Conclusion

Railway System is the one of the greatest invention which was introduced in India during the British rule. It was the Britishers who have transformed India into a leading economic power. However India’s development under the British rule has been strangely lopsided. Amidst a general landscape characterized by backwardness and perhaps even retrogression, there stand out a few substantial economic achievements. These have been obtained at a steep cost in terms of social dislocation. 19th century was the age of inventions Europe found a new tool during this period to realise its twin objective of imperialism and industrialism. As Carl Marx observed, the growth of modern civilization in its economic aspects came to rest on the power of production. The construction, extension and management of the railways propped up the production process and catered to the colonial needs of the British. The Railway as a tool exploited the untapped and natural resources in India. But the Government projected Railways as an instrument for modernization and industrialization.

India’s Railway history, right from its inception to the present day contains much of interest and its significance is enormous physically, demographically, and with a cultural complexity to match its size. The entire era of Railroads in India is well over 150 years long. It stretches from the beginning of construction in 1850 to the opening of sections as an ultra-modern and underground Railroad’s continuous expansion brought major changes in the economy of India. The longer, wider story of the Railroads is nothing less than the fascinating story of modern India. The Railroads, their employees, their

1 Ian J. Kerr, Railway in Modern India, Oxford University Press, New Delhi, 2001, p.96.
passengers and freight shippers, and many others including colonial administrators and nationalist politicians, played a central role.  

When Britain colonized India and began their rule, they found the then prevailing mode of transport costly to make and maintain. In the Madras presidency, there were in 1846 only 3110 miles of road fit for vehicular traffic. The British agency houses like Arbuthnot and Parry encouraged Railway making as they had vested interest in trading in jaggery, sugar, cotton, betel leaves, rice and other items.

History of Railway in Madras Presidency dates back to 8th July 1845 when the first company i.e Madras Railway company was formed in London. The first general meeting of the shareholders took place in February 1846. The object of the promoters of the company was the construction of a Railway from Madras to Arcot. A general scheme was prepared, which in 1847 was submitted Mr.Simms, C.E., the first Director of the Indian Government Railway department.

In 1849 Mr.Arthurnot, Chairman of the Board of Directors, addressed the court of directors regarding Railway in Madras and subsequently Mr. Simms, the first Director of the Indian Government Railway Department by a letter asked for an assurance from the court of Directors that they were prepared to grant the same terms and encouragement to Madras as they had to Bengal and Bombay. Simultaneously with this movement, the residents in Madras held a public meeting, with the Governor being in the chair, for the purpose of preparing a scheme for a joint stock company to make the Railway line from Madras to Arcot subsequently the Madras Railway new company was formed. Finally the Directors passed the following resolution resolved that the court,

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continuing to entertain the opinion that it would be just and expedient to extend the experimental introduction of Railways in India to the Madras Presidency, recommend that the terms corresponding with those which had been offered to the East Indian and Great Indian Peninsula. Railway companies be granted to the Madras Railway company in respect of a capital of Rs.60,00,000. This resolution was submitted to the Board of Control for the affairs of Indian on the 1st June 1849, but it was not till the 17th August 1849 that a reply was sent. The terms of the reply were decidedly opposed to the wishes of the Court of Directors, and sanction to the proposal was refused because the conditions on which experimental lines were being made in Bengal and Bombay place the Board was of the opinion that the Bengal and Bombay lines were made on an experimental bases with the whole risk of the under taking on Government. But due to the absence of information, the Board feared the Railway line in Madras.3

Henry Pottingar, the Governor of Madras, first opened the Railway network connecting Madras to Wallajahnagar, a commercial town in Arcot. Thereafter Railway construction progressed with lightening speed, as conceived and carried out by Lord Dalhousie. Every step taken was directed towards the search of strategic place and market centres. In 1862 a survey has done in Tirunelveli District by the support of the collector R.K. Buckle. Before 1880, almost all the Tamil districts had been connected by rails.

The Great Southern Railway Company wished to carry out their original intention of making a line from Trichinopoly to the port of Tuticorin, close to Cape Comorin, at the southern extremity of India, but it did not seem to be likely that the anticipations of profit would have been have realized more

certainty, than those which were formed regarding the finished line, where it was proved that they were far too sanguine.\textsuperscript{4}

Madras Presidency was the only presidency of British where the Local Board got the right to own and construct Railways as a feeder line to the main trunk line. Tanjavur District Board, Tirunelveli – Trichendur District Board deserve special mention here. As these lines carried a good number of goods and passengers, the companies accumulated profits. The collection of a special cess enabled them to carry construction works. It is pertinent to point out the the Tirunelveli District Board possessed its right over Railways until 1947.

