The Role of Railway Transportation in Myanmar

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Abstract

This paper examines how and what extent Myanma Railway, sole provider of rail transport service in Myanmar, Provides services to its customers by using the descriptive method. The study mainly focuses on the functions of Myanma Railways during the year of 2001-2011.During the 2000s, Myanma Railways improved its infrastructure. But Myanma Railways faces the problems such as significant train dalays, train accidents, poor service quality and low safety in train operation resulted low performance. Therefore it's needed to ensure cooperation with private sector in order to increase benefits for the nation and region. The railway industry is widely characterized by chronic financial deficits, growing operation cost, inefficient pricing structures, inadequate funds for investment and deficiencies in physical infrastructure. Ministry of Rail transportation should put its efforts to enhance PPP not only for the country's benefits but also for the benefits of the region.

Key words: Myanma Railway, Transportation

1. Introduction

Transportation can be defined as the movement of people and goods from one location to another and it is performed by various modes, such as air, road, water, railway etc. Transportation has been playing a vital role in the society and it is a non separable part of any society. Transport improvements promote economic growth and social development by increasing mobility and improving access to resources and markets. In the transport industry, operations and ownership of infrastructure can be either public or private, depending on the country.

Advances in transportation has made possible changes in the way of living and the way in which societies are organized and therefore have a great influence in the development of civilizations. Transportation is responsible for the development of civilizations from very old times by meeting travel requirement of people and transport requirement of goods. In developed and developing nations, a large fraction of people travel daily for work, shopping and social reasons. But transport also consumes a lot of resources like time, fuel, materials and land and so on.

Compared to road transportation, railway transportation is extensively subsidized by the government, especially for the people with lower income. Therefore, it is an important sector for poverty eradication and equity enhancing in Myanmar. To promote socioeconomic development in poor areas, provision of transportation infrastructure should be accelerated to improve the living conditions of the poor.

Thus this paper is mainly to explore the role of Railway Transportation sector in Myanmar and to examine how and which extent Myanma Railway transportation

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provides its services to its consumers by using descriptive method and secondary data that are available from various sources such as government department, the annual statistical year books and internet sources.

2. Literature Review

Transportation is the movement of people, animals and goods from one location to another and it is performed by various modes such as Human-powered Transport, Animal-powered Transport, Pathways Transport, Air Transport, Railways Transport, and Roadways Transport, Inland water Transport, Ocean Transport, Pipelines Transport and Cable Transport. The field can be divided into infrastructure, vehicles and operations. Transport is important since it enables trade between peoples, which in turn establishes civilizations. Transport plays an important part in economic growth and globalization, but most types cause air pollution and use large amounts of land. While it is heavily subsidized by governments, good planning of transport is essential to make traffic flow.

Infrastructure is the fixed installations that allow a vehicle to operate. It consists of both a way, terminal and facilities for parking and maintenance. For rail, pipeline, road and cable transport, the entire way the vehicle travels must be built up. Air and water craft are able to avoid this, since the airway and seaway don not need to be built up. The financing of infrastructure can either be public or private. Transport is often a natural monopoly and a necessity for the public; roads, and in some countries railways and airports are funded through taxation. New infrastructure projects can involve large spending, and are often financed through debt. Many infrastructure owners therefore impose usage fees, such as toll gate on roads.

A vehicle is any non-living device that is used to move people and goods. Unlike the infrastructure, the vehicle moves along with the cargo and riders. Vehicles that do not operate on land are usually called crafts.

Private transport is only subject to the owner of the vehicle, who operates the vehicle themselves. For public transport and freight transport, operations are done through private enterprise or by government s. The infrastructure and vehicles may be owned and operated by the same company, or they may be operated by different entities. Traditionally, many countries have had a national airline and national railway.

