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Looking Forward Rail Connectivity in North Eastern Region of India

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ABSTRACT: *It is well acknowledged that the economic and human potential of India's North Eastern Region is severely contained due to its transport infrastructure deficiency. The Central and State Governments are now jointly focused to build infrastructure in the North Eastern Region. Indian Railways has been the prime mover of the nation and has the distinction of the being the largest railways system in Asia and the second largest railway system in the World under single management. The world is looking to engage with the emerging economic hotspot the East and it is in the North-East India that South East Asia begins. Most urgent and strategic interventions are required for the North Eastern Region to play the arrowhead role for India. The transport infrastructure will be vital to strengthen integration with the region and with the rest of the country, and also for India's increased integration with the South East. Improving connectivity shall have to be foremost priority for social and economic mobility and market integration. The greater connectivity and economic integration of India's North East with its Eastern neighbours is to be considering a key focus area for growth and development of the region. The country worked with the vision that India's growth story will pick up speedier only when the Northeast Region developed at the same pace in a balance manner. The progress of the North Eastern Region will be able to lead vast section of population towards prosperity. Indian Railways has staged a dramatic turnaround in recent year.*

KEY WORDS: *Connectivity, Railways, North Eastern Region, India*

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I. INTRODUCTION

The North Eastern region of India is one of the less developed regions of the country. The North Eastern region is commonly known as 'Seven Sisters' that comprises states are - Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Assam. Nowadays, Sikkim is also considered as the member of the North East India and these States can be called as 'Seven Sisters and One Little Brother'. The Northeast is the home to 4 percent of the national population, while Assam accounts for 68 percent of the population, occupies about 8 percent of India's total geographical area and is strategically important with over 5,300 km of international borders has 96 percent of its boundaries surrounded by – China, Nepal, and Bhutan in the North, Bangladesh in the South-West and Myanmar in the East. The North Eastern Region is located between $275^0$7' N and $28^0$23' N latitude, $89^0$46' E and $97^0$25' E longitude and situated to the South of Himalaya. The total area of the North Eastern Region of India is 26.22 million hectares where total area of India is 329 million hectares. In the past history, the mighty Himalayas in the North always kept India physically aloof from China. The North-East State of India share International borders which the State-wise length of International Border of the North Eastern Region they share total – Arunachal Pradesh 1,817km, Assam 530km, Manipur 398, Meghalaya 443, Mizoram 828, Nagaland 215, Sikkim 350 and Tripura 856. Among them the Arunachal Pradesh longest International border share with China total 1,080km, second position Tripura share 856km with Bangladesh and in third position Mizoram has 510 international border lines with Myanmar. Geologically, the Northeast and the adjoining region constitute a complex geological province with convergence of two Tertiary mobile belts, the east-west Eastern Himalaya and the North South Patkai, Naga, Manipur, Chin, Arakan, and Yoma Hill ranges, are developed as a consequences of the collision and subsequent subduction between the land masses of India and Eurasia. The climate of the region varies from subtropical to extreme alpine. This region is not only separated in different Ethnic conflicts between different communities and tribal groups are common matter. Under Development is another common matter of the region for the North Eastern States. The region is bless with natural resources and very much enriched with bio-diversity. Due to its strategic locations the gate way to South East Asia and scope of healthy economic relationship with neighbouring countries, this region could be one of the potential economic regions of India. In the recent year development of the Northeast is now receiving attention from the Government of India, both for the well-being of the people of the region and for its potential contribution of the Indian economy.

Transportation is important part of people which directly and indirectly connected with people. It enables trade between people which is essential for the development of Civilisation. Transportation is the backbone of any economic, culture, social and industrial development of any country. Transportation is the movement of human, animal and goods from one location to another. Railway is the big organisation in the transportation sector. Railway is the safest form of transport. Due to remote location and inhospitable physical conditions, the North Eastern part of the India was untouched to the other parts of the country for a long time. This situation was become worst after the partition of the Country because all the major roads and railways links through East Bengal ere cut down. Even today the people of North East are facing the problem of poor infrastructure. In spite of the inadequate infrastructures, the people of this part of the country are showing the satisfactory socio-economic growth conserving their tradition and cultural heritage. Central Government enlisted several development programmes to prevent the poverty and underdevelopment of the region.

The lack of connectivity and infrastructure the North Eastern Region has faced low trade activity in the region. 95 percent of India's exports to neighbouring states of Bangladesh, Bhutan and Myanmar are from other than North East India. This is also despite that fact that the region is the natural gateway for India to the East Asian, South Asian and South Asian Economies. There is on-going major rail construction programme in the North Eastern Region. These projects are now on a firm footing with accelerated funding provided to North Eastern Region projects. This should be continued to achieve the vision of connecting all the states capitals by 2020. The upgrading of the rail network in the North Eastern Region has received significant attention of the Ministry of Railways. Capacity has been augmented manifold leading to introduction a large number of long distance passenger carrying trains and removal or reduction of transshipment activities which hitherto has been the single biggest bottleneck in smooth movement of traffic. Historically, undivided Bengal and the North-Eastern region were and integrated market with active roads, railway tracks and waterways crisscrossing the region. Global trade was conducted through the sea route, network of inland waterways, and land transportation through road and railways. In fact, the network between Dibrugarh and Chittagong was one of the earliest railway projects in India implemented by the British commenced in 1884. By 1950, India reconnected Assam to the rest of the country's rail network by building a more than 200-km metre-gauge rail link through the Siliguri corner.

