growth rate 3.65% and Rakhine State has the lowest population growth rate 0.5%, respectively. Population growth rate is the economic development of a region. There are changes depending on the labor development sector. The fact that the population growth rate of a state is lower than the national population growth rate indicates that the region's Out Migration (aka) many people from that region are migrating to other regions.

## 4.1 Profile of Yangon Region and YCDC area

According to the 2014 census, the population of Yangon is 7.36 million. There are 5.2 million people living in 33 townships within Yangon's municipal boundaries, and 2.16 million living outside of Yangon's metropolitan area. The urban-rural population ratio of these 7 townships outside of Yangon varies from 7% to 32%. Koko Island is located about 30 miles from Yangon and was not settled until the 1950s, but it is currently used as a

place for long-term prisoners, so the rural population of Koko Island is not taken into account.

There were only four districts in Yangon Region; Eastern District, Western District, Southern District and Northern District. On 30 April 2022, these districts were expanded to 14 districts by the provisional government. Of the 45, the city of Yangon now encompasses 33 townships.

The coastal Region of Yangon sits within the wider Delta Region of the south, sharing borders with Ayeyarwady to the west, and Bago to the north and east, and resting on the Andaman Sea to the south. Yangon Region covers a span of 10,171 $km^2$ administratively divided into 33 townships. Despite being Myanmar's smallest state by land mass, it is by far the most densely populated with the estimated population of 5.9 million (2011 HMIS data) and population density of 586 people per square kilometre. 67% of Yangon Region's population live in urban areas, and the remaining 33% in rural areas; Yangon is the Region with the greatest percentage of people living in urban areas. Southern Yangon Region is also home to the Thilawa Special Economic Zone, one of three zones across the country.

### 4.1.1 Land-use Pattern

**General Pattern of Land Use**

Yangon's land use pattern is influenced by historical data, population density, and other commercial buildings; prices either through the distribution of public buildings such as schools. There are many differences between zones in the city. Roughly in the southern part of Yangon, the density is much higher in the townships that were established at the beginning of the colonial era and the townships that expanded during the early and middle of the 20th century. Depending on that, the way the people of Yangon travel on a daily basis is that they travel to the southern part of Yangon and the middle zone. In fact, Yangon's land use pattern depends on transportation conditions, Influenced by infrastructure distribution conditions, etc., Yangon's land use pattern should be gradually modified in the long run to respond to these problems. The appropriate land use patterns of cities include commercial buildings and public schools, buildings such as markets have been released.

Urban central functions including administration, banking, business and commerce are located in CBD with high density of houses and shops. The population density of CBD is strikingly high at 325.6 persons/ha. Looking at the inner urban, some lands seem not to

be used efficiently from the viewpoint of urban functional use and land use patterns. For example, an international airport also exists inside, although other large-scale cities, which have a population of around or over 10 million do not have their own international airports around 15-20 km radius area from the city center.

Industrial zones seem to disperse throughout the Greater Yangon even in the inner urban, while some of the large-scale zones are located along trunk roads in the suburb area. Regarding the land use in 2012, agricultural area occupied 51% of the total area, followed by 22% of urbanized areas. With the population growth projection, it is somewhat unavoidable that the ratio of urbanized area tends to increase in the future, while agricultural and open space tend to decrease gradually.

When studying the land use of Yangon Region, the net cultivated land area is 51.60% in 2022 which is more than half of the total land area.

Table (4.1) Land use of Yangon Region (2022)

| | | 2011 | | 2016 | | 2022 | |
|---|---|---|---|---|---|---|---|
| Sr. No. | Type of land | Area (Acre) | % Share in total land area | Area (Acre) | % Share in total land area | Area (Acre) | % Share in total land area |
| 1 | Total net cultivated land area | 1431913 | 56.38 | 1435225 | 56.52 | 1310285 | 51.60 |
| 2 | Flattened land | 32209 | 1.27 | 39384 | 15.51 | 50433 | 1.99 |
| 3 | Pasture land | - | - | 55353 | 21.08 | 55000 | 2.17 |
| 4 | Industrial land | - | - | 15622 | 0.61 | 17122 | 0.67 |
| 5 | City land | - | - | 118086 | 4.06 | 127961 | 5.04 |
| 6 | Village land | - | - | 46529 | 1.83 | 48053 | 1.89 |
| 7 | Other land | - | - | 20280 | 0.08 | 18066 | 0.71 |
| 8 | The land protected by the belt line | 266811 | 10.51 | 264927 | 10.43 | 268681 | 10.58 |
| 9 | Wild land | 3240 | 0.13 | 3240 | 0.13 | 3240 | 0.13 |
| 10 | Waste land | 7444 | 2.09 | 39933 | 15.07 | 150622 | 5.93 |
| 11 | Land that cannot be cultivated | 797812 | 31.41 | 756720 | 29.08 | 489966 | 19.29 |
| Total | | 2539429 | | 2539429 | | 2539429 | |

Source: General Administration Department, Yangon Region (2011-2022)

Net agricultural land area includes farm land, garden land, upland, thatch land. Industrial land is the second lowest, accounting for 0.67 percent for a total of 41 industrial zones. Uncultivable land is 19.29%, which is the second largest. As only 4.6% in 2016 and 5.04% in 2022 of the city land is included. Total net cultivated land area is reduced from 56.38% in 2011 to 51.60% in 2022. It is found that there are many opportunities for urban development in Yangon Region.

Regarding the land use in 2022, agricultural area occupied 51.60 % of the total area, followed by 19.29% of urbanized areas. With the population growth projection, it is somewhat unavoidable that the ratio of urbanized area tends to increase in the future, while agricultural and open space tend to decrease gradually.

## 4.2 Economic condition of Yangon Region

It is interesting to witness population coupled with the growth of GDP that is the strong relations between population and economic and infrastructure development in Yangon Region. Building new satellite township in four district is significantly grown the population and household unit in Yangon.

### 4.2.1 Population and Household Unit

Urban dwellers are rapidly becoming a majority of the population. Most of them live in developing countries, and an ever-higher proportion in the biggest cities. Population dynamics, the forces behind the growth and movement of populations, play a central part in the urbanization process. The urban profile of the developing countries is intimately linked in many complex ways with high fertility and rapid population growth.

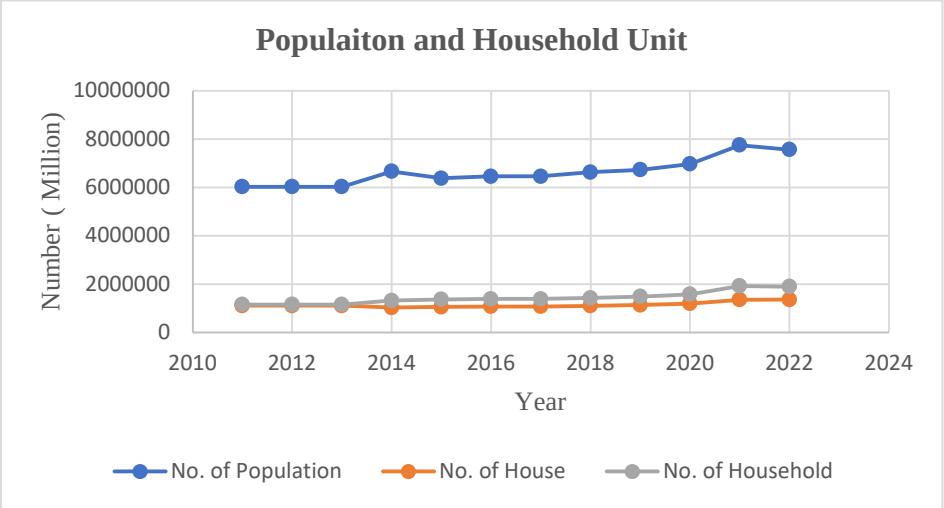
Table (4.2) Population and Household Unit of Yangon Region (2011- 2022)

| Sr No. | Year | No. of Population | No. of House | No. of Household |
|---|---|---|---|---|
| 1 | 2011 | 6028428 | 1106681 | 1152415 |
| 2 | 2012 | 5893939 | 980588 | 1260790 |
| 3 | 2013 | 6080811 | 998719 | 1469698 |
| 4 | 2014 | 6661522 | 1024861 | 1318697 |
| 5 | 2015 | 6376315 | 1057374 | 1364555 |
| 6 | 2016 | 6455140 | 1075543 | 1387091 |
| 7 | 2017 | 6528136 | 1085242 | 1402992 |
| 8 | 2018 | 6627004 | 1101292 | 1424990 |
| 9 | 2019 | 6729091 | 1133274 | 1482830 |
| 10 | 2020 | 6969611 | 1195840 | 1575360 |
| 11 | 2021 | 7746722 | 1349996 | 1919961 |
| 12 | 2022 | 7562037 | 1358523 | 1892793 |

Source: General Administration Department

Regarding population, the numbers of population is gradually increased during 2011 and 2022. In Yangon, due to in-migration from other areas, the pace of growth has been higher than the national urbanization rate. The higher growth of Yangon City population was attributed to migration from rural areas of Yangon Division (Outside City) and from other states. In terms of house and household unit the number of house is gradually increased since 2014 in Yangon. Even though the number of household is distinctly increased in 2021, it is declined the number of households in 2022.