There are two kind of function of transportation are Passenger Transport and Freight Transport. Passenger transport, or travel, is divided into public and private transport. Public is a scheduled service on fixed routes; while private are vehicles that provide ad hoc services at the riders desire. The latter offers batter flexibility. Travel may be as part of daily commuting, for business, leisure or migration. Taxis and Buses can be found on both ends of Public Transport spectrum, whereas Buses remain the cheaper mode of transport but are not flexible, and Taxis being very flexible but more expensive. With increased specialization and globalization, production is being located further away from consumption, rapidly increasing the demand for transport. While all modes of transport are used for cargo transport, there is high differentiation between the nature of the cargo transport, in which mode is chosen. Logistics refers to the entire process of transferring products from producer or consumer, including storage, transport, transshipment, warehousing, material-handling and packaging, with associated exchange of information.

2.1 The Economic Importance of Transportation

The transport sector is an important component of the economy impacting on development and the welfare of populations. When transport systems are efficient, they provide economic and social opportunities and benefits that result in positive multipliers effects such as better accessibility to markets, employment and additional investments. When transport systems are deficient in terms of capacity or reliability, they can have an economic cost such as reduced or missed opportunities. From a general standpoint the economic impacts of transportation can be direct and indirect:

- Direct impacts related to accessibility change where transport enables larger markets and enables to save time and costs.
- Indirect impacts related to the economic multiplier effects where the price of commodities, goods or services drop and/or their variety increases.

The economic importance of the transportation industry can thus be assessed from a macroeconomic and microeconomic perspective:

- At the macroeconomic level (the importance of transportation for a whole economy), transportation and the mobility it confers are linked to a level of output, employment and income within a national economy. In many developed countries, transportation accounts between 6 % and 12 % of the GDP.
- At the microeconomic level (the importance of transportation for specific parts of the economy) transportation is linked to producer, consumer and production costs. Transportation accounts on average between 10% and 15% of household expenditures.[2]

2.2 Transports as a Factor of Production

Contemporary trends have underlined that economic development has become less dependent on relations with the environment (resources) and more dependent on relations across space. Multinational firms that can benefit from transport improvements in two significant markets:

Commodity market: Improvement in the efficiency with which firms have access to raw materials and parts as well as to their respective customers. Thus, transportation expands opportunities to acquire and sell a variety of commodities necessary for industrial and manufacturing systems.

Labor market: Improvement in the access to labor and a reduction in access costs, mainly by improved commuting (local scale) or the use of lover cost labor (global scale).[3]

Transportation is an economic factor of production of goods and services, implying that relatively small changes can have substantial impacts in on costs, locations and

[2] Jean Paul Rodrigue and Theo Notteboom, (2009) Transportation and Economic Development,2nd Edition, New York.
[3] Jean Paul Rodrigue and Theo Notteboom, (2009) Transportation and Economic Development,2nd Edition, New York.

performance. An efficient transport system with modern infrastructures favors many economic changes, most of them positive. It provides market accessibility by linking producers and consumers. The major impacts of transport on economic processes can be categorized as follows: Geographic Specialization, Large scale production, Increased competition, Increased land value.

Transport also contributes to economic development through job creation and its derived economic activities. Accordingly, a large number of direct (freighters, managers, Shippers) and indirect (insurance, finance, packaging, handling, travel agencies, transit operators) employment are associated with transport. Producers and consumers take economic decisions on products, markets, costs, location, prices which are themselves based on transport services, their availability, costs and capacity.

2.3 Strategies for Transportation Infrastructure Development

Transportation infrastructures have been an item of public goods and the governments were responsible to provide them because these facilities are very costly capital construction involving a high degree of lumpiness in investment

The strategies for transportation infrastructure development, an option of "public ownership" and public operation" is the most common in all countries. Transportation infrastructures such as roads, bridges and railroads are owned by the state and provided by a government department, public enterprise or local authority. In developed countries, successful public countries run on commercial principles and give managers control over operations. They have to follow sound business practices and are subject to the same regulatory, law, accounting and compensation standards of private firms. In developing countries, especially in less developed ones, state enterprises are usually not very efficient in using and managing resources.