II. REVIEW OF LITERATURE

Ram Chandra Acharya (2000), The first railway in the world was the Stockton & Darlington in the UK, which was opened in 1825. Railways reached France in 1829, the USA in 1830, Germany in 1835, Italy and the Netherlands in 1839, and Spain in 1848. Railways came relatively late to Indian when the first of 21 miles (33.6 km) was opened from Boribunder to Thane in 1853. The grand occasion was marked by a 21 – gun salute and even the Governor's band was in attendance when 14 railway carriages carrying 400 guests left Boribunder at 15:30 and arrived at Thane 16:45. By the time of independence in 1947, the British had built a railway network of more than 58,000 km primarily for developing the hinterlands and transporting agriculture produce, minerals, and troops to suppress uprisings. Rather surprisingly, private enterprise played the leading role in railway construction during the early 19th century. Since the colonial government guaranteed a 5 percent return on investment, growth was phenomenal in the early stages.

Anand Kumar Choudhary & Dr. Srinivas Rao (2018), Transportation is important part of people which directly and indirectly connected with people. It enables trade between people which is essential for the development of Civilisation. Transportation is the backbone of any economic, culture, social and industrial development of any country. Transportation is the movement of human, animal and goods from one location to another. Rail transportation is where trains along a set of two parallel steel rails, known as a railway or railroad. Passenger transport may be public where provide fixed scheduled service. Freight transport has become focused on containerization; bulk transport is used for large volumes of durable item. Rail transport is a means of transferring of passenger and goods on wheeled running on rail, also known as tracks, tracks usually consist of steel rail, installed on ties (sleepers) and ballast. Railway transport is capable of high level of passenger and goods utilization and energy efficiency but is often less flexible and more capital intensive than road transport when tower traffic level are considered.

III. OBJECTIVE OF THE STUDY

This paper mainly concentrating of the following main objectives, they are:

1. To focus the new railways lines connecting the neighbouring countries of India is considering as essential to improve transportation in the North Eastern Region.
2. The objective of the Transportation Development Strategy for the North Eastern Region is to promote and support the balanced and equitable economic development of the region.
3. To understand the challenge of infrastructure creation is to:
   (a) Complete the provision of infrastructure by 2025,

(b) Create institutional and functional mechanisms to sustain and maintain the infrastructure and
(c) Create policy regime for free movements of goods & people – within the region, from the region to rest of India and from the region to the international neighbours.

4. To assess transport infrastructure, requirement of providing connectivity with the neighbouring countries with a view to enabling trade between North Eastern Region and neighbouring countries.

IV. MATERIALS AND METHODS

For the purpose of the study of "Rail Track Electrification in Connectivity of North-East India", an analytical study follows the descriptive method. In this study data have been collected by using secondary sources. Secondary data and information have been collected from different published books, journals, internet sources, published research papers and articles, newspapers, etc.

V. HISTORY OF WORLD RAILWAY

The earliest recorded illustration of railway dates back to 1320, showing a small wooden mine trolley running in recessed stone guides, possibly originating in ancient Greece. The Railway, in its true sense, emerged in the early seventeenth century when the first wooden tracks were laid at Wallaton, England, in 1604 to be used for running of horse-drawn carriage. It was only in February 1804, a good two centuries later, that Richard Trevithick, an engineer, ran the world's first steam engine successfully on rails. The locomotive, with its single vertical cylinder, 8-foot flywheel and long piston rod, managed to haul ten tones of iron, seventy passengers and five wagons from the ironworks at Penydarren to the Merthyr-Cardiff Canal. This was, however, a train run and cannot be termed as first Railway passenger service train. In 1821, Edward Pease, a wool merchant, during his travels of buying and selling wool, felt that a railroad with wagons drawn by horses to carry coal from the collieries of West Durham to the port of Stockton would be of great help. The same year, Pease and a group of businessmen formed the Stockton & Darlington Railroad company. However, Nicolas Wood, the Manager of Killingworth Colliery and his engineer George Stephenson, had a better idea. They met Pease and suggested that he should consider building a locomotive railway instead. And after some thought Pease did agree. The Stockton & Darlington Railroad was opened on 27 September, 1825. The engine, built by George Stephenson, pulled 36 wagons, including twelve wagons of coal and flour, six of guests and fourteen wagons full of workmen. This has been recorded as the first passengers train in the world. But this was disputed and some claim the Liverpool-Manchester Railway of 1930s as the first passengers' railway. However, disputes apart, railway communications gained popularity in the 1830s and since then there has been no backward journey. Railways reached France in 1829, the USA in 1830, Germany in 1835, Italy and the Netherlands in 1839, and Spain in 1848.

The world's first underground railway the Metropolitan Railway (part of the London Underground), opened in 1863. In the 1880, electrified train were introduced, leading to electrifications of tramway starting during the 1940s the non electrified railway in most countries had their steam locomotive replaced by diesel electric locomotives the process being almost complete by the 2000. During the 1960, electrified high-speed railway systems were introduced in Japan and later in some other countries. Many countries are in process of replacing diesel locomotives with electric locomotives.

VI. HISTORY OF INDIAN RAILWAY

Indian Railway is the fourth largest in the world after Russia, the U.S.A. and Canada. In a vast country like India, it has brought the people of the farthest corners of the country closer to one another. Indian Railways has taken various steps to prioritize investment in important areas. Indian Railways seeing stiff competition from other modes of transportation, the Government of India is initiating various transformative measures to keep railways on track. These measures are focusing on prioritizing investment in important areas like Dedicated Freight Corridors (DFC), high speed rail, high capacity rolling stock, last mile rail linkage, port connectivity and attracting private and foreign investment. It is holds that the tremendous prospects in the short, medium and long term as it undergoes rapid modernization. In the upgrading railway infrastructure has become a core focus for the Government.