Figure (4.1) Population and Household Unit of Yangon City (2011- 2022)




Source: General Administration Department (2011-2022)

The Yangon Region has continued to expand with population growth. While the decentralization of urban functions is being aimed, the current CBD area, where residences, commercial, and business establishments are concentrated, will still be the CBD in the future as a core of the Greater Yangon. In order to renew and revitalize the city's efficiency, disaster-resistant, functional, and attractive urban space have to be realized.

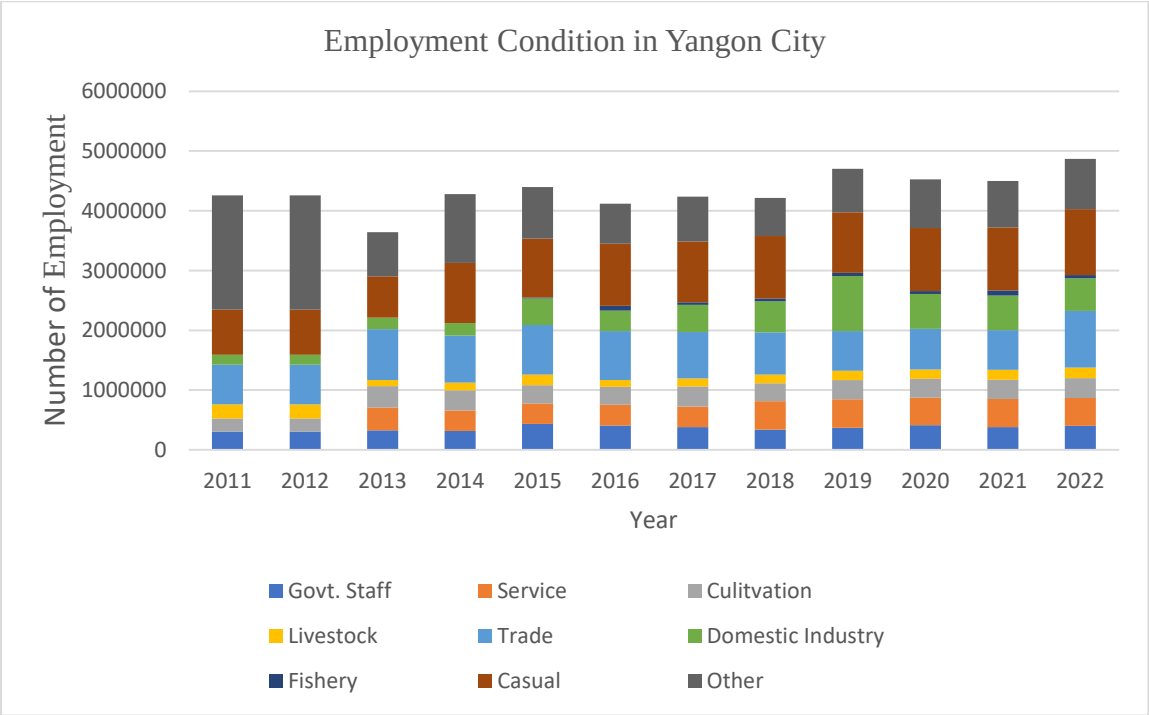
Four new cities including Thilawa SEZ are selected as priority areas for suburb development, and the core area, "new city core", is mainly made up of mixed use land use such as commercial, office, and public functions.

### 4.2.2 Employment

Cities have always been the nexus of prosperity, job creation, and poverty reduction. Workers moving to cities for jobs is an age-old story. Jobs are created in cities when firms are located closer to other firms, the labor market, and potential clients. Productivity increases, revenues come in and new jobs are created. Cities represent the driving force of development in economic, social, and cultural life, reflecting also the spatial organization of human society. Taking into account the fact that cities are becoming generators of economic development and a source of growth for the national economy, there is an increasing urge to identify the stages of development and to establish a system for the ranking and positioning of cities and regions in this process.

Therefore, the condition of employment in Yangon city could be seen as follow. The types of employment working in the areas are government staff, service, cultivation, livestock, trade, domestic industry, fishery, casual and other. According to following Figure (4.2) as the condition of employment that the numbers of government staffs were increased from 30% in 2011 to 40% in 2022. The number of employees in service sector were increased from 38% in 2013 to 46% in 2022. In terms of cultivation work, there were number of workers increased from 21% in 2011 to 33% in 2022. However, in livestock sector, there were numbers of worker decreased from 23% in 2011 to 17% in 2022. In trade sector, the condition of employment was increased from 66% in 2011 to 95% in 2022. In domestic industry, the number of employments were also increased from 16% in 2011 to 54% in 2022.

Figure (4.2) Employment Condition in Yangon City




Source: General Administration Department (2011-2022)

In terms of employment in Yangon Region, the number of government staffs were highest with 436237 in 2015. The service workforce is gradually increased from 2011 to 2022 and there were highest numbers with 469042 in 2021. The cultivation workforce is highest with the number of 358195 in 2013. The livestock workforce was highest with the number of 174042 in 2015. The employment in trade was highest with the number of 950211 in 2022. The employment in domestic industry was highest with 922066 in 2019.

In addition, the number of employment type in casual and other were higher than other types of employment in Yangon Region from 2011 to 2022. The employment in other type were with the number of 1906546 in 2011, but the numbers was decreased to 842766 in 2022. The numbers in casual were increased with the number of 759484 in 2011 to 1101318 in 2022. The reason of yearly increasing casual worker is that Yangon has many job opportunities and general workers who internal migrated from other parts of the country and mostly work in casual work in Yangon Region.

On the other hand, existing industrial zones in the Yangon City have a total area of approximately 5,100 ha with 40% of estimated occupancy rate currently. These existing industrial zones are able to accommodate the additional 238,000 laborers. Development of new industrial zone is necessary including 2,400 ha of Thilawa Special Economic Zone,

which is estimated to accommodate 218,000 laborers in the future. To accommodate another 76,000 laborers of the secondary sector, creating three new industrial zones with a total area of about 900 ha is proposed. “Central Business District”, “secondary Central Business District”, “sub-centers”, and “new city cores” will be the main work places for a lot of laborers in the tertiary sector. In the case of estimation of labor population, 236,000 laborers shall be accommodated by new city cores.

### 4.2.3 Gross Domestic Product (GDP) of Yangon Region

GDP is one of the most widely used measures of an economy’s output or production. It is defined as the total value of goods and services produced within a country’s borders in a specific time period—monthly, quarterly, or annually. Economic growth and urbanization are integrally related. Cites is the primary engines of economic activity, generating over 80 percent of the world's GDP. Yangon city offer huge potential to create jobs, foster innovation and creativity, attract investment, and raise incomes, thereby including more citizens in increased growth and prosperity than ever before.

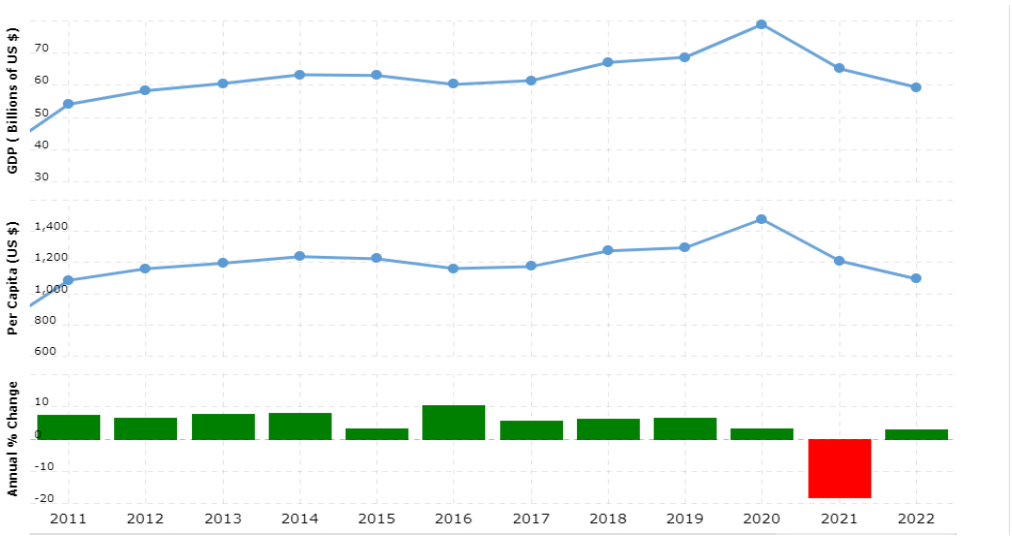
Table (4.3) GDP, Per Capita GDP and GDP Growth Rate of Yangon Region

| Year | GDP (Kyats million) | Per Capita GDP (Kyats) | Growth Rate (%) |
|---|---|---|---|
| 2011-2012 | 9,744,375.5 | 1,375,936 | 10.07% |
| 2012-2013 | 11,138,695.4 | 1,548,762 | 12.56% |
| 2013-2014 | 12,840,936.4 | 1,759,032 | 13.58 % |
| 2014-2015 | 14,408,745.0 | 1,939,005 | 10.23 % |
| 2015-2016 | 16,505,240.9 | 2,173,172 | 12.07 % |
| 2016-2017 | 18,952,142.1 | 2,441,028 | 12.32 % |
| 2017-2018 | 22,324,128.7 | 2,813,020 | 15.24 % |
| 2015-2016 | 17,127,518.8 | 2,230,436 | -20.7 % |
| 2016-2017 | 19,586,494.7 | 2,495,095 | 14.7 % |
| 2017-2018 | 22,966,401.5 | 2,861,857 | 13.3 % |
| 2018-2019 | 26,593,391.8 | 3,241,515 | 7.0 % |
| 2019-2020 | 29,090,591.0 | 3,468,947 | -7.4 % |
| 2020-2021 | 27,527,694.5 | 3,211,725 | -32.7 % |
| 2021-2022 | 18,936,369.6 | 2,161,933 | -45.4 % |