Second option, "public ownership with private operation", is typically implemented through lease contracts for full operation and maintenance of publicly owned infrastructure facilities by the private sector. The government may have to give incentives to private enterprises so that they produce the socially optimum supply efficiently. Arrangements between the government (the owners) and the firm (operator) are set out in a contract that includes regulatory provisions. Concessions also include contract to build and operate new facilities under the BOT arrangement.

The third option is "private ownership and private operation" through new entry by private firms in infrastructure markets and through privatization of public ownerships. This option is increasing in communication infrastructure such as cellular telephone service and energy infrastructure such as electricity generation and provision. In this strategy, private ownership and operation require little or no economic regulation beyond that applied to all private firms because competition among suppliers is to be possible and fair.

The last option is "community or users and donor provision" which is the most common for local small scale infrastructure such as rural feeder roads. Successful community provision requires user involvement in decision making especially to agree sharing of costs and to set priority for expenditures. To succeed community self-help programs over long period, technical assistance, training and compensation or operators are very important. External donors who provide grants or loans and technical assistance are also included in sources of infrastructure development but

there are limits to the capacity of any economy to obtain provisions from abroad especially debt finance. Only the Word Bank is major source of funds to invest in infrastructure.[4]

2.4 The Advantages and Disadvantages of Railway Transport

Railway transport occupies a significant role in the transport system of a country because the development of trade, industry and commerce of a country largely depends on the development of railways.

It facilitate long distance travel and transport of bulky goods which are not easily transported through motor vehicles. It is a quick and more regular form of transport because it helps in the transportation of goods with speed and certainty. It helps in the industrialization process of a country by easy transportation of coal and raw-materials at a cheaper rate. It helps in the quick movement of goods from one place to another at the time of emergencies like famines and scarcity. It encourages mobility of labour and thereby provides a great scope for employment. Railway is the safest form of transport. The chances of accidents and breakdown of railways are minimum as compared to other modes of transport. Moreover, the traffic can be protected from the exposure to sun, rain snow etc. The carrying capacity of the railways is extremely large. Moreover, its capacity is elastic which can easily be increased by adding more wagons. It is the largest public undertaking in the country. Railways perform many public utility services. Their charges are based on charge what the traffic can bear principles which helps the poor. In fact, it is a national necessity.

The railway requires a large investment of capital. The cost of construction, maintenance and overhead expenses are very high as compared to other modes of transport. In case the traffic is not sufficient, the investments may mean wastage of huge resources. Another disadvantages of railway transport is its inflexibility. It routes and timings cannot be adjusted to individual requirements. Rail transport cannot provide door to door service. As railways require huge capital outlay, they may give rise to monopolies. Even if controlled and managed by the government, lack of competition may breed in inefficiency and high costs. I f involves much time and labour in booking and taking delivery of goods through railways as compared to motor transport. Because of huge capital requirements and traffic, railways cannot be operated economically in rural areas. Thus, large rural areas have no railway even today. This causes much inconvenience to the people living in rural areas.[5]

[4] World Bank (1995) World Development Report 1994: Infrastructure for Development, Washington D.C

[5] www.publishyourarticles.net/knowledge.hub/business-studies

3. Railway Transportation in Myanmar

Rail transport was first introduced in Myanmar in May 1877 when Lower Burma was a British colony with the opening of the 163-mile (262 km) Yangon to Pyay line by The Irrawaddy Valley State Railway. The name Burma Railways Corporation was changed to Myanma railways on 1st April, 1989 (hereinafter referred to as "MR").