In 1846, there was a major failure of cotton crop in America. Following this, textile merchants at Manchester and Glasgow in Great Britain had to seek alternative markets. It was then that traders in the UK turned their attention on the cotton crop in India, one of Britain colonies then, rich in cotton crop. However, cotton was produced in various parts of the Indian sub-continent and it took days to bring it to the nearest part to transport it to England thought ships, the only major means of international communication then. The British then had to build a link from the hinterland to India's major ports for quicker transport of cotton and other goods as demand soared. This expedited matters for the British to introduce a railway in India. The British also felt that organisation the growing and dispersing the growing native population faster deployment of troops could be better handle by a railway. As early as 1843, Lord Dalhousie had first conceived the possibility of opening up of

India by means of railway communication. He had proposed to ink the three ports of Bombay, Calcutta and Madras by a railway. The same year he sent George T. Clarke, an engineer, to Bombay to assess the possibility. A few years later in 1845, a strong lobby in Bombay supporting railway communication formed a body called the Bombay Great Eastern Railway. As matters started to gain momentum, the Bombay Great Eastern Railway locally prepared plans for constructing a railway line from Bombay to the Deccan. But the British already had a concrete plan in their minds and soon things began to take shape. The earliest proposal for laying railways in India was made some time around in the 1830s. Inspired by the railway mania in England, some eminent citizens in Madras had proposed the idea of a railway but plans remained on paper and the project did not see the light of the day then. Conditions in India were quite different those in Britain. Many British and Indians, who had better understanding about India's topography and geography, opposed the construction of railways as a "premature and expensive undertaking" and a "hazardous and dangerous venture". Certain opponents doubted the feasibility of introduction of railways in India citing poverty, extreme climate with torrential rains, violent storms, high mountains, sandy deserts and dense forests. But the process of building a railway network that would one day not only captivate that nation but the whole world had already begun.

The first train steamed off in the country in 1853 from Bombay (Boribunder/Boree Bunder) to Thane, covering a distance of 33.6 km. The grand occasion was marked by a 21 – gun salute and even the Governor's band was in attendance when 14 railway carriages carrying 400 guests left Bombay (Boribunder/Boree Bunder) at 15:30 and arrived at Thane 16:45. By the time of independence in 1947, the British had built a railway network of more than 58,000 km primarily for developing the hinterlands and transporting agriculture produce, minerals, and troops to suppress uprisings. Rather surprisingly, private enterprise played the leading role in railway construction during the early 19th century. Since the colonial government guaranteed a 5 percent return on investment, growth was phenomenal in the early stages.

The Railway Board in 1950 decided for the regrouping of the Indian Railway into sixth Zonal system, namely, the Northern, the North Eastern, the Southern, the Central, the Eastern and the Western Railways. The unequal distributions of workload on some of the railways have led further bifurcation of zones. The Eastern Railway was split into two zones, namely, Eastern Railway and South Eastern Railway. Similarly, North Eastern Zone was also split into the North Eastern Railway and the North Eastern Frontier Railway. Thus, by the year 1958, there were eight zones in the Indian Railways.

Measures of Indian Railway

Indian Railways have taken several measures to improve their efficiency and usefulness to the public:

1. Considering increase in railway running track
2. Increase in electrification of busy trunk routes
3. Conversion of metre gauge railway lines into broad gauge
4. Introducing several types of fast and superfast passenger trains
5. Running fast goods and special foodgrain trains
6. Providing better facilities for reservation and other customer care services, including reservation through internet.

VII. NEW DELHI'S LOOK ACT EAST POLICY AND NORTH-EAST INDIA

The "Look East Policy" of India was initiated by the former Prime Minister Pamulaparti Ventkata Narasimha Rao (1991-1996) and has continued to enjoy energetic support from the successive administrations of Inder Kumar Gujral (1997-1998), Atal Bihari Vajpayee (1998-2004), Man Mohan Singh (2004-2014) and Narendra Modi (2014 -), each of whom represents a different political party in India. The main focus of this policy was to shift the country's trading focus from the west and neighbours to the booming Southeast Asian countries. It aims to cultivate economic and strategic relations with the Southeast Asian nations in order to secure India's position as a regional power. This Look East Policy is economic integration with the East and Southeast Asia. India realized that its East Asian neighbours achieved rapid economic growth and that it was lagging behind. Enthralled by the East Asian economic miracle, the Indian elite came to realize that the East Asian open economic system could be a model for its own development strategy. Thus, the New Delhi wanted to expand her ties with these highperforming economies with the aim of getting integrated into the process of economic regionalization in East Asia. The Look East Policy is also a means of reducing India's internal development disparity. The Northeastern region lags behind in economic development and this gap has widened since independence because of various reasons. The sense of neglect has resulted in various forms of unrest in the region. With the launch of the policy India sees the region not as cul-de-sac (dead end / blind alley) but as a gateway to the East, thereby attempting to link the Northeastern region with Southeast Asia through a network of pipelines, road, and rail and air connectivity. This is expected to initiate economic development and help the eight Northeastern States to develop infrastructure, communication, trade, investment, logistic, agro-business and other commercial activities. Knowing full well the potential, the Northeastern States strongly support the

Look East Policy is believed to be the new mantra for development of the Northeastern region. India's Look East Policy represents its efforts to cultivate extensive economic and strategic relations with the nations of Southeast Asia in order to bolster its standing as a regional power and counterweight and it facilitating development in land-locked North-East India by cooperation with South East Asian countries.