Source: Department of Population

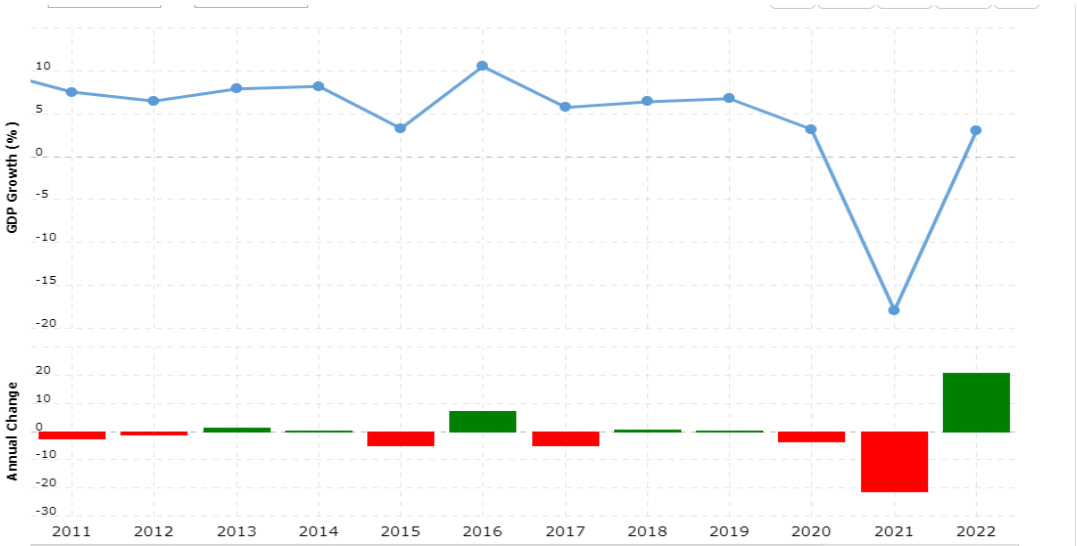
As can be seen in Table (4.3) GDP, Per Capita GDP and GDP Growth Rate of Yangon Region. The GDP of Yangon Region is increased from 2011-12 to 2019-2020. Similarly, Per Capita GDP are also increased in those years. However, the growth rate in decreased as -7.4% in 2019-2020, -32.7% in 2020-2021 and -45.4% in 2021-2022 according to growth rage. Regarding GDP growth rate, there were negative in growth rate from 2019-2020 to 2021-2022. It was obvious that the year of 2020 and 2021 were the period of Covid-19 pandemic. For that reason, per capital GDP are negative. For instance, import export trade, tourism industry and production of industry were stopped in this Covid-19 period and productions were also declined in post Covid-19 period.

Figure (4. 3) GDP, Per capita and annual change of Yangon (2011-2022)




Source: World Bank

Figure (4.4) GDP growth rate of Yangon (2011-2022)




Source: World Bank

### 4.2.3 Value of Production, Service and Export Value of Yangon Region (2011-2022)

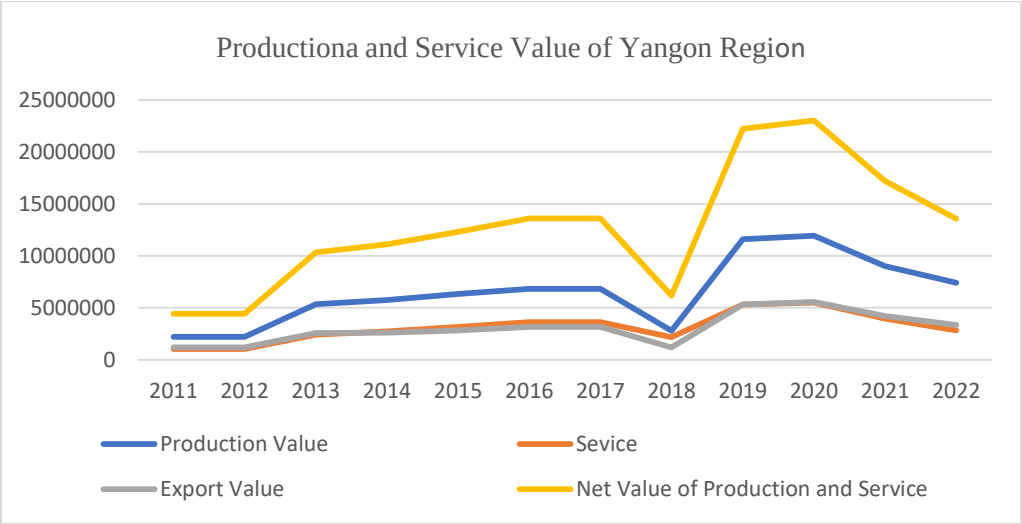
With the rapid improvement of productivity and the continuous optimization of industrial structure, the Yangon city undergone a trend of economic structure transformation from “industrial” to “service-oriented”, mainly due to the outstanding contribution that the producer service industry has made to economic growth. Running through almost all the intermediate processes of production, producer services are conductive to promoting sector transactions, lowering costs, and deepening professional division of production on industrial chains, and therefore accelerating the upgrade of value chains. Following is the value of production, service and export of Yangon Region from 2011 to 2022.

Table (4.4) Production, Service and Export Value of Yangon Region

| Sr No. | Year | Production Value (Kyats million) | Service (Kyats million) | Export Value (Kyats million) | Net Value of Production and Service |
|---|---|---|---|---|---|
| 1 | 2011 | 2207997.0 | 1030482.2 | 1189839.8 | 4428319.0 |
| 2 | 2013 | 5353723.5 | 2425029.0 | 2570294.2 | 10349047.0 |
| 3 | 2014 | 5758277.9 | 2738399.5 | 2619952.9 | 11116630.3 |
| 4 | 2015 | 6337648.6 | 3160142.1 | 2831037.9 | 12328828.6 |
| 5 | 2016 | 6843280.9 | 3620616.4 | 3153179.5 | 13617076.8 |
| 6 | 2017 | 7282373.0 | 4107883.2 | 3377715.1 | 14767971.3 |
| 7 | 2018 | 2805657.7 | 2183483.1 | 1204421.2 | 6193562.0 |
| 8 | 2019 | 11595965.2 | 5313505.6 | 5314314.2 | 22223785.0 |
| 9 | 2020 | 11945485.1 | 5519976.2 | 5562540.5 | 23028001.8 |
| 10 | 2021 | 9025011.2 | 3971664.4 | 4201640.0 | 17198315.6 |
| 11 | 2022 | 7403777.6 | 2835435.9 | 3350867.8 | 13590081.3 |

Source: General Administration Department

Figure (4.5) Production, service and export value of Yangon Region (2011-2022)




Source: General Administration Department

In terms of production, the highest production value was occurred in 2020, however it was declined in 2022. Regarding value of service in Yangon Region, it was declined in 2018 and turn up again in 2019 and 2020, but it was declined in 2021 and 2022. In term of export value, it was increased in 2019 and 2020, but it was declined in 2022.

### 4.2.4 Export and Import

Major export commodities in 2014 were “Miscellaneous manufactured articles” (42% of total export) followed by “Mineral products” (mostly natural gas, 31%), “Vegetable products” (10%), and “Textiles and textile articles” (8%). The most notable changes in export are the facts that a share of “mineral products” fell by 7 points from its share of 38% in 2011, while a share of “Miscellaneous manufactured articles” jumped up by 20 points from its share of 22% in 2011. These changes reflect the fact that the economy of Myanmar is becoming more diverse in recent years. Major import commodities in 2014 were “Mineral products” (mostly refined mineral oil, 17% of total import), followed by “Machinery and mechanical appliances; electrical equipment” (16%), “Miscellaneous manufactured articles.” (16%), “Vehicles, aircraft, vessels and associated transport equipment” (12%) and “Base metals and products” (10%). Yangon is a center of export and import of the country, because of the presence of Yangon Port.

### 4.2.5 Foreign Direct Investment

Inflows of Foreign Direct Investments (FDI) dramatically increased after 2009. Total amount of FDIs in the period of 2010-2014 was 38.2 billion USD, 4.3 times as much as the total in 2000-2009. By sector, the resource sectors composed of the oil and gas, power and mining sectors had been dominant until 2011 that made up a vast majority, 93% of a total permitted investment amounts by the existing enterprises in 2011. Starting from 2012, FDIs started to flow into more diverse sectors other than resource sectors. In total of 2012-2014, share of FDIs to "Manufacturing" sector jumped up to 27% from barely visible 0.8% in total of the previous period of 2000-2011, while the resources sector's share became 29% in 2012-2014, still very large but not as prominent as it was.