MR also operates a 45.9-Kilometre (28.5 mile) 39-station loop system that connects Yangon's downtown, satellite towns and suburban areas. The railway runs 200 times and sells 150,000 tickets daily. The loop, which takes about three hours to complete, is a way to see a cross section of life in Yangon for common people. The service hours are from 3:45 am to 10:15 pm daily. The cost of a ticket for a distance of 15 miles is fifty kyats and that for over 15 miles is hundred kyats. The loop begins from Yangon Central Railway Station to Mingaladon Railway Station near Yangon International Airport, via Insein to the west and Okkalapa in the east. The major stations are Yangon Central, Dagon University, Danyingon, Hlawga, Insein, Mingaladon, Okhposu, Paywestseikkon, Thilawa, Togyaunggalay, Ywathagyi, University of Computer Studies, Yangon.

3.1 Organization Structure of Myanmar Railway

MR belongs to Ministry of Rail Transportation. Ministry of Rail Transportation is in charge of railway and road transport. The organization set up of the Myanma Railways is based in departmental system. The Managing Director, who is Chief Executive Officer and Chairman of the Management Committee, is in overall charge, assisted by two Senior General Managers. The six major departments are Operating, Mechanical and Electrical Engineering, Civil Engineering, Commercial and Marketing, Planning and Administration and Finance.

The other supporting departments are Supply, Medical and Inspection departments. The railways system is divided into 11 divisions which are further grouped into two namely lower Region and Upper Region. These regions are based headed by two general managers.

Upper Divisions include Myitkyina, Ywataung, Mandalay, Kalaw, Pakkou and Bagan. Lower Divisions include Taungoo, Insein, Yangon, Mawlamyine and Henzada Three major workshops Ywataung Locomotive workshop, Insein Locomotive workshop and Myitnge Carrige and Wagons Workshop are headed by the General Managers. Rail are imported from India, China, Korea and Japan. Myanmar Railways has altogether 32,053 employees as on March 2012. The Organization Structure of the Myanmar Railways had been restructured since September 2011. The number of key features of this structure reflects the move towards more decentralized decision making, more proactive forward planning and more focus on providing of a good service to the users through improved market responsiveness.

3.2 Rail Network in Myanmar

The rapid growth of the economy has created higher demands on distribution capacity and efficiency of transport and communication network in the country. The government has identified rail transport as a vital tool for economic development of the country. The new rail lines have provided the political, social and economic development of the remote areas. From 1988 – 89 to 2011 – 2012, MR has expended 1676.17 miles of new track, 1779.43 miles are under construction in preparation stage. In each state and region, in comparison to the total area of Myanmar, the railways line connects thirteen states and regions out of the total fourteen. Railway track increased from 3860 miles in 2000 – 2001 to 4327 miles in 2008 – 2009. The railway route increased from 2947 miles in 2000 - 2001 to 3238 miles in 2008 – 2009. Between fiscal year 2000 – 2001 and 2008 – 2009, railway track increased by 467 miles, rail route increased by 267 miles and railway stations increased by 82 stations. Therefore MR infrastructure improved within this year.

3.3 Investment Condition of Myanma Railways

MR invest in land, Bridges, Equipment, Rolling Stock, Electricity, Signaling, Communication and Machinery, construction of locomotives, repowering of locomotives, construction and rehabilitation of rolling stock and so on. There are most investment in bridges at the percentage of 93.3% and another investment in Rolling stock at the percentage of 4.53%. There are least investment in equipment and land at a percentage of 2.15% and 0.01%. Thus MR invest more attention to the investment in construction rather than equipment and rolling stock. An efficient transport system with modern infrastructures favors many economic changes, most of them positive.

3.4 Income and Expenditure of Myanmar Railway

Myanma Railways, like other government enterprises, have to deposit all their receipt into the government fund and expenses are financed from government fund within the framework of the concerned budget approved by the government yearly. Income and Expenses of Myanma Railways are classified as follows. Myanma Railway income can be classified into passenger, Freight and others.