VIII. BOOSTING ACT EAST POLICY OF NORTH-EAST INDIA

In between, in July 2011, the then US Secretary of State Hillary Clinton visited India and advocated for India to play stronger role in the Asia-Pacific. She coined the term 'Act East' instead of just 'Looking East'. Look East Policy got a momentum in the same direction under the Modi government as External Affairs Minister Sushma Swaraj confirmed in 2014 that the New Delhi is now willing to 'Act East'. Under the "Act East Policy", India not only expected to bolster its economic engagements with the region; it yearned to emerge as a potential security balancer as well. In 2014, Prime Minister Narendra Modi confirms to the world leaders, including the then US President Barrack Obama, that his government accorded high priority to turn India's erstwhile "Look East Policy" into an "Act East Policy". Modi remarked in his address to the East Asia Summit in the Myanmar's capital Nay Pyi Taw that, "Since entering office six months ago, my government has moved with a great sense of priority and speed to turn our 'Look East Policy' into 'Act East Policy'." Prime Minister Modi's tour of Indonesia, Malaysia, China, Mongolia, Japan, Myanmar, Vietnam, South Korea, Singapore, as well as Japanese Prime Minister's visit to India has brought the Government's Act East Policy into focus, with Modi stressing on the need to have closer relations with the East and Southeast Asian nations. It aims at the effective implementation of the 'Look East Policy' by developing better relations with the Southeast Asian nations through bilateral talks, trade and economic ties.

The "Act East Policy" has placed emphasis on India-ASEAN cooperation in India's domestic agenda on infrastructure, manufacturing, trade skill, urban renewal, smart cities, Make in India and other initiatives. India has nearly 80 billion dollars business with the ASEAN countries which is expected to increase to 200 billion dollars in coming future through the Act East Policy. For growth, progress and prosperity of India thus the development of the North Eastern region is a priority in the policy. The progress of the North Eastern India is at heart of the Act East Policy. The Act East Policy requires increased people to people contact, trade ties and other relations with countries and India's East, particularly Association of South East Asian Nations. The greater connectivity and economic integration of India's North East with its Eastern neighbours is to be considering a key focus area for growth and development of the region. The country worked with the vision that India's growth story will pick up speedier only when the Northeast region developed at the same pace in a balance manner. The progress of the Northeast region will be able to lead vast section of population towards prosperity.

Objectives of Act East Policy

The main objectives of "Act East Policy" are:

1. To promote economic cooperation, cultural ties and develop strategic relationship with countries in the Asia-Pacific region through continuous engagement at regional, bilateral and multilateral levels;
2. To increase the interaction of Northeastern Indian states with other neighbouring countries;
3. To find out the alternative of the traditional business partners like – more focus on the Pacific countries in addition to the Southeast Asian countries;
4. To curb the increasing impact of China in the ASEAN region;

The ASEAN-India Trade in Goods Agreement signed in August 2009 has paved the way for the creation of one of the largest FTAs. The ASEAN-India Trade-in-Service and Investment Agreement have also come into force in July 2015. With the signing of these Agreements, the ASEAN-India FTA is now complete. ASEAN-India trade for 2016-2017 rebounded USD 70 billion after a period of stagnant growth due to global slowdown of trade. Cumulative FDI inflows into India from ASEAN in between April 2000 to December 2016 are US$ 54.97 billion. The major sources of FDI from ASEAN countries are Singapore, Malaysia, Indonesia and Thailand. Cumulative FDI outflows from India to ASEAN countries, from April 2007 to march 2015 was about US$ 38.67 billion with Singapore being at the top of the list, followed by Indonesia, Malaysia, Thailand, Philippines, Vietnam and Myanmar. India and ASEAN have very good bilateral trade of US 71.6 billion in 2016-17. The share of bilateral trade with ASEAN is almost 10 percent of India's total trade. ASEAN is a very strong economic bloc which has combine population of 644 million, combined GDP of $ 2.7 trillion and Per Capita Income $ 4,200. The combination of India and ASEAN, they have $5 trillion economy, the third largest in the world after the China and USA. In order to harness the benefit of the Act East Policy, India has upgraded its relations to strategic partnership with Japan, Australia, Vietnam, Indonesia, Malaysia, Singapore, Mongolia, Republic of Korea and forged close ties with all the countries in the Asia-Pacific region.

Prime Minister Narendra Modi has categorically said that the Northeast would be at the centre of the Act East Policy, whose three key features are connectivity, culture and commerce. India's "Act East Policy" trajectory towards Northeast region is shifted. The Act East Policy along with several initiatives launched by

New Delhi for rapid economic development of the country 'Make in India', 'Skill India', 'Digital India', promoting energy security, creating infrastructure, and building smart cities can be considered as a strategic plan to generate greater flexibility and political space to contend with the increasing confidence in the region. India's connectivity and economic integration with Southeast Asia and the far East initiatives to secure the 'Act East Policy' with particular focus on Indian States in the Northeast, as well as concerns of increasing Chinese influence in the region. The Act East Policy promotes economic cooperation, cultural ties and develops strategic relationship with countries in the Asia-Pacific region through continuous engagement at bilateral, regional and multilateral levels. The policy focuses on the seven Northeastern states of India and provides enhanced connectivity to these states, including Arunachal Pradesh, with other countries in the neighbourhood.

On 30 August, 2018, in the inaugural address session of the 4th BIMSTEC Summit, 2018 in Kathmandu (Nepal) the Prime Minister Narendra Modi said, "I believe that there is a big opportunity for connectivity – trade connectivity, economic connectivity, transport connectivity, digital connectivity, and people-to-people connectivity." It is making a strong pitch for enhanced regional connectivity. With an eye on boosting connectivity among the BIMSTEC nations, Kathmandu Declaration 2018 agreed that the Master Plan on Transport Connectivity would serve as a strategic document that guides actions and promotes synergy among various connectivity frameworks, such as the ASEAN master plan on Connectivity 2025. It is important that India's North East region will have a vital role to enhance connectivity with the BIMSTEC States. India is already to host BIMSTEC start-up conclave to enhance communication and connectivity among the entrepreneurs on the member nations. Interestingly, North East India was with flavor of the season in Kathmandu, with Prime Minister presenting gifts from the North East to the heads of States. On the occasion of the 4th BIMSTEC Summit PM presented the BIMSTEC leaders gifts from India's North Eastern States. Made from golden muga silk, eri silk and cotton, the gifts comprised stoles and shawls depicting traditional motifs from North Eastern States and Kantha embroidery of West Bengal. The underscore the development potential of our North East region through enhance connectivity and trade and commerce in BIMSTEC region, including cultural and civilization ties.