The Tirunelveli-Tiruchendur line constructed during 1922-23 provided ample scope for the collection of raw materials. Tiruchendur, a renowned pilgrim centre afforded pilgrim traffic. The salt pans that produced 24,000 tons of salt were taken to Palayamkottai and to Tirunelveli. The fish market of Tuticorin, the thickly populated Muslim village Melapalayam which was a centre of a cattle market, linked Tirunelveli with other market centres. The Kulasekarapattam light Railway was opened in 1925. The British trading houses were very interested in owning and running railways. Parry & Co which controlled a number of sugar factories and East India Distilleries possessed its tramway.

The Famine Commission emphasised on famine feeder line. Morappur-Krishnagiri was a famine feeder line. But such lines did nothing beneficial. On the contrary the havoc of famine was very deep and the British Government’s attitude was negligent. The famines forced large number of people to migrate to other areas.

The link between the spread of Railways and the incidence of famine has been well established. The expansion of export trading and construction of Railways to open up the interior areas subordinated Indian agriculture to the need of the western markets rather than the need of the local consumers. Therefore the expansion of Railways did little to stop famines. The Government of India followed a policy rooted in imperialistic intentions. As a matter of fact the famine was a recurring phenomenon even after the construction of Railways.

The Government introduced Railways as an instrument for aiding the military and defending the frontiers. So a large sum was spent on the frontier areas. It could offer very little to civilian traffic. The companies were least interested in serving the public. This was because, the construction was guaranteed and expenditure exceeded interest payment. Some of the cotton growing region had lines but many of them passed by the marketing and collection centres and the richest cotton tracts received little attention. The unprofitable lines depended very much on subsidy.

There was no uniform freight charge in all the Railway companies. The Madras and South Mahratta fixed its own rates and fares. The same was the case with the South Indian Railway as well. The tonnage and rate policy became a live problem in Indian politics and the Nationalists criticised the Railway administration on this score. Once or twice in a year the fare structure was changed. It gave constant problem to the passengers. The freight charged was high. Actually the British aimed to earn mostly through the goods traffic.

The reduction in Railway rates during the First World War time led to the enormous growth of volume and value of internal trade. Foreign demand was the prime mover of this expansion. The steady decline of Railway freight rate was to stimulate trade. The rate fell from 54 pie in 1880 per mile to 8½ pie per
mile in 1920. During this period, South East Asian rice poured into Tamil market. When cart charged fairly high, the Rail rates to and from the port centres were cheaper. Paddy in large quantity arrived from Rangoon to the market centres of Madras and Coimbatore.

At the outset the British evolved in India a colossal administrative apparatus. They revolutionized the production process that led to proliferation of modern industries and industrial centres in Railway junctions. Inter region mobility, emergence of the modern working class, the class of wage labourers, ruin of the artisanal class, pauperisation of the peasantry contributed to the liberation struggle of the country.

The educated Indians awakened by their patriotism began to realise and question how much amount in the form of guarantee, reserve fund, imperial fund, and Railway income flowed into British purse.

Regarding the area which requires to be demarcated in the different districts, it was necessary to consider the price paid by the Railway and the revenue derived by Government from the fuel cut in the Government forests. The present practice is for contractors to cut in the localities assigned to them and to deliver to the Railway at certain rates agreed upon. These rates do not include the amount due to Government on account of purchase-money or seigniorage, which is paid by the Railway to the Forest Department direct. This amount, as a rule, is one rupee for 1,000 lbs., which is equivalent to Rs. 2, Rs.3, and Rs. 10 per ton. But when the late cuttings were made in the Cuddapah reserves, which are close to the Railway line and are better stocked than the open forests, the Forest Officer arranged with the contractor that higher rates should be paid. These rates were to be for the Kodur hill reserve Rs.2, Rs.8, and for Vakaticonah and Yerraguntlakota Rs.3 per ton. It had been agreed between the Forest Officer and the contractor that these higher rates should fall upon the
contractor, who would save in carriage and otherwise; but the result was, that these higher rates were objected to by the Agent of the Madras Railway.

After 1855, the Railway lines steadily expanded. By 1880, the total length of Railway tracks in South India was 1521 miles. According to Dr. Cleghorn's the Director, Board of Revenue Department, estimation in 1880 the Indian Railway have consumed 2,600,000 sleepers, without counting annual replacements, which must have amounted to 330,000 sleepers. For sleepers, durable timber such as sal and teak was more frequently used. Regarding the impact of the Railways in Indian forests, Colonel Pearson wrote: "As soon as mutiny was suppressed, the Railways were taken in hand and the timber merchants and sleeper contracted raided the forests for contractor, whether European or Indian, to obtain Parwana orders from authorities to cut timber for him to set to work".