Since Myanma Railways is a government organization, tariffs are set by the Government through Ministry of Rail Transportation. Myanma Railways has to prepare and submit the tariff change when it is needed. Special tariffs are offered to all government staffs and schoolchildren. The government staff pays 75 percent of the tariff and schoolchildren are allowed with special discount in circular trains. Passenger Tariff is based on the rates of per person-mile, which is different by status of train and class of seat. The highest number of Passenger 75.959 million of Myanma Railways occurred at the fiscal year of 2007-2008. But the highest earning of 20639.342 kyats in Million occurred at the fiscal year of 2010-2011. Thus, the amounts of earning from passenger depend on the distance of travel rather than the number of passenger. Although the myanma railway fare price is cheaper than air ticket price and road ticket price. Because of these reasons, most of the people choose railway for travelling to the long distance. Thus, although the number of passenger is lower at 2010-2011 than 2007-2008, the earning of 2010-2011 is higher than the earning of 2007-2008.

Freight Tariff is based on the rate of per ton-mile, which is different by the status of freight train (ordinary or fast) and terrain (plain or hilly). Freight tariffs are not established according to the nature of the products. Myanma Railways has transported various commodies with great tonnage such as rice and rice products, sugar cane, forest products, pulses and beans, other agricultural products, coal and coke, oil, mine products, stone, salt, military, department parcel and other parcels. But from 2012, military commodity is prohibited to transport with railway.

Expenses of Myanma Railway can be classified as capital, operation costs and financial (repayment of foreign loan).Operational costs are divided into costs connected with manufacturing and circulation. Manufacturing cost on the railroad are expenses connected with freight, passengers and mail transportation. These expenses are called operation costs. The main factor which influences operation costs is the volume of railway traffic. The operation costs increases with the growth of traffic volume. Other expenses are the salaries of locomotives and train crews, fuel and electricity expenses, the maintenance of rolling stock, salary of management personal of railway departments, maintenance of buildings, constructions of bridges, construction and communication facilities. The following table 4.9 shows the expenditure of Myanma Railways in fiscal year 2000 – 2001 to 2010 – 2011.

MR's expenditure increased from 5879.225 (Kyats in Million) in 2000 – 2001 to 66382.962 (Kyats in Million) in 2010 – 2011. MR's expenditure increased year by year. Because the yearly investment made in new locomotives, repowering of locomotives, construction of bridges, construction of new rail way lines, increase salary of management personal of railway departments, increase diesel prices, maintenance of buildings, installation of signaling and telecommunication equipment, etc.

Both income and expense increased year by year. Between 2006 – 2007 and 2010 – 2011, expense is more than income because growing operation cost, more investment made in new locomotives, repowering of locomotives, construction of bridges, construction of new rail way lines, increase salary of management personal of railway departments, increase diesel prices, maintenance of buildings, installation of signaling and telecommunication equipment, etc. within five years. Therefore, income does not cover the expenses and MR faces the financial loss. To cover the financial loss, Myanma Railway should be cooperated with private firms.

3.5 Private sector participation of Myanma Railway

In accordance with the economic reforms being undertaken to lay down market economy, the private sector is encouraged to participate in the railways transportation services. Thus, since 1992, the Myanma Railways has permitted the private companies to operate freight trains and passenger trains on certain specified section of the routes as shown below.

	Freight Train	Passenger Train
(1) Mandalay Freight Forwarder Co., Ltd		
(a) Yangon-Mandalay	1	
(b) Manadalay-Myitkyina		1
(2) Sann Thaw Dar Co. Ltd		
(a) Yangon-Mandalay	1	
(b) Mandalay-Myitkyina		1
(3) Dagon-Mann Co., Ltd		1

In 2000, Private Sector Participation in Myanma Railway was abolished because the operation did not produce the profit during six years of private participation. Thus Mandalay Freight Forwarder Co.Ltd, San Thaw Dar Co.Ltd and Dagon Mann Co.Ltd decided not to continue cooperation with Myanma Railway since July 2000.