Some recent decisions to enhance connectivity of the North East include a 4,000 km long ring road connecting the states; expediting railway projects connecting all states capitals by 2020, and extending to new destinations; border last-mile rail connectivity with Myanmar and restoring rail connectivity with Bangladesh. Twenty port townships are to be developed along the Brahmaputra and Barak river systems to enhance intra-regional connectivity. Prime Minister Narendra Modi has also proposed the augmentation of air connectivity to and from the region, which will help business ties with the ASEAN. At least 50 economic integration and development nodes are developed across the region, in tandem with transport corridors to boost manufacturing. Connectivity is also being upgraded in the border areas for strategic purposes, with highways and development plans approved for Arunachal Pradesh, Nagaland and Manipur, including a four-lane highway between Dimapur and Kohima.

North Eastern Region Vision 2020

On July, 2008, Manmohan Singh the Prime Minister of India released the "North Eastern Region Vision 2020", a document which identified various challenges as well as the strategies required to bring about peace and prosperity in the North Eastern region by 2020. The vision 2020 is based on the development strategy–

1. Empowerment of people;
2. Creation of development opportunities;
3. Developing sectors with comparative advantage;
4. Capacity development of the people and institutions;
5. Creating a hospitable investment climate;
6. Significant investment in both public and private sectors.

IX. RAIL TRACKS OF NORTH-EAST STATES

The railways entered the remote areas of Eastern region relatively earlier than the more accessible regions of British India. Assam Railway and Trading Company Commission a 65-km meter gauge track from Dibrugarh to Margherita (Sadiya) in 1881. Commercial interest of the East India Company in trading of tea and coal drove the technological upgradation in transportation. Discovery of petroleum catalyzed the growth, and around 1947, just before Independence, the whole North- Eastern Region, which included the erstwhile East Bengal, now Bangladesh, was buzzing with robust railways connectivity to the mainland as well as with the deep port Chittagong the fulcrum of all international trade for the region. In 1958, a new railway line zone, viz. Northeast Frontier Railway was carved out of the North Eastern Railway with headquarters at Maligaon, Guwahati. There are presently five divisions which serve these eight North Eastern states, that is, Katihar, Alipurduar, Rangia, Lumding and Tinsukia. Today NF Railway directly or indirectly serves all the eight North Eastern states besides West Bengal and Bihar. The NF Railway has become the lifeline of the North Eastern

Region transporting essential goods all over the region. It moves coal and petroleum products from the rest of India. NF Railway also serves as a rail head for the landlocked Himalayan countries of Nepal and Bhutan and provides interchange facilities with Bangladesh.

Railways are the best mode of mass transportation in the country. However, in the hilly terrains of the North-East it is difficult and expensive to setup rail networks. This account for the absence or nominal presence of railways lines in hilly states like Arunachal Pradesh, Manipur, Meghalaya and Mizoram. Even in Nagaland and Tripura the railway route has been setup in the plain area of the region.

In the Rail Budget 2012-13, a survey for railway electrification project has been sanctioned for Assam. It is envisaged bringing the Northern Banks of the Brahmaputra River under rail connectivity. Tripura is another state in the North-East Region where development of railway infrastructure is picking up well. From 2000 to 2010, the length of railway route in Tripura has increased from 41km to 152km. There are three major railway stations located in Dharmanagar, Agartala and Kumarghat. The government has proposed a 14km metre gauge railway line between Agartala (Tripura) and Akhaura (Bangladesh). In addition, there is a railway-linked to develop between Agartala and Sabroom covering 110km. In Arunachal Pradesh the nearest railway station in located at Harmoti in Assam 33km from Itanagar. The major functional rail head linking Manipur with the rest of India is at Dimapur (Nagaland), 215 km away from Imphal. However, a railway line from Jiribam, on the border of Manipur-Assam is under construction as a national priority project. New railway lines on Azra-Byrnihat, Dudnoi-Mehendipather and Byrnihat-Shillong routes in Meghalaya are important construction for the people of the North-East states. The construction of the extension of a vital broad gauge rail link between Bhairabi rail terminus on the Mizoram-Assam border and Sairang, a village 20km west of Aizwal, is in progress. In Sikkim rail connectivity is being created between Rangpo and Siliguri in West Bengal. A railway track is also to be laid for connecting Agartala with Akhaura in Bangladesh. The following map shows the rail road connectivity in all the capital of the North Eastern India States:

Source: Northeast Frontier Railway, Maligaon (the map is not Scale)

Objectives of Rail Project, Ministry of Railway in North Eastern Region

The major objectives to strengthen and expand the railway infrastructure by the Ministry of Railways in North Eastern Region are presently as follows:

1. Connectivity to all State Capitals
2. Conversion to unigauge- regionwide broadgauge network
3. Augmentation of network capacity for handling growth of traffic in future
4. Expansion of network to unconnected areas of the region
5. Improving trade and connectivity with neighbouring countries
6. Strengthening international borders.

New Phases of Development Northeastern Frontier Railway

In order to provide focused attention to asset creation in the North Eastern Region, planning should be carried out in two phases, that is, Phase I (Upto 2020) and Phase II (2020- 2030)

Phase-I (Upto 2020)

The Railways' shelf of projects is full to the brim for works upto 2020. Determined and planned efforts are imperative to achieve rail connectivity to all the capitals by 2020. All the remaining alignments to each of the capitals towns which expected to works get completed by 2020. At present, only Guwahati and Agartala are connected by rail.