It should be noted that foreign investment in the non-resource sectors would provide large benefits to Myanmar's economy through creating employment opportunities, transferring the industrial technologies, enhancing the convenience of the nation, obtaining foreign currency and so forth. Therefore, it is crucial to encourage expansion of foreign investment in the non-resource sectors. In Greater Yangon, growth in foreign investment is expected to the thermal power station, manufacturing, construction, transport, telecommunications, hotel, tourism, real estate and industrial park. It is expected that the new Special Economic Zone (SEZ) law, (January 2014), amendments of Investment Law (December 2015), and implementation of Thilawa SEZ development project farther encourage inflows and diversification of FDIs to Myanmar.

### 4.2.6 Tourism sector of Yangon City

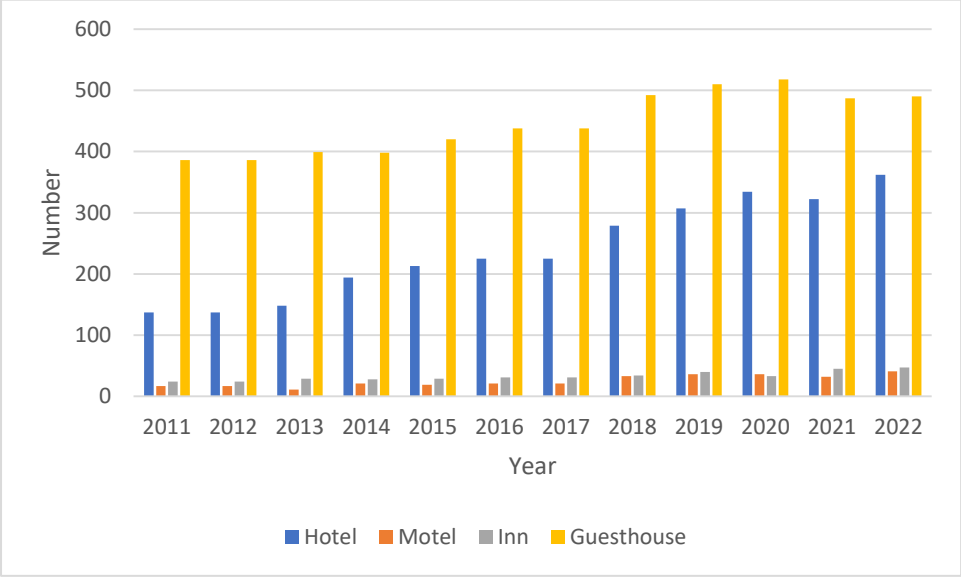
Urban tourism is considered as one of the most important factors in the economic, social and financial development of the city. Each city has a special role in terms of its home and its places of deployment. This characterizes the kind of relationship that the city has with its surroundings. This activity is tangible at the three levels: the role that the city can play on a local, national and international scale. The main advantages of the tourism industry for an area or a country are economic. Travel provides opportunities to create jobs and increase income at a local, municipal, national and even international level in Yangon.

Table (4. 5) Number of Hotel, Motel, Inn and Guesthouse in Yangon Region

| Sr No. | Year | Hotel | Motel | Inn | Guesthouse |
|---|---|---|---|---|---|
| 1 | 2011 | 137 | 17 | 24 | 386 |
| 2 | 2013 | 148 | 11 | 29 | 399 |
| 3 | 2014 | 194 | 21 | 28 | 398 |
| 4 | 2015 | 213 | 19 | 29 | 420 |
| 5 | 2016 | 225 | 21 | 31 | 438 |
| 6 | 2017 | 268 | 31 | 34 | 475 |
| 7 | 2018 | 279 | 33 | 34 | 492 |
| 8 | 2019 | 307 | 36 | 40 | 510 |
| 9 | 2020 | 334 | 36 | 33 | 518 |
| 10 | 2021 | 322 | 32 | 45 | 487 |
| 11 | 2022 | 362 | 41 | 47 | 490 |

Source: General Administrative Department

Figure (4. 6) Number of Hotel, Motel, Inn and Guesthouse in Yangon Region




Source: General Administration Department

In terms of hotels and tourism, there are 322 hotels with 10,576 rooms, while the western district has 164 hotels and the most with 10,576 rooms. Therefore, it is 53.68 percent of the total hotel rooms in Yangon, which is more than half. 32 motels, 45 inns

and 487 guesthouses are also open in 2021, providing a lot of support to the hotel and tourism industry of Yangon Region.

### 4.2.7 Market

In Yangon City, there are about 212 markets of varying sizes that are supervised by YCDC. In addition, there are a lot of traditional markets in the neighboring townships of the Yangon supervised by the Ministry of Border Affairs. A lot of retail shops gather within these traditional markets to sell meat, fish, vegetables, dried foods, flowers, pet food, household goods, clothing, etc. They contribute to the lives of residents visiting these traditional markets.

The number of business establishments in the modern commerce sector has greatly increased in recent years. According to the BES which was done in 2013, about 70% of business establishments in the modern commercial sector were founded after 2000 and about 40% were founded after 2010. In addition, most of these companies have business expansion plans. Traffic congestion may obstruct customer's access to the modern establishments. Frequent power blackouts increase fuel consumption costs for standby generators.

Table (4.6 ) Number of Market in Yangon Region

| Sr No. | Year | No. of Market (including fish market, vegetable market, general market) |
|---|---|---|
| 1 | 2011 | 153 |
| 2 | 2013 | 154 |
| 3 | 2014 | 160 |
| 4 | 2015 | 160 |
| 5 | 2016 | 164 |
| 6 | 2017 | 181 |
| 7 | 2018 | 164 |
| 8 | 2019 | 195 |
| 9 | 2020 | 183 |
| 10 | 2021 | 205 |
| 11 | 2022 | 212 |

Source: General Administrative Department

Market can be seen as a market place, a place for interactions, exchange of goods and service, sales and production. Markets have always played a key role in forming cites for urban development. In terms of market in Yangon division, there are 153 market in 2011. It is gradually increased yearly from 2011 to 2022. Altogether the number of markets are increased up to 212 in 2022.

## 4.3 Infrastructural Development of Yangon City

After transition to civilian rule, rapid urbanization occurs in Yangon. Although majority of newly urban development projects or urban redevelopment projects are handled by private sectors, the Ministry of Construction (MOC) has implemented 2 urban development projects at 50th street and Link Road by 2016 and planning to conduct the other project at Lanthit Township. These projects are redevelopment projects of decrepit existing apartments, and main purpose is provision of more housing units with stable infrastructure. MOC still owns several potential sites in Yangon, and implementation of redevelopment projects for the sites are expected.

### 4.3.1 Road Construction

Road construction encourages development in urban centers and rural areas of any society. Construction of good reliable road network and pedestrian walkways provides the general public, access to economic activities. Businesses always locate wherever a road is constructed because the road is the means that makes it possible for people to have access to the business activities. Road network brings positive development in urban or rural area.

Table (4.7) Construction of Road in Yangon Region (2013-2022)

| Sr No. | Year | Townships Roads (Mile) | | Townships Connection Roads ( Mile) | | Total Road Mile |
|---|---|---|---|---|---|---|
| | | Road | Mile | Road | Mile | |
| 1 | 2013 | 81 | 277.29 | 148 | 913.3 | 1190.59 |
| 2 | 2014 | 86 | 578.09 | 174 | 964.1 | 1542.19 |
| 3 | 2015 | 88 | 580.81 | 177 | 990.06 | 1570.87 |
| 4 | 2016 | 92 | 624.71 | 179 | 1037.4 | 1662.11 |
| 5 | 2017 | 104 | 723.25 | 181 | 1043.5 | 1766.25 |
| 6 | 2018 | 110 | 749.5 | 181 | 1058.6 | 1808.1 |
| 7 | 2019 | 113 | 778.53 | 182 | 1063 | 1841.53 |
| 8 | 2020 | 116 | 798.25 | 189 | 1095.25 | 1893.5 |
| 9 | 2021 | 117 | 904.06 | 193 | 1218.3 | 2122.36 |
| 10 | 2022 | 123 | 968.6 | 196 | 1328.6 | 2297.2 |

Source: General Administrative Department

In terms of road construction in Yangon Region, the most number of 2297.2 miles were constructed in 2022, the second longest of 2122.36 miles in 2021 and the third longest road construction of 798.28 miles in 2018. Construction of roads, whether new or upgrading of existing ones, is presumed to have a range of impacts on the population, urban form, economic status and environment. The impacts are positive depending on the situated social, spatial, economic and environmental context.

In terms of transportation and road communication, the southern district and the northern district each have an airport. Of the 2,232.2 miles of waterways, 56.62% are located in the Northern District, 42.61% are located in the Southern District, and 0.55% and 0.22% are located in the Eastern District and Western District, respectively. There are 241 bus stations and a total of 8083 vehicles. The eastern district has the highest number of vehicles, 36.13%. Northern District has 30.68%, Southern District has 22.17% and Western District has 11.02%. Of the 277.29 miles of roads, 64.38% are located in the northern district, 20.12% are located in the eastern district, 12.12% are located in the southern district, and 3.38% are located in the western district, respectively.

In addition, bridges are a critical component of a nation’s infrastructure, making it possible to ship raw materials and finished goods to factories, warehouses, suppliers,

distributors, stores, and end-consumers. Bridges also facilitate travel so consumers can purchase goods and services in their own communities and beyond.