Nowadays, Myanma Railways operate public ownership and public operation. Infrastructure such as bridges and railroads are owned by the state and provided by a government department, public enterprise of local authority. Railways are wide spread state ownership and monopoly in provision of infrastructure, operation and services. These characteristics are often the cause of economic and financial unsustainability of the rail system. To reduce the cause of economic and financial unsustainability of the rail system, the authorities are implementing necessary steps including privatization, to accelerate the pace of development and economic reform. Myanmar Railways need for long term treatments with financial institutional improvements and management system.

4. Future Development Plans of Myanma Railways

The Trans-Asian Railway (TAR) is a project to create an integrated freight railway network across Europe and Asia. The TAR is a project of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

The project was initiated in the 1960s, with the objective of providing a continuous 8,750 miles (14,080 km) rail link between Singapore and Istanbul, Turkey, with possible further connections to Europe and Africa. At the time shipping and air travel were not as well developed, and the project promised to significantly reduce shipping times and costs between Europe and Asia. Progress in developing the TAR was hindered by political and economic obstacles throughout the 1960s, 1970s and early 1980s. By the 1990s, the end of the Cold War and normalization of relations between some countries improved the prospects for creating a rail network across the Asian continent. This railway route network provides connection of major rail routes to 28 Asian and European countries including Myanmar.

The TAR was seen as a way to accommodate the huge increases in international trade between Eurasian nations and facilitate the increased movements of goods between countries. It was also seen as a way to improve the economies and accessibility of landlocked countries like Laos, Afghanistan, Mongolia, and the Central Asian republics. Although some missing route remain for construction to fill up gaps, much

of the railway network already exists. However, there are two major problems to fully implement the project.

(a) **Differences in Rail Gauge**: The rail gauge, width measurement between parallel rail roads's of the track, is not the same along the rail network. There are four different major rail gauges across Asia and Europe. Most European countries as well as Turkey, Iran, China, and the two Korea use the 1435mm gauge, known as the Standard Gauge. Rail gauge in Finland, Russia and the former Soviet republics is 1520 mm. Railways in India, Pakistan, Bangladesh and Sri Lanka use 1676mm gauge while most of Southeast Asia including Myanmar has meter gauge.

The first problem is to be solved by using the mechanized facilities to transfer the containers from train to train at the breaks of gauge instead of harmonizing the different gauge.

(b) **Need of Sea Transport:** Although TAR tends to link continuous rail network, some missing rotes are impossible to construct in the short run and are very costly. A big obstacle is also the need of sea transport to Japan and South Korea. A container ship has room for many more containers than a train. Therefore ships must go less regularly than trains, creating a big delay.

The second problem is to be solved by creating an overland connection through North Korea. By 2001, the four corridors had been studied as part of the plan:

- The Northern Corridor will link Europe and the Pacific, via Germany, Poland, Belarus, Russia, Kazakhstan, Mongolia, China, and the Koreas.
- The Southern Corridor will go from Europe to Southeast Asia, connecting Turkey, Iran, Pakistan, India, Bangladesh, Myanmar, and Thailand, with links to China's Yunnan Province and, via Malaysia, to Singapore.
- A Southeast Asian network; this primarily consists of the Kunming-Singapore railway.
- The North-South Corridor will link Northern Europe to the Persian Gulf. The main route starts in Helsinki, Finland, and continues through Russia to the Caspian Sea, where it splits into three routes: a western route through Azerbaijan, Armenia, and western Iran; a central route across the Caspian Sea to Iran via ferry; and an eastern route through Kazakhstan, Uzbekistan and Turkmenistan to eastern Iran.

Out of the four corridors of TAR, Myanmar links Southern Corridor which will go from Europe to Southeast Asia. Southern Corridor will connect Turkey, Iran, Pakistan, India, Bangladesh, Myanmar, and Thailand, with links to China's Yunnan Province and, via Malaysia, to Singapore. Missing Routes exist for Myanmar to link with India as well as with Thailand and then with China. There are gauge difference between Myanmar and the neighbouring countries whereas Myanmar uses 1000 mm gauge, the same as Thailand but India has 1676 mm gauge and Chia has 1435 mm gauge. To join Myanmar railroad to TAR, the country will constructing 110 km long Thanphyuzayat – Three Pagoda Pass route connecting Thailand, 232 km long Lashio – Muse route connecting China and 135 km long Kalay – Tamu route connecting India.