1. Arunachal Pradesh: Itanagar has to be joined to the Rangia-Murkongselek route (which is under gauge conversion) at Harmuti. It is a sanctioned work upto Naharlagun which will act as a terminal for Itanagar.
2. Manipur: The track from Jiribam to Tupul will get commissioned and the extension from Tupul to Imphal has sanctioned.
3. Mizoram: Aizwal the capital of Mizoram is to be connected to Badarpur on existing alignment via Bhairabi. Bhairabi to Sairang and Sairang to Aizwal is a sectioned.
4. Meghalaya: Shillong is to be linked to Tetelia on the existing rail route but at present only Tetelia by Byrnihat route is under construction. Byrnihat to Shillong portion has been sanctioned.
5. Nagaland: at present work is sanctioned from Dimapur to Zubza and extension to Kohima.
6. Sikkim: Sivok to Rangpo is sanctioned and is extension to be Rangpo to Gangtok. And it is also rail connectivity to expedited upto Nathu La.

Argumentation of network capacity

The development of the rail network in the rail area is likely to increase the freight and passenger traffic and therefore augmentation of the network capacity will be needed. At present, the route from New Jalpaiguri to Lumding has doubled line in parts. With passenger and freight traffic likely to go up considerably in the future, the entire stretch from New Jalpaiguri to Guwahati will need to be doubled. The following routes are expected to be strengthened in due course.

Doubling lines:

1. Doubling of New Jalpaiguri to New Alipurduar route
2. Doubling of New Bongaigaon to Guwahati route and doubling Guwahati to Lumding route. This route is to common portion which serves traffic going to Dibrugarh side and towards Silchar. To avoid congestion, this route needs to be doubled. A part of the route between Guwahati and Digaru has already been completed and commissioned.

Phase II (2020-2032)

The projects being undertaken in Phase I will provide excellent inter-regional and intra-regional connectivity. Yet, the following two actions will further catalyse trade, commerce, tourism in the region.

Multi-Modal Hubs:

Badarpur and Dhubri are two locations which are eminently suitable for development as multi-modal hubs, particularly for the following reasons:

1. Badarpur is a railway junction situated very close to Silchar. Indian Railways owns large tracks of land on which a suitable yard can be built to serve the needs of a multi-modal rail terminal handling containers of various sizes. The Barak river flows close by, where and Inland waterways port terminal can be planned. A National Highway passed through the town. Silchar nearly 18 km away has an operational airport.
2. Dhubri is another such location. Located in close proximity to the Bangladesh border, it is situated on the Banks of the mighty Brahmaputra where the Inland Waterway Authority is already in the process of developing of an Inland port. Dhubri is already on the railway map and NH-31 passes through the town. An airport at Rupsi 24 km away is also coming up by 2020.

It is hence, proposed that Badarpur and Dhubri should be developed as multi-modal hubs in the North East Region, where all the four modes of transport- rail, road, air and waterways-coverage. These hubs are also strategically so well placed-both geographically and demographically that they may be amenable to be developed through PPP mode.

New Line from Dhubri to Silchar via Shillong

It is suggested that a new line through Meghalaya connecting Dhubri to Silchar via Tura-Shillong should be surveyed and taken up as an alternate route for Badarpur-Silchar and beyond. This is new alignment will link the entry point of Dhubri on the Indo-Bangladesh border to Meghalaya and Southern Assam. It would create a link between the two proposed multi-modal hubs at Dhubri and Badarpur 8km near Silchar. At Shillong, it will connect also will the new sanctioned line to Byrnihat in Meghalaya on the Guwahati-Shillong road providing another alternate connection.

Trans-Border Connectivity

1. New line between Imphal-Moreh-Mandalay:

By 2020, the railway should arrive in Imphal. In Phase II, this alignment should be extended to Mandalaya in Myanmar via Moreh-Tamu which is emerging as India's gateway on the land route to South East Asia. With the doors of democracy having opened in Myanmar, trade and commerce between India and Myanmar is bound to escalate. A helpful infrastructure will only galvanise this progress. Further, this is bound

to give a fillip to the Look East Policy / Act East Policy. However, it is suggested that this connectivity should be provided on broad gauge upto Mandalay to ensure seamless movement across borders.

2. New Rail Link from Sittwe (Myanmar):

India has invested heavily in developing Sittwe port in Myanmar in the Rakhine region. The transportation of goods via this port is at present planned by road and inland waterways. Kaladan Multi-Modal Project has been undertaken to connect Sittwe port to India which includes development of waterways on Kaladan River and also a road connecting Sittwe port to Mizoram. However, it is felt that without proper rail connectivity, the potential of a major port cannot be exploited fully. It is hence suggested that the Indian government should plan for a rail link BG from Sittwe port to Aizwal in consultation with the Myanmar government. This alignment can be taking up further north from Aizwal to Imphal to Kohima to Tirap on the existing rail route to Tinsukhia. This rail link, if constructed, will generate many alternate rail routes for the whole region, thereby precluding any possibility of complete blockage of one state by rogue group in a neighbouring state. If the Imphal-Moreh-Mandalay line also comes up, it will provide a handy connectivity to every state to take on international trade. A direct rail link between Aizwal and Agartala will convert the whole alignment as a 'garland' on the neck of the North East Region adorning its bodypolitics.

3. Imphal as new rail hub (National & International):

Imphal can become a potential rail hub in future through possible project extensions in the following:

Present Proposal: Jiribam-Tupul-Imphal (National Project)

~ Eastward extension: Imphal-Moreh-Mandalay

~ Northward Extension: Imphal-Kohima-via Northern Nagaland-Tirap (Arunachal Pradesh)

~ Southern extension: line coming from Paletwa (on the Kadalan Multi-Modal route)-Indo-Myanmar border-Lawngtlai-Aizwal Churachandpur-Imphal.