Table (4. 8) Bridge in Yangon Region

| Sr No. | Year | No. of Bridge (over 180 feet) | No. of Bridge (under 180 feet) |
|---|---|---|---|
| 1 | 2013 | 53 | 668 |
| 2 | 2014 | 71 | 715 |
| 3 | 2015 | 71 | 780 |
| 4 | 2016 | 79 | 808 |
| 5 | 2017 | 79 | 850 |
| 6 | 2018 | 84 | 904 |
| 7 | 2019 | 84 | 953 |
| 8 | 2020 | 88 | 984 |
| 9 | 2021 | 90 | 1035 |
| 10 | 2022 | 98 | 1082 |

Source: General Administrative Department

During 2013 and 2022, 1082 bridges (under 180 feet) and 98 bridges (over 180 feet) are constructed in Yangon Region. The highest number of bridge construction is in the year of 2022 as 98 for over 180 feet bridge and under 180 feet bridge in 2022 as 1082. Advantages of these bridges, wages earned by bridge construction and maintenance workers have a positive economic impact when used to buy things at local businesses. An investment in wages, and the related consumer spending that results from it, is proven to pay off many times over. Bridges increase cash flow when they join two places that complement each other economically. It can have a powerful impact when an area that has a large money supply is connected to one that has goods or services to sell or people who need work. The same is true when the community in Yangon Region that has raw materials gains easy access to another that has factories able to convert them into salable goods.

### 4.3.2 Banking

Among the different sectors of economy, banking is in the tertiary sector which provides services to the population and to businesses. Banking is very important and active in the economic development of a country. If in a country, the banking system is effective, efficient and disciplined it brings about a rapid growth in the economic sector which lead the urban development of the country.

Table (4. 9) List of Bank in Yangon Region

| Sr No. | Year | Government Owned | Private Owned | Total |
|---|---|---|---|---|
| 1 | 2011 | 32 | 68 | 100 |
| 2 | 2013 | 40 | 101 | 141 |
| 3 | 2014 | 43 | 127 | 170 |
| 4 | 2015 | 41 | 180 | 221 |
| 5 | 2016 | 43 | 214 | 257 |
| 6 | 2017 | 55 | 317 | 372 |
| 7 | 2018 | 50 | 449 | 499 |
| 8 | 2019 | 46 | 470 | 516 |
| 9 | 2020 | 46 | 477 | 523 |
| 10 | 2021 | 47 | 484 | 559 |
| 11 | 2022 | 47 | 580 | 702 |

Source: General Administration Department

During 2011 and 2022, there are total number of banks are 702 in Yangon City. These government owned and private owned banks play an important role in achieving balanced in different regions of the country. They help in transferring surplus capital from develop regions to the less than developing regions. The traders, industrialists of less developed regions are able to get adequate capital for meeting their business needs. This, in turn, increases investment, trade and production in the economy which proved the urban development of Yangon Region.

### 4.3.3 Electricity

The electricity system is managed by Ministry of Electricity and Energy (MOEE) which has responsibility, such as planning, power generation, and transmission/ distribution. Yangon Electricity Supply Corporation (YESC) is in charge of electricity distribution in Yangon area. Tiered charge system, divided into for residential and for commercial, is applied for electricity tariff in Myanmar. Currently, there is no official electricity manufacturing power and one of the reasons is considered as non-standardized organization system. Under the circumstances, JICA is executing the assistance project which will continue up until early 2019 for formulating electricity manufacturing power. MOEE is expected to familiarize itself with technical knowledge and skills required for the formulation/update of the manufacturing power through this project. Additionally, it is considered that technical level, such as operation and maintenance of power station and transmission/distribution should also be improved.

Myanmar has four types of power station, namely hydropower (2,801 MW), gas turbine power (1,714 MW), combined cycle and thermal power (498 MW), and coal-fired power (120 MW). The total installed capacity reaches 5,133 MW. Additionally, incineration plant from waste has started operation in Shwe Pyi Thar Township with capacity of 700 kW as alternative energy source.

Actual maximum electricity supply in 2016 is only 2,554 MW though total installed capacity is 5,133 MW. One of the main reasons is that the losses on transmission/ distribution lines, about 25% consisting of 7% from transmission and 18% from distribution. Additionally, the electricity demand in 2016 and 2030 is estimated at least 2,800 MW and 9,100 MW respectively according to the Data Collection Survey on Capacity Development of Power Sector Development Planning (2015). Currently, the generation does not meet the demand by about 300 MW and the shortage will increase year by year. Under the circumstances, additional power station's development and rehabilitation/upgrade of existing power stations are being executed and planned. Moreover, MOEE has procured 600 MW rental based power generation for next five years. Regarding the distribution losses, the improvement of distribution lines and substations are being executed and planning by YESC. However, development plan of ten substations in Dagon South and South Okkalapa is facing with the difficulties in terms of time and land acquisition.

Table (4. 10) Electricity Production and Consumption from 2013 to 2022

| Sr No. | Year | Electricity Requirement (KW) | Electricity Production ( KW) | Electricity Consumption (KW) |
|---|---|---|---|---|
| 1 | 2013 | 12939681.72 | 117705333.00 | 1062601.32 |
| 2 | 2014 | 89386048.05 | 75984096.05 | 75207112.05 |
| 3 | 2015 | 17330922.00 | 1884041.00 | 1744201.00 |
| 4 | 2016 | 3865528.00 | 2435486.00 | 2368958.00 |
| 5 | 2017 | 1909328.78 | 1885393.08 | 1805065.78 |
| 6 | 2018 | 119374858.79 | 119094576.19 | 117833217.19 |
| 7 | 2019 | 42457637.34 | 41928798.34 | 40417315.14 |
| 8 | 2020 | 2111040.63 | 144992639.97 | 142881599.34 |
| 9 | 2021 | 5780143.00 | 233371704.04 | 227591561.04 |
| 10 | 2022 | 5579528.00 | 264960206.00 | 259380678.00 |

Source: General Administration Department

Electricity production data reached the lowest as 1884041 KW in 2015. Electricity production in Yangon Region reached highest over 264 million KW in 2022. There are many new and extended projects in Yangon. The electricity requirement is presented since 2011. The electricity demand is highest over 119 million KW in 2018. The Electricity consumption is distinctly high and electricity demand is still increases, thus preparations have to be made to meet the demand for electricity.

The electricity consumption is one of the most important energy sources to develop the living standard, urbanization and economic development for a country. The reason of higher demand of electricity is that urban development such as building many apartments which lived a number of household, the modern living standard of Yangon City and due to the increase in business use, household used in electricity consumption.

As a key infrastructure component, electricity is vital to social and economic development. Its support of wide-ranging activities and services improves quality of life, increases labor productivity, and encourages entrepreneurial activity. Its stable supply of power allows households to improve living conditions, helping to meet heating, lighting, and cooking needs across income levels. And it is a key input in economic production, making goods and services across all economic sectors possible. It is also vital to basic social services such as education, health care, clean water supply, and sanitation. As such, access to affordable electricity can help developing countries meet the Millennium Development Goals.

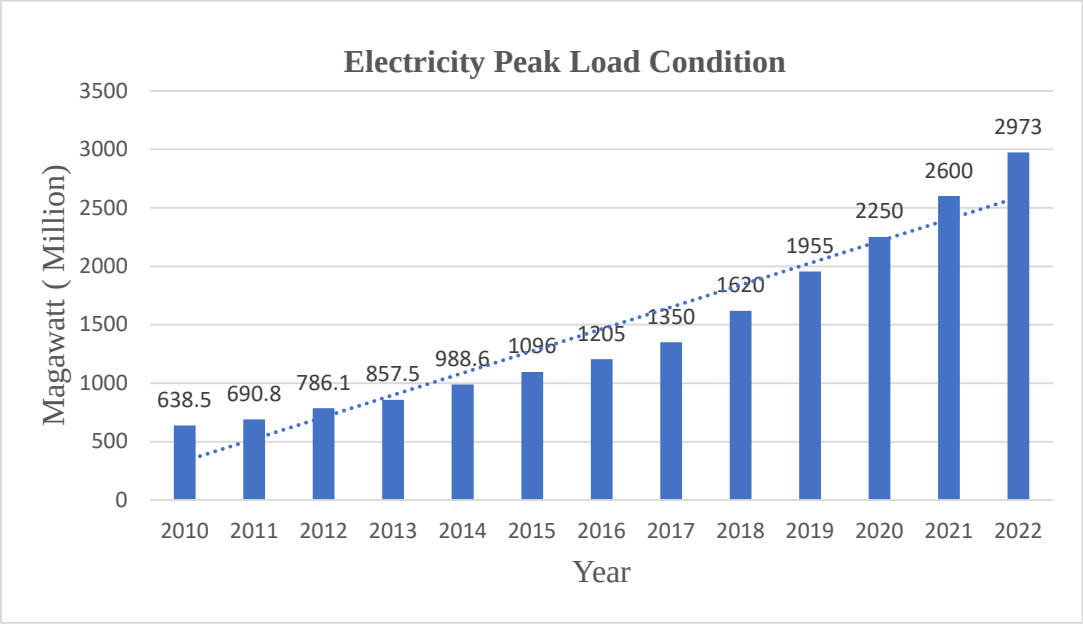
Table (4.11) List of District of electrified households in Yangon Region (2022)

| Sr No. | District | Household | Electrified Household | Un-electrified Households | Electrified Household % |
|---|---|---|---|---|---|
| 1 | Eastern | 468,607 | 416,342 | 52,265 | 88.85% |
| 2 | Western | 179,182 | 179,182 | - | 100% |
| 3 | Southern | 341,770 | 128,361 | 213,409 | 37.56% |
| 4 | Northern | 436,077 | 202,095 | 233,982 | 46.34% |
| **Total** | | **1,425,636** | **925,980** | **499,656** | **64.95%** |

Source: From Ministry of Electrical Power website https://www.moep.gov.mm

Yangon's consumption of electricity is expected to grow, the government should prioritize its stable, efficient, and affordable supply. While the country has abundant energy resources, including renewable alternatives, hydropower remains the main source of fuel for electricity requirements, followed by natural gas and coal.