The Singapore-Kunming Rail Link (SKRL) which was was first proposed by Asean in 1995. The SKRL is a flagship project of the ASEAN-Mekong Basin Development

Cooperation (AMBDC). This railway link will stretch from China to Singapore and link eight countries – Combodia, China, Loas, Malaysia, Myanmar, Singapore, Thailand and Vietnam in this region. The railway will link Kunming, the capital of the southern Chinese province of Yunnan, to Hanoi, Ho Chi Minh City, Phnon Penh, Bangkok, Kuala Lumpur and then Singapore. Separate lines will link Loas to Vietnam and Myanmar to Thailand and China. Thus, this circular rail link will include China and seven ASEAN countries. This regional railway line, spanning some 5,000 kilometers (3,000 miles) from Singapore to the Chinese city of Kunming, would be a very efficient and most economical mode of cross-border cargo transportation. However, the project has been hindered by a lack of funds and other technical issues in connecting the rail to major towns across the region. The project also includes constructing railway stations and related infrastructure, and has been estimated to cost US$15 billion (€12.5 billion). ASEAN hopes the link will be ready by 2015.There are six alternatives all of which have a common sector of Singapore – Bangkok segment passing through Kuala Lumpur of Malaysia. Table (1) shows alternative routes and respective information resulted from the feasibility study.

Based on the study results, route 1 which connects Cambodia, Lao PDR, Viet Nam and China, was selected by the ASEAN Transport Ministers for its high social and economic impact. It will cost an estimated US$1.8 billion to construct. Its 5,382 km length includes the missing links along what is known as the eastern route, are the 48 km cross border crossing of Poipet-Sisophon in Cambodia, a 286 km route between Cambodia's Phnom Penh and Vietnam's Loc Ninh, and another 129 km connecting Loc Ninh and Ho Chi Minh City. The remaining five routes are to be considered for implementation in natural rail plans or other railway network projects, such as the Trans- Asia Railway. Existing lines, missing links and spur line in the rail link is shown in **Map** in Appendix.

Table (1) Six Route Alternatives of Singapore – Kunming Rail Link

Alternative Route	Cost (US$ billions)	Route Length (km)	Missing Links (km)	Countries Involved
Route 1	1.8	5382	431	Cambodia, Laos, Viet Nam, China
Route 2	6.0	4559	1127	Myanmar, Thailand, China
Route 3	1.1	4259	531	Laos, China
Route 4	5.7	4164	1300	Laos, China
Route 5	1.1	4481	616	Laos, Viet Nam, Thailand
Route 6	1.1	4225	589	Laos, Viet Nam, Thailand

Source: Association of Southeast Asian Nations' Fact Sheet

In order to put Myanmar railroad into the regional network and to create circular regional rail link, the country has to construct two missing links: Thanphyzayat to Three Pagoda Pass and Lashio to Muse, both involve in TAR. To connect Thailand, Myanmar needs to renovate existing rail line of 56 kilometers between Mawlamyaing and Thanphyuzayat and to construct new line of 110 kilometers between Thanphyuzayat and Three Pagoda Pass. Likewise Connecting China has to build

missing link of 232 kilometers between Lashio and Muse. A Feasibility study on rail link portion linking Bangkok to Yangon costing US$ 1.2 million has been completed by the Republic of Korea in 2005.

5. Conclusion

It is obvious that alteration and improvement of transportation has been growing in parallel of world economic and trade growth. Better transportation encourages more specialization and creates the era of globalization. Not only economic consideration, social aspect is also an important factor for development of transportation infrastructure. Macroeconomic point of view said that investment in transportation infrastructure supports time and cost savings which contributes growth of entire economy. When transportation system is efficient the potential market for a given product or service increases, and so does competition. A wide array of goods and services becomes available to consumers through competition which tends to reduce costs and promote quality and innovation.