It is proposed that Imphal will become a hub for railway connectivity with Myanmar from two sides and also get Nagaland and Arunachal Pradesh.

Northeast Frontier Railway: Brief of all Projects

The following table shows that the new rail lines has been proposed for the entire North Eastern Region and it also connect the South Asian and East Asian countries.

Table1: Name of Project New Lines

Sl. No.	Name of Project New Lines	Total Km	Sl. No.	Name of Project New Lines	Total Km
1.	New Maynaguri to Jogighopa New Line Project along with Gauge Conversion from New Mal Jn. to Changrabandha	288.88	**23.**	New BG line from Kumarhgat to Agartala new line project	109
2.	New BG Line from Agartala- Sabroom	112.818	**24.**	New BG line from Harmuti to Naharlagun	21.75
3.	Bogibeel Rail-Cum-Road Bridge over River Brahmaputra near Bogibeel with link lines on North & South Banks	73	**25.**	New BG line from Dudhnoi to Mendipathar	19.75
4.	New BG line from Tetelia as an alternative alignment to Azara-Byrnihat new line	21.50	**26.**	Lumding-Badarpur-Silchar, Arunachal_Jiribam & Badarpur-Kumarghat GC & MM GC of Baraigram-Dulabchera, Karimgaj-Maishashan & Karimgaj bypass line	420.90
5.	Haldibari-International Border New Line Project	3.50	**27.**	Jagbani-Ktihar-Barsoi-Radhikapur and Katihar-Teznarayanpur section and Material Modification for new line from Raiganj to Dalkhola	279.57
6.	New BG line from Jiribam-Imphal New Line Project	110.625	**28.**	New Jalpaiguri-Siliguri-New Bongaigaon including Branch lines and Material Modification for Chalsa-Naxal and Rajabhatkhawa-Jainti	454.15
7.	New BG Line from Jogbani (India) to Biratnagar (Nepal)	18.601	**29.**	Gauge Conversion of Katakhal to Bhairabi	84
8.	New BG line from Bhairabi to Sairang	51.38	**30.**	Gauge Conversion of Rangiya Jn.-Murkongselek including finger line of Balipara Bhalukpong	505
9.	New BG line from Agartala to Akhura (Bangladesh) new line project	15.064	**31.**	Gauge Coversion of Aluabari Road-Siliguri Jn. Via Galgalla	76.23

10.	New BG Line from Araria to Galgalia new line project	110.75	**32.**	GC Lumding-Dibrugarh including Branch lines, Haibargaon-Mairabari and Senchooa-Silghat	732.67
11.	New BG line from Sivok to Rangpo	44.96	**33.**	New CoochBebar-Samuktala Road (Doubling Project)	29.02
12.	New line from Dimapur to Zubza now Dhansiri-Sukhobi-Zubza	91.75	**34.**	New CoochBehar-Gumanihat Patch Doubling Project	29.32
13.	New BG line from Murkongselek to Pasighat new line project	26.15	**35.**	Lumding-Hojai Patch Doubling Project	44.92
14.	New BG line from Byrnihat to Shillong	108.4	**36.**	Ambari Falakata-New Maynaguri Doubling Project	36.52
15.	New BG line from Balurghat to Hili	29.60	**37.**	Digaru-Hojai Doubling Project	102
16.	New BG line from Jalalgarh to Kishanganj new line project	50.871	**38.**	Bongaigaon-Goalpara-Guwahati Doubling Project	176
17.	New BG line Gazole-Itahar, Itahar-Raiganj & Iatahar-Buniadpur as a material Modification of Eklakhi-Balurghat new line project	163.215	**39.**	New Bongaigaon-Rangiya-Kamakhya Doubling Project	142
18.	New BG line from Kaliaganj to Buniadpur	33.13	**40.**	New Maynaguri-Gumanihat-Doubling of remaining portion	51.65
19.	New BG line from Dimapur to Tizit	257	**41.**	Saraighat Bridge Doubling Project	7
20.	Sivsagar to Jorhat new line project	62	**42.**	Kamakhya-New Guwahati Quadrupling Project	10.30
21.	Salona to Khumtal new line project	99	**43.**	New Guwahati-Digau-Patch Doubling Project	30.18
22.	Tezpur to Silghat new line project	25			

Source: Northeast Frontier Railways (Construction), Maligaon (As on 31st, October - 2017)

Northeastern Frontier Railway Construction Organisation meets Target for 2017-2018

The Northeast Frontier Railway Construction Organisation has met its target through completion of all the projects it set out do without the year 2017-2018. It has recently commissioned three important targeted works of BG doubling project in existing single line thereby thus enhancing the line capacity of existing route tremendously.