Figure (4. 7) Annual increased Electricity Peak Load Condition in Yangon Region (2011-2022)




Source: From Ministry of Electrical Power website https://www.moep.gov.mm

Peak load or demand has been rising annually from 20101 to 2022. After 2015, peak load reached over 1000 MW; 1096 MW in 2015, 1205 MW in 2016, and 1350 in 2017. In 2018, peak load increased over 1500 MW' 1650 MW in 2018, 1955 MW in 2019.

It is still highest load reached over 2000 MW; 2250 MW in 2020, 2600 MW in 2021 and 2600 MW in 2022. The demand for power exceeded the available capacity of the system.

Table (4.12) Electricity Distribution with 230 KV Transmission Line in Yangon

| Sr. | Name of Transmission Line | Conductor Size | Distance (Mile) | Number of Tower |
|---|---|---|---|---|
| 1 | 230 kV Tharyargone - Hlawgar | 795 MCM | 94.01 | 477 |
| 2 | 230 kV Hlawgar - Tharkayta | 795 MCM | 13.85 | 60 |
| 3 | 230 kV Hlaingtharyar - Kanaung | 605 MCM | 5.9 | 36 |
| 4 | 230 kV Kanaung - BayintNaung | 605 MCM | 1.3 | 8 |
| 5 | 230 kV Myaungtagar - Hlaingtharyar | 605 MCM | 22.40 | 104 |
| 6 | 230 kV Kamarnat - Thanlyn | 605 MCM | 61.00 | 272 |
| 7 | 230 kV Kamarnat – Thanlyn (Thilawa Substation In/Out) | 605 MCM | 8.4 | 89 |
| 8 | 230 kV Kamarnat - Myaungtagar | 605 MCM | 39.97 | 186 |
| 9 | 230 kV Thanlyn - Tharkayta | 605 MCM | 7.70 | 37 |
| 10 | 230 kV Thanlyn – Tharkayta Dagon (East) Substation In/Out | 605 MCM | 12.40 | 103 |
| 11 | 230 kV Hlaingtharyar - Ahlone | 605 MCM | 14.00 | 66 |
| 12 | 230 kV Myaungtagar - Wartayar | 605 MCM | 13.62 | 69 |
| 13 | 230 kV Ywama - Hlaingtharyar | 605 MCM | 7.27 | 49 |

Source: From Ministry of Electrical Power website https://www.moep.gov.mm

Table (4. 13) 230 kV Primary Substation for Electricity Distribution for Yangon Region

| No | Substation | Voltage ratio(kV) | Capacity (MVA) | Total Capacity (MVA) | Location |
|---|---|---|---|---|---|
| 1 | BayintNaung | 230/66/11 | 125 | 250 | MaYanGone Township |
| | | 230/66/11 | 125 | | |
| 2 | Myaungtagar | 230/33/11 | 60 | 460 | Mhawbe Township, Myaungtagarvillage |
| | | 230/33/11 | 100 | | |
| | | 230/33/11 | 150 | | |
| | | 230/33/11 | 150 | | |
| 3 | Hlaingtharyar | 230/33/11 | 100 | 355 | Hlaingtharyar Township |
| | | 230/33/11 | 100 | | |
| | | 230/33/11 | 155 | | |
| 4 | Hlawgar | 230/33/11 | 100 | 475 | Mingalardone Township |
| | | 230/33/11 | 100 | | |
| | | 230/33/11 | 150 | | |
| | | 230/66/11 | 125 | | |
| 5 | Thanlyin | 230/33/11 | 100 | 200 | Thanlyn Township |
| | | 230/33/11 | 100 | | |
| 6 | Wartayar | 230/33/11 | 100 | 200 | Shwepyithar Township |
| | | 230/33/11 | 100 | | |
| 7 | East Dagon | 230/66/11 | 125 | 250 | Dagon Myothit (East) |
| | | 230/66/11 | 125 | | |
| 8 | Kanaung | 230/33/11 | 100 | 255 | Hlaingtharyar Township |
| | | 230/33/11 | 155 | | |
| 9 | Ahlone | 230/66/11 | 100 | 505 | Ahlone Township |
| | | 230/66/11 | 100 | | |
| | | 230/66/11 | 155 | | |
| | | 230/33/11 | 150 | | |
| 10 | Ayarwon | 230/66/11 | 100 | 100 | Dagon Seik Kan Township, Eastern District |

| | | |
|---|---|---|
| Total capacity (MVA) | 3050 | |

Source: From Ministry of Electrical Power website https://www.moep.gov.mm

### 4.3.4 Water Supply

Yangon's water supply began in 1842 using 30 wells. In 1879, the supply of water from the Kandawgyi Lake began. In 1884, Yangon began to supply water from Inyah Lake. In 1904, water distribution was carried out from the Hlawkar reservoir. In 1940, water distribution works were carried out from Gyo Pyu Reservoir. In 1992, water supply operations were carried out from Phu Gyi reservoir. In 2005, water supply works were carried out from the Nga Moe Yeik Water Treatment Plant (Phase 1). In 2014, water supply works were carried out from Nga Moe Yeik Water Treatment Plant (second stage). Following table shows the water supply amount of daily for Yangon by seven water reservoirs and water treatment plants in Yangon Region. By 2017, Yangon City had significant industrial activities, which placed further strain on the available water supply from the YCDC. As the YCDC is unable to fully serve industrial water customers, many factories use their own groundwater supply, which depletes groundwater resources, causing subsidence. In areas where the YCDC's water service is inadequate or absent, household consumers also rely on groundwater from aquifers.

Yangon City is situated on a delta, where the exhaustion of groundwater is compounded by sea level rise. Saltwater intrusion in tube wells in areas close to rivers and the sea is widespread, while the city's geology, primarily meadow alluvium, is susceptible to sinking. This increases the risk of subsidence in some densely populated areas and inevitably exposes the urban poor, who live in dilapidated housing on marginal, flood-prone land, to the greatest risk. Yangon City's dependence on groundwater must be significantly reduced to avoid outright loss of dwindling groundwater supplies.

Bulk water from the Ngamoeyeik reservoir to Yangon City's Nyaungnhapin WTP is currently conveyed through the 36.3 km Ngamoeyeik canal. The Ministry of Agriculture, Livestock and Irrigation (MOALI) owns the initial 25.4 km of the canal and shares this section with the YCDC, and the YCDC owns the remaining 10.9 km. MOALI provides water for irrigated agriculture for only 3 months of the year and performs maintenance on the canal outside of this 3-month period. MOALI may also perform emergency maintenance and repair works on the canal. Furthermore, as an open structure, the canal requires frequent maintenance which can be accommodated only during extended periods with no water service delivery. However, as the YCDC requires water 24

hours per day, 7 days a week, all year round, MOALI cannot suspend delivery of water to the YCDC. As a result, necessary refurbishments and repairs are deferred, or attempts are made to make repairs while the canal is in operation. The YCDC's dependency on MOALI for water transmission, while unavoidable in the short-term due to the lack of any alternatives, prevents it from developing a sustainable, longterm solution for ensuring reliable water supply to Yangon City.

The YCDC supplies about 932 MLD of water to its customers, 90% of which is drawn from surface water sources. About 614 MLD of the total supply is from the Ngamoeyeik reservoir, supplied through the Ngamoeyeik canal to the Nyaungnhapin WTP.7 In all, the Ngamoeyeik reservoir supplies 1,304 MLD for irrigation purposes and 614 MLD for drinking water purposes, representing a combined flow of 1,918 MLD after accounting for evaporation and seepage losses in the open and unlined canal.

Table (4.14) Water supply of reservoirs in Yangon Region

| Sr No. | Water Reserves | Gallon ( Million) |
|---|---|---|
| 1 | Hlawkar reservoir | 14 |
| 2 | Gyo pyu Reservoir | 27 |
| 3 | Phyugyi Reservoir | 54 |
| 4 | Ngamoeyeik Reservoir | 90 |
| 5 | Ngamoeyeik Renewal of Plant Station | 45 |
| 6 | Yangon-Pauk ( Dala Township) Water supply station | 1 |
| 7 | Hlaing River Hlawkar (Water Replenishment Project) | 60 |

Source: Yangon City Development Committee

A total of 232 million gallons of water are being distributed daily for Yangon Region. In the past, YCDC provided 205 million gallons of water daily to Yangon residents through water sources such as Ngamoeyeik, Phugyi, Gyophyu, and Hlawga reservoirs. With the completion of the Lagunpyin and Hlaing river-Hlawga water supply projects, the water supply increased from 210 million gallons in May 2021 to 232 million gallons in December 2022. Water from the above sources is being pumped from the Yegu water pumping plant in Mayangon Township to all townships in Yangon. Bala

creek, Nyaunghnapin water treatment plant and Aungdagun Water treatment plant are also providing daily water supply to Yangon's growing population.