These surveys, with a report by the chief engineer of the south Indian Railway, were laid before the Travancore Government. His Highness, the Maharajah of Travancore having expressed a desire for the former (the northern) route. The Madras Government directed that this route should be further examined, and that an estimate should be submitted for a line with a gradient if possible, the results of this investigation. At last the work was started in 1881. During the construction of the Railway line between Thirunelvelli to Quilon via Sengottai, a vast area covered with natural forest were destroyed. Such as Babul (Acaciaarabica), umbrella thorn (Acacia planiforns) and plantations were

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5 BRP, dated 8.4.1879, No. 919, p. 3172.
6 G.F. Pearson, "Recollection of the Early Days of the India Forest Department, 1858-1864", in Indian Forester, XXIX, Government of India, New Delhi, 1903, p. 312
destroyed and utilized for Railway sleepers and as well as Railway fuel. In this way forests in all the districts of Tamil Nadu were deforested.\textsuperscript{7}

In Tamil Nadu labour was found cheap except during harvest season. They constituted the major chunk of labour force in railways. Their working condition was miserable. Racial discrimination was very much practiced. The labourers agitated against conducting trade test and wage cutting. Retrenchment was a common feature in the Railway service. The colonial masters treated the Indians as mere menials. The harassment and oppression of the bureaucracy led to the formation of labour union. Nagapatinam, Golden rock in Ponmalai and Perambur served the nerve centres of protest. The highhanded attitude of the British was very clear in labour dealings. The sacrifice of labour leaders like Packirasamy Pillai of Nagapatinam Union, Anandan Nambiar, papa Unmanath and Ismailkhan of Golden Rock labour union are still remembered. The Ponmalai martyrs in the Railway strike of 1946 remind us the colonial atrocities.

Railway had a great impact on deforestation by means of firewood, Railway sleepers and construction of Railway lines through forest areas. Deforestation spread widely, especially in the northern high latitude, it took a toll on the monsoon across the northern hemisphere. Particularly India was affected badly, according to a new study from researcher at the Indian Institute of Science in Bangalore.

Thus deforestation reduced rains in the monsoon regions of the northern hemisphere. India was the most affected, with global deforestation producing an 18 per cent reduction in its summer monsoon rains, the scientists noted in a paper in the Proceedings of the National Academy of Sciences. On the other

hand, the deforestation led to moderately increased rains over South Africa, South America and Australia in the southern hemisphere.\(^8\)

It is very regrettable when trees are cut down to be used or sold as fuel (sometimes in the form of charcoal) or timber. The removal of trees without sufficient reforestation has resulted in damage, biodiversity loss and aridity. It has adverse impacts on biosequestration of atmospheric carbon dioxide.\(^9\)

Prior to 1882 irregular felling were done to make charcoal. The permit system was in vogue till 1895. In 1896 a working scheme was prepared by Mr. H.A. Porter, Director of Indian Forest Department, for seven out of the nineteen reserves in the range. The system of working was ‘pure coppice’ on a rotation of 25 years. In 1903-1904 coupes were opened in other reserves to meet the growing demand for firewood from the South Indian Railway, Madurai and Tiruchirapalli markets. A consolidated plan for all reserves was prepared by Mr.Dupse Thornton, Director of Indian Forest Department, in 1909. Fuel coupes were worked under Thornton’s plan till the end of 1916-17, when it was found that the whole of Semmalai, Methinamalai. A revised working plan by Venkateswara Iyer, Director of Indian Forest Department, came into force from 1936-37 for ten years. The important feature of the revision was reduction of the rotation from 40 years to 30 years and increasing the number of series to eight by real allocating the existing four series.\(^10\)

The study of deforestation not only reveals us the scale of environmental changes but also opens up the possibilities for further research. Deforestation leads to wider agro-ecological changes with serious consequences for the

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\(^8\) The Hindu, dated 4.3. 2015, p.6.
natural resource based on the communities.\textsuperscript{11} Establishing these linkages is not a simple task but overlooking them is to undercut the significance of an environmentally informed history. An exploration into these changes affected the economy of communities on one hand and ecology on the other. It gives insights into the intricate relationship between man and nature.