1. Two doubling projects, New Coochbehar to Gumanihat (29.32 km) and New Coochbehar to Samuktala Road Jn. (29.02 km), were completed on March 27, 2018 last after CRS inspection of 41 km from Ghoksadanga-New Coochbehar-New Alipurduar at maximum sanctioned speed of 110 kmph.
2. The inspection was completed after a successful trial run up to maximum 130 kmph to entire satisfaction of Commissioner of Railway Safety, S.K. Pathak. Work under this section involve construction of two important bridges on over Torsa and river Kalyani including replacement of three old Road over bridges and change in interlocking at 11 stations simultaneously. The N F Railway Construction Organisation has not only achieved the targeted doubling section set for the fiscal 2017- 2018, but also completed the Sajerpar-Ghoksadanga doubling section (7.5 km), which were targeted in fiscal 2018- 2019.
3. In Raninagar Jalpaiguri-Jalpaiguri Road (7.15 km) section of ambary Falakata-New Maynaguri (36.52 km) doubling project, the CRS inspection has completed and passenger train services started from February 9, 2018.
4. During the financial year 2017-2018, Karimganj bye-pass section (3.50 km) of Lumding-Silchar gauge conversion project have also been commissioned for passenger train service on November 25 next. This has facilitated flexible train operation and avoids usual reversal of engine from one line to another line without sustaining loss time for mail and express train.
5. N F Railway has further commissioned BG new line for a total length of 11.50 km of Gauripur-Alamganj section of New Maynaguri-Jogighopa (288.88 km) new line project in the north bank of river Brahmaputra.
6. The section of Udaipur-Garjee (9.2 km) of Agartala-Sabroom New line project (112 km) has commissioned with the running of passenger train services from 5.1.2018 which was flagged off by Rajen Gohain (Minister of State, Railway).
7. Newly constructed BG Railway line from Garjee to Santirbazar station (13.36 km) was inspected by S.K. Pathak, Chief Commissioner of Railway Safety on March 29, 2018. Once authorization is received from the Railway Safety Commissioner, trainer can now run up to Santirbazar, providing much needed rail connectivity between Agartala to Santirbazar.

8. Track laying is in advance station between Santirbazar to Belonia. Construction work is also progressing in full swing in the last leg of the project between Belonia to Sabroom.
9. The New line construction of 3.50 km length up to the international border of India and Bangladesh has been completed and goods train movement was done on March 15, 2018.
10. Tetelia to Kamlajari (10 km) section of Tetelia-Byrnihat (21.50 km) new line project has been completed and Engine rolling done on March 28, 2018. Out of 21.50 km, 19.20 km falls in Assam and 2.30 km falls in the state of Meghalaya. The Tetelia-Kamlajari section is having one tunnel of 500 m long, two major bridges and 24 minor bridges. The section has been planned for commissioning.
11. As part of Bogibeel Rail-cum-Road Bridge new line project, Railway track between Bogibeel North Block cabin between Sripani and Silapathar station to Tangani station (13.94 km) has been inspected by CRS, N F circle on March 28, 2018. This is part of the Bogibeel Rail-cum-Road Project.
12. The CRS inspection has been conducted on March 29, 2018 on newly constructed BG line from Garjee station to Santirbazar station (13.50 km) of Agartala to Sabroom new lime project in the state of Tripura.

X. FINDINGS OF THE STUDY

The presence of railway in the North Eastern Region is more than 125 years old when the first passenger railway system came into being in 1881 between Dibrugarh and Margherita (Sadiya). Since then, the railway system into being in the region has grown considerably. In 1958, a new railway line zone, viz. Northeast Frontier Railway was carved out of the North Eastern Railway with headquarters at Maligaon, Guwahati. There are presently five divisions which serve these eight North Eastern states, that is, Katihar, Alipurduar, Rangia, Lumding and Tinsukhia. Today NF Railway directly or indirectly serves all the eight North Eastern states besides West Bengal and Bihar. The NF Railway has become the lifeline of the North Eastern Region transporting essential goods all over the region. It moves coal and petroleum products from the rest of India. NF Railway also serves as a rail head for the landlocked Himalayan countries of Nepal and Bhutan and provides interchange facilities with Bangladesh.

Prior to 1947, the North Eastern region formed an economic unit with East Pakistan / Bangladesh. The severance of East Bengal with the partition broke that economic integrity placing hurdles on future economic progress. It had isolated the region, sealed both land and sea routes for commerce and trade, and severed access to traditional markets and the gateway to the East and South East Asia – the Chittagong port in East Bengal (Now Bangladesh). The partition distanced the North Eastern Region to the rest of India by restricting connectivity to the narrow 27 km wide Siliguri corridor, making the region a 'remote land' with 96 percent of the boundary of the region forming international borders. The uneasy relationship with most of the neighbouring countries has not help the cause of development of the region. After the 1965 and 1971 Indo-Pak war, communication links were completely broken. With the emergence of Bangladesh, the threads were picked up again.

Railway is the big organisation in the transportation sector. Railway is the safest from of transport. The chances of accidents and breakdown of railways are the minimum as compared to the other modes of transportation. The North Eastern region being bound by international neighbours, connectivity to the neighbouring countries through land and water routes have to be created for trade, tourism and services. The western part of the region is connected to the Eastern part of the country through the Siliguri land, which has an approximate width of 33 kilometers on the eastern end and 21 kilometers on the western end. Any transport planning for the region will have to design an optimum use for this region land mass. The objective of the transportation Development Strategy for the North Eastern Region is to promote and support the balance and equitable economic development of the region. The objective of the North Eastern Vision 2020 is to enable the North Eastern states to reach the same level of economic growth and provide opportunities to its people as of the rest of the country. Transport planning for NER has to support the projected growth rates for the region.

XI. CONCLUSION

Indian Railway has a vast network of track, bridge, route, and different categories of trains and coaches. A large segment of track has been electrified. Indian Railways has been a change agent in the North-East region. The area has benefited immensely from the 'unigauge policy'. India would be connected seamlessly by rail from its easternmost corner to the westernmost corner. Completion of the Bogibeel Bridge would connect the North Brahmaputra railway alignment with of South of Brahmaputra rail line at the easternmost end, providing an alternate route to Tinsukhia, Tirap, Dimapur, etc. New railway lines, one connecting Sittwe in Myanmar to Tirap in Arunachal Pradesh across Mizoram, Manipur and Nagaland and another line connecting Dhubri to Silchar via Meghalaya is considered essential to improve transportation in the region. The railway has now extensive knowhow of tunnel construction. If the Railways succeed in bringing to reality its ambitious programme of taking rail to the capitals of every state in the North Eastern region, it would be a robust or a significant achievement of the country.

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