In addition, to be able to supply sufficient water to the residents of Yangon City, YCDC is providing water supply with surface water supply system and underground water supply system. There are more than 570 artesian wells and about 10 million gallons of water is being supplied daily in Yangon Region. YCDC is supplying water from artesian wells to the places where there is weak of supply by pipeline water in Yangon Region. There are 4 rain water filled wells in Twantay Township for the drinking water supply of Dala Township. In order to supply drinking water to Hlaingtharyar Township, there are 3 rain water filled wells in ThaePhyu village in Htantapin Township.

As the number of artesian wells increase, the seep of salty water can increase and it brings about negative impact on the fresh water resources. Therefore, YCDC is used to collect and refill rain water to maintain the water resources.

The water supply system is managed by the Engineering Department (Water and Sanitation) with 2,185 staffs in total as of October 2016. Currently, YCDC charges MMK 88/m3 for households and MMK 110/m3 for commercial. However, the expenditure from water supply service exceeds the revenue. For example, the revenue was MMK 9,288 million and the expenditure was MMK 62,990 million in fiscal year 2015. Low water tariff and lack of financial guidelines for accounting, budget regulation, etc are considered as major issues causing such situation.

Water supply system facilities have been developed by grant project and official development assistance loan project; however, the modernization of organization is still delayed and one of the main issues is improper financial status. The deficit has increased year by year and the revenue does not cover even operational expenditure at present. It had already been pointed out that improvement of water tariff system is desired. However, it has not been achieved so far due to insufficient understanding of financial management and improper organization system. Under the circumstances, JICA technical assistance project to improve management system is ongoing.

Six projects of water supply in Yangon Region in total have been completed in 2013. These are Renewal of Pump Station of Nyaunghnapin Water Treatment Plant WTP, Renewal of Distribution Pipeline in Yankin Township, Construction of Kokkowa WTP and transfer/distribution pipeline, Construction of Lagunbyin WTP and transfer/distribution pipeline, Renewal of Distribution Pipe Network of Zone and

Installation of Disinfection Facility such as Gyobyu WTP, Nyauhnapin WTP and Hlawaga pumping station.

Main facilities of water supply system owned by YCDC are 1) reservoirs and tube wells as water resources, 2) WTPs, 3) pumping stations, 4) piping systems, etc. There are three kinds of water resources, namely reservoir, river and tube well. The Engineering Department (Water and Sanitation) has five water resources, namely Gyobyu (27 million gallons per day) Phugyi (54 MGD), Hlawga (14 MGD), Ngamoeyeik (90 MGD), and tube wells (8MGD) as of 2016. Additionally, Lagunbyin WTP (40 MGD) funded by YCDC is being developed (10 out of 40 MGD will be utilized for Thilawa SEZ). The feasibility study for Kokkowa Phase 1 (60 MGD) has been completed, and it has already been pledged and will be commenced as ODA loan project.

There are six WTPs, namely Gyobyu, Nyaunghnapin, Yangonpauk, Dagon Myothit (South) No1, Dagon Myothit (South) No.2 and Thaephyu. Currently, water from Hlawga and Phugyi reservoirs is distributed without treatment. However, such situation will be solved by installation of chlorination facilities under ongoing ODA loan project.

YCDC water supply service ratio is 33% of total population in Greater Yangon as of 2014. To expand the coverage area, transmission/distribution pipes related to Lagunbyin WTP is to be installed under ODA loan project. Installation of transmission pipes and installation/rehabilitation of distribution pipes to distribute the water from Kokkowa Phase 1 WTP will be executed as ODA loan project and YCDC budget project.

Non-Revenue Water of YCDC water supply system in 2013 is quite high, estimated at 66%. To solve this situation, an NRW reduction projects for Mayangone Township (by Tokyo Metropolitan Government, TSS and Toyo Engineering), Insein Township and South Okkalapa Township (by Mitsubishi Corporation and Manila Water) are ongoing, and for Tarmwe Township funded by Agence Française de Development is under the planning stage.

YCDC water supply system mentioned above only covers Yangon City at present. However, part of around six townships, namely Kyauktan, Thanlyin, Hlegu, Hmawbi, Htantabin and Twantay Townships, are to be incorporated into YCDC water supply service area after 2025 sequentially. Currently, residents in these townships basically take water from private tube well, pond, rainwater, etc. There are only public water supply systems in Kyauktan and Thanlyin Townships, which are not operated by YCDC.

Yangon obtains its water from sources such as rivers and lakes. Most of water bodies are located outside the Yangon City boundary. Water is also tapped from the

ground for the daily needs. At present only 46 percent of Yangon's population of 4.3 million is serviced with piped water supply. There is still a large proportion of the city's population being denied of clean water supply. In recent years, demand for water supply is based on two sources; they are surface water and ground water resources. Daily demand for Yangon City is about 439,440 m3 /day and supply from three reservoirs, their daily capacity is just 393, 550 m3 /day. The rest of 45,890 m3 /day was supplied from the tube wells. Rapidly increase of population and city area, more industrial zones, residents, commercial activities and emerging of the new satellite tows call for more water demand for the future. Estimation of demand for Yangon City is about 61, 3642 m3 per day for the future. YCDC plans a long term and short term projects for regular water supply. After these projects will be completed, 78% of whole city's water demand will be covered and amount of consumption will be 182 lpcd (40 gal per capital per day).

The YCDC is responsible for the delivery of water services in Yangon City. Prior to 2018, the YCDC's Engineering Department (Water and Sanitation) (EDWS) undertook both the water supply and sanitation functions. Under the Yangon City Municipal Law enacted in June 2018, the newly created Water Resources and Water Supply Authority (WRWSA) has been designated to be responsible for the YCDC's water supply and resources. The transfer of water supply functions from the EDWS to the WRWSA has been completed. However, YCDC's capacity needs to be enhanced because the water sector challenges facing Yangon City require the YCDC to manage water resources and services as efficiently and prudently as possible. Building the capacity of the WRWSA and managing new institutional arrangements is an ongoing process and is a precondition for the delivery of improved and expanded water services.

Regarding Yangon Region's industrial capacity, there are a total of 41 industrial zones, 27 in the Northern District, 11 in the Eastern District, and 3 in the Southern District respectively. Out of a total of 836 factories, there are 379 in the southern district, 219 in the eastern and southern districts respectively, and the lowest in the western district with only 19. Out of a total of 836 workshops, there are 2,764 workshops in the eastern district, which is 86.40%. The southern district has 330, the western district has 63, and the northern district has only 42.

### 4.4 Development Potentials of Yangon Region

In estimating the development potential of Yangon and Yangon Region, we must consider the projects that have been approved and the potential that will arise from them. The approved projects in Yangon and Yangon Region are as follows.

(1) Special Economic Zone in Thilawa, Thanlyin Township

(2) International Hanthawati Airport under construction for Yangon between Yangon and Bago City

(3) The bridge that will be connected to Dala city, approved to be built in the south of Yangon

Although the above projects are not included in Yangon's municipal boundaries, the project that will greatly influence Yangon's businesses is the SEZ (Special Economic Zone) in Thilawa. A total of 6000 acres (2400 hectares) have been earmarked for the Thilawa Special Economic Zone. Even for the first phase, about 1,000 acres are expected to start operating this year (2016). It seems that 50,000 labor force for about 1000 acres is estimated according to foreign standards, and according to Burma's experience, there may be about 500 labor force per acre, and even in the first stage, the labor force may be up to about 500,000. Based on the estimates of foreign experts, the labor force for the 6,000 acres that will be developed in the future is about 3,000,000.

However, according to Myanma’s experience, if there are about 1000 officially open workforces called the Formal Sector, informal sector employment that provides support to that workforce often arises. The proportion of formal sector workforce and informal sector workforce is at least (50%) and depending on control and other factors, it can be around (100%). Based on that, foreign experts estimate that the workforce that will emerge at the final stage is 300,000, and the supporting workforce can be at least 1.500,000. Therefore, in Thilawa Special Economic Zone and its surroundings, the labor force that will increase in the next (20-30) years is around 4.5 hundred thousand - 5.5 hundred thousand, and depending on that, the population that will increase is about (1.5) million to (2) - (3) million. Based on the above factors, the population estimate in the Yangon region for the next (30) years will be from 13.4 million to 16 million. That estimate is about (10.5 million) according to Yangon's current population growth rate. It is calculated including the population growth in other townships and about (3) million people who will increase due to other economic projects.

To sum up, given the geographical position of Yangon City as a gateway linking Myanmar to the outside world, the effect of growth resulting from international trading will be received by the region within and around Yangon City. Under a more liberal economic scenario, the growth of Yangon City population is expected to be higher. In order to address and amend the strategic plan to accommodate any major changes to level of growth.

Yangon Region is one of the most important urban centres of Union of Myanmar. The city has grown rapidly in recent years (expected to become a mega city in 2026) and new suburban satellite townships have been developed by the government to accommodate the increasing population and resettle inhabitants from the congested inner CBD area. To upgrade the urban development of Yangon as a sustainable development city, there is a need to continuous improvement of city management plan for urban framework structure.