Not only economic and social concerns, political focus also inflicts development of transportation infrastructure in Myanmar in order to promote contact and friendship, and for reconsolidation of national races. Out of four modes transportation in Myanmar , rail transport is the largest in the government's transport performance. Infrastructure development in rail transport has been controlled by the State. Between 2001 and 2011, railroads were improved and enlarged in all regions of the country except Chin States. Rail routes increased from 2974 miles to 3410 miles while rail track increased from 3806 miles to 4518 miles in year 2000 – 2001 to 2009 – 2010.

There are many advantages of rail transport in Myanmar. Firstly, Rail facilitates long distance travel and transport of bulky goods which are not easily transported through motor vehicles. Secondly, it helps in the industrialization process of a country by easy transportation of coal and raw materials at a cheaper rate. Thirdly, the carrying capacity of the railways is elastic which and easily be increased by adding move wagons. Fourthly, railway is the safest form of transport because the chance of accidents and breakdown of railways are minimum as compared to others modes of transport. Finally, railways perform many public utility services.

But there are disadvantages of rail transportation in Myanmar. Firstly, railways requires a large investment of capital so it cannot operated economically in Chin State. Secondly, the cost of construction, maintenance and overheads expenses are very high as compares to other modes of transport. Thirdly, rail transport cannot provide door to door service. Fourthly, rail tickets are not easy to purchase everywhere. So it takes much time in booking through railways as compared to other modes of transport. The suggestion is that Myanma Railways should be better selling system of rail tickets.

Trans – Asia Railway (TAR) and Singapore – Kunming Rail link were projected for railway network of inter and intra region. In TAR plan, Myanmar has to construct Thanphyuzayat – Three – Pagoda Pass route connecting Thailand, Lashio – Muse route connecting China, and Kalay – Tamu route connecting India. With the intention of connecting to the Singapore – Kunming Rail Link, it needs to join missing links of Thanphyuzayat to Three Pagoda Pass and Lashio to Muse, both of them are parts of TAR too. These railways lines would be very efficient and most economical mode of cross border cargo transportation.

A widening negative gap between operating costs and revenues such as that experienced by a majority of the railway systems can lead to a situation in which governments reduce the level of funding available to their rail systems for the maintenance of their track infrastructure and fleets at a level compatible with the provision of a safe, efficient, reliable and competitive transport service. This in turn leads to deterioration in the condition of track, bridges, signaling systems, and of locomotives and rolling stock fleets, resulting in high rates of equipment failure and the imposition of increasingly stringent speed restrictions on track and bridges, in order to arrest the decline in physical standards. The market response to falling standards of service is a withdrawal of business and reduced traffic volume, leading successively to: declining revenue; further widening of the financial deficit; and further reductions in the railway budget. In this way, the vicious circle is completed.

The railway industry is widely characterized by chronic financial deficits, growing operating cost, inefficient pricing structures, severely congested services, low operating efficiencies, inadequate funds for investment and deficiencies in physical infrastructure. Other notable features are widespread state ownership and monopoly in provision of infrastructure, operations and services. These characteristics are often the cause of economic and financial unsustainability of the rail systems.

Myanma Railways has been suffering from the chronic railway under – funding diseases and need for long term treatments with financial injections and institutional improvements. The Republic of the Union of Myanmar is fully aware that adequate infrastructure is crucial for maintaining the country's economic growth momentum. Therefore, the authorities are implementing necessary steps, including privatization, to accelerate the pace of development and economic reform. Myanmar puts its best efforts to enhance PPP not only for the country's benefit but also for the benefit of the region. The final suggestion is that Myanma Railways should be restructured as a company owned by the government: corporatization.

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Appendix

Map- **Myanmar Railway Link**