# CHAPTER V
# CONCLUSION

## 5.1 Findings

Yangon City has experienced rapid population growth during 2011 and 2022. The average growth rate of population in Yangon City between 2011 and 2022 was 2.6 % annually. For economic development of Yangon Region, according to population point, a developing areas should correspond to population forecast not to be over-scale development. Due to inflow of people from rural to urban and shortage of housing, informal settlements are spreading mainly the area along Yangon. Therefore, affordable housing for low-income people and also provision of working opportunities are required in Yangon Region.

In terms of development of economic condition, tourism sector is significant factor in Yangon Region. During 2011 and 2022, the numbers of hotel were increased up to nearly 400 which providing a lot of support to the hotel and tourism industry of Yangon Region. The number of market were increased from 153 to 212 during 2011 and 2022. In addition, the baking industry is also improved and the numbers of bank is increased up to 702 in Yangon Region.

The types of employment in Yangon Region are government staff, service, cultivation, livestock, trade domestic industry, fishery, casual and other. During 2011 to 2022, the highest number of workforce works in domestic industry and the second largest numbers was worked as government staff and third largest number of workforce worked for trade in Yangon Region.

Regarding infrastructure of Yangon Region, 1082 bridge (under 180 feet) and 98 bridges (over 180 feet) were constructed in Yangon Region. The key infrastructure for electricity distribution was carried out with 230 KV for total capacity (MVA) 3050 in Yangon Region. In terms of water supply, a total of 232 million gallons of water are being distributed daily for Yangon Region through water reserves of Hlawkar, Gyo Phu, Phyugyi, Ngamoeyeik, Ngamoeyeik Renewal of Plant Station, Yangon-Pauk Water supply station and Hlaing Reiver Hlawkar water replenishment project.

Regarding Yangon Region's industrial capacity, there are a total of 41 industrial zones, 27 in the Northern District, 11 in the Eastern District, and 3 in the Southern District respectively. Out of a total of 836 factories, there are 379 in the southern district, 219 in the eastern and southern districts respectively, and the lowest in the western district with only 19. Out of a total of 836 workshops, there are 2,764 workshops in the eastern district, which is 86.40%. The southern district has 330, the western district has 63, and the northern district has only 42.

In land use of Yangon, the net cultivated land area is 51.60% in 2022 which is more than half of the total land areas, followed by 19.29% of urbanized areas. Yangon Region consists of a total of 44 townships, where, 33 townships are covered by YCDC service area, which is Yangon City. Yangon Region has a population of approximately 7.4 million with its area of 10,170 km2, and YCDC service area has a population of approximately 5.2 million with its area of 895 km2. Applying an annual growth rate of 2.6%, the future population half a century later (year 2065) will be 27.2 million in the Yangon Region. Meaning, there will be an increase of 20 million in the population.

To manage such large city and to accommodate such large number of population properly and actively, step-wise urban development with appropriate infrastructure provision must be conducted together with governmental initiative in good relation with positive private activities and citizen’s understanding and cooperation.

Yangon’s rising population currently stands at more than eight million. It’ll soon reach ten million and housing and apartment requirement was also rising. Due to this there are housing projects that were being implemented with more projects in the pipeline. To accommodate a large number of population in the future, development of some new cities is necessary in Yangon Region. During last decade economic growth and rapid and massive changes in urban development happened in Yangon, and large-scale development simultaneously, private companies have been planning high-rise or large-scale urban and building development.

Yangon’s urbanized areas shall be surely expanded more in the future. New built-up areas shall be developed to accommodate the increasing population of around 20 million in half a century later. Yangon is expected to be an international logistics hub city with attractive and competitive urban and logistics functions where more people and companies (business) gather from surrounding areas of Yangon since Yangon is the city with the largest economy and with an international gateway to Myanmar. Yangon, home to more than 5.4 million people, is also the economic center for much of the country's

industry and services. In future, Yangon will need affordable housing for demand of average people.

During 2011 and 2022, the new suburban areas in Yangon Region are significantly develop in their urbanization. These suburban areas are Shwe Pyi Thar, Hlaing Tharyar, Dagon Myothit (North), Dagon Myothit (South), Dagon Myothit (East) and Dagon Myothit (Seikkan). As a finding, in economic infrastructure not only public sector but also private sector are also developed during 2011 and 2022. Yangon Region is rapidly increased of population and urban infrastructure such as bridge, road network during that years. In addition, regarding electricity, improvement of power supply is one of the urgent needs. In Yangon Region, which has a share of almost half of the domestic power demand, it is important to draw the appropriate strategies of power supply and transmission in the future.

In the long term, urban development in the Yangon Region such Dagon Myothit (North) fair-price housing project with more than 2,000 apartments was being implemented. The 41 industrial zones in Yangon were also running at full speed attracting many men, women, boys and girls to its factories and shops who in turn establish their own families in the city. The requirement for housing and apartments were rising yearly.

Yangon urban areas are strongly recommended to be as compact as possible, basically inside of the outer ring road, for efficient traffic and infrastructure development and operation. In this context, existing built-up areas, which have basic infrastructure and social services should be utilized and rehabilitated in the future to have a more comfortable and attractive environment. Public Private Partnership policy for housing supply has been established by the two authorized departments of Urban and Housing Development (UHD) and YCDC. Low-cost, affordable housing for households with low and moderate incomes is prioritized in this regard.

Given this context, there is a likelihood that the rate of migration will rise, and issues with slums and squatters will have a detrimental effect on sustainable development. The rapid rural-to-urban migration, inadequate planning, high unemployment, the informal economy, and displacement brought on by natural calamities and social unrest are the main causes of the increase in squatter settlers in Yangon. These are also typical in other nations. Urban regions in Yangon are not yet prepared to take in the relocated population. Public infrastructure and organized urban planning are not being implemented enough.

Moreover, the essential finding were that; the development conditions and economic factors are significantly increased during 2011 and 2022. The houses and households unit are also turn up during that period. Before 2020 in COVID 19 period, the value of production, service and export are obviously increased in Yangon Region. If Yangon is to be an important engine of Myanmar's economic growth, then the urban area plan must provide housing and infrastructure to accommodate a population that is both larger and better off. Electricity supplies are inadequate and still higher in demand between 2011 and 2022.

Having good transport connections into Yangon is essential to attract economic activity into the new satellite townships. A key task for local township officials and the regional government is to map out the secondary roads and bridges which will link up the township to these main transport arteries. Without them, the benefits of new satellite townships growth will not flow to rural areas and the supply of necessary inputs for production might not be stable. If new satellite townships are to become new spots for industrial activity the provision of quality electricity infrastructure will be essential.

Yangon must be careful to strike a balance: rapid expansion in the physical size of a city can quickly lead to sprawl, making it more expensive to move around the city. Insufficient investment into infrastructure can reduce living standards in these areas and can curtail economic activity. The capacity of the government to provide adequate services might be stretched if unplanned growth is too high. Therefore, successfully developing Yangon Region requires a coordinated effort between government agencies at all levels to plan necessary infrastructure investments and to make appropriate institutional changes.

## 5.2 Suggestions

There are interdependent changes between urbanization, economic development, and infrastructure development. A positive correlation exists between population and economic development. Planning for urban development must take a broad view in order to reflect the existing economic growth condition. The government has established distinct visions for its urban development strategies. The following visions are realistic for the near future: to fill in any housing needs that are missing, to improve substandard homes, low cost housing and hut-to-apartment housing initiatives are particularly successful ways of finding housing solutions that promote sustainable housing development for all.

The government of Myanmar and the City Development authorities tried to develop the Yangon Region. The clear evidence of this study show the conditions of development in Yangon Region during 2011 and 2022. The strong relationship between urban population growth and economic development level indicated GDP. Yangon is still likely to capture a disproportionate share of Myanmar's development for several reasons. First, Yangon remain Myanmar's commercial and financial capital city. Second, tourism is likely to grow dramatically and Yangon is the logical gateway for tourists to the country. The Shwedagon Pagoda in Yangon is the single most important tourist attraction in the country and on every tourist's must-see list. And since Yangon is Myanmar's largest city, its airport will offer the most convenient flights and connections for foreign visitors.

Finally, Yangon is the logical site for the export-oriented light manufacturing that is expected to develop with the economy's opening. Yangon's primacy in financial and commercial services and its port give it strong advantages over other Myanmar cities in attracting manufacturing. Yangon's large population means that manufacturers and other employers will find it easier to recruit workforces with the skills they need.

Yangon is almost certain to become a key engine in the nation's economic growth as Myanmar's largest city, commercial capital, most important port and tourist destination, and most logical site for export-oriented manufacturing. But how well Yangon fulfills these roles depends on how well the city is managed. Yangon's slow growth in the past had a hidden benefit in that it preserved many assets—greenery, parks and open spaces and historic buildings—that other Asian cities lost. As a result, Yangon has an opportunity to avoid becoming another sprawling, polluted and highly congested Asian megacity and grow instead into a greener and more livable city. But it will do so only if it prepares a plan before development threatens to overwhelm it. Therefor the government of Myanmar and the Yangon City Development Committee should prepare and succeed only if it is based on thoughtful and realistic analyses of issues like the location of special economic zones and ports and the provision of affordable housing and quality infrastructure. The development conditions of Yangon Region will bring both opportunities and problems to the people of Yangon.

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