The study of this relationship throws light on the process of commercialization of forests and their integration into the wider trade network. Although some products were extracted for trade from certain areas even during the medieval period, a large part of the forests was inaccessible. Forests began to be opened up for a large-scale wood extraction from the 1840 and 50. Around this time traders moved to the hills in large numbers because forests in the plains had already shrunk considerably. Increased demand for timber by the railways and the Public Works Department encouraged the state to take over forest management. The revenue from forests was increasing and a large part of this was invested in building roads in forests to make them further accessible for exploitation.\textsuperscript{12}

Totally plantations were used for Railway fuel. There are 19 plantations of which 13 are in the vicinity, and 6 plantations were in Ootacamund and Coonoor. After the establishment of the Railways in South India particularly in Tamil Nadu, fuel supply by firewood had increased the purpose of the locomotives or stream engines. So that the large number of trees in forest were converted to a non forest use. Examples of deforestation include conversion of forestland to farms, ranches, or urban use.

The extensions here suggested are found to be insufficient to supply the requirements of the railway, the further experience which have been gained

\textsuperscript{11} For an excellent discussion on various impacts of deforestation in the Gangetic plains see Mann (1998, 1999). I have also discussed elsewhere impact of deforestation on the agrarian economy of Uttarakhal (Dangwal 1998)

\textsuperscript{12} Manual of Madras Administration Report, Madras Presidency, Madras, 1872, p.52.
shows the way to the measures required to meet the case. The Kurnool-Cuddapah canal is navigable from August to January, and the question should be studied in detail, whether wood from the Nallamalais in Kurnool and the Lankamalais in Cuddapah can be brought down the canal to Krishnapuram on the railway at remunerative rates. A study of deforestation not only informs us of the scale of environmental changes but also opens up possibilities for further research. Deforestation leads to wider agro-ecological changes with serious consequences for the natural resource base of the communities. Establishing these linkages is not a simple task but overlooking them is to undercut the significance of an environmentally informed history. An exploration into how these changes affected the economies of communities on the one hand and ecology on the other can give insights into the intricate relationship between man and nature.

The study of this relationship throws significant light on the process of commercialization of forests and their integration into the wider trade network. Although market forces have made inroads into woodlands across the world in similar ways, there were crucial differences as well. Recognising and understanding these differences will prevent simple generalizations about the process of deforestation.

State control over forests was strengthened when they were reserved after the passing of the Forest Acts in 1865 and 1878. The forest department now systematically surveyed forests Acts in 1865 and 1878. The forest department now systematically surveyed forests and made them accessible for large-scale timber operations. The extraction of wood grew rapidly in the late 19 century and the process continued till the early 1920. For a decade, the timber market slumped first due to the post-war crash of timber prices and then due to the Great Economic Depression. The scale of wood extraction reached new heights during the Second World War.
Growing population both within and outside the region, the emerging demands of new cantonments, hill stations, and other urban areas made more and more demands on forests. However it was the demand for wood by the Railways that dramatically increased the scale of extraction. The expansion of Railways in northern India was considerably dependent on the supply of sal and deodar sleepers from the sub-Himalayan and Himalayan forests. The demand for wood by the Railways began to decline from the 1920 when Railway expansion slowed down. Around this time, industrialization began in the country and new industries made demands on forests for raw material as well as for fuel. Industrial demand however peaked in the post-independence period. The two world wars also exerted considerable pressure on forests.

The forest department maintained its management of forests was sustainable. Forests were managed according to the prescriptions of the Working Plans and that only ‘maximum sustainable yield’ was removed from the forests. However, ensuring sustainability was not easy, given the quality of data collected for preparing Working Plans and the way silvicultural practices were carried out. Regeneration of felled areas was never up to expectation. Further, there was pressure of generating revenue and meeting the strategic demands of the colonial administration. This often resulted in overexploitation of forests, a process which continued even after independence.

This legacy had an explicit influence on the forest policies of independent India. Most policy interventions since independence including social forestry, joint forest management and community forest management have been justified with desiccationist discourse. Green colonialism proposed, at one level, the conservation of forests for the protection of the climate, and at another facilitated the state's monopolistic control over forests. In post colonial India, green colonialism
has been replaced by green nationalism, which has actually further reinforced state control over forests. The history of desiccationist discourse in South India underscores the limitations of state sponsored desiccationist fears, which are actually used for certain agendas and do not reflect the actual process of environmental degradation.

Thus Britishers came to India as traders but brought drastic change in transportation. They also brought Industrial Revolution along with their trade. Thus Industrial Revolution paved a way to Rail Transport. On one hand India needs to be grateful to the British for opening their eyesight towards a new dimension of civilization but on the other India, the colony of British lost our natural boon of the Forest.

Railways had a great impact on deforestation by means of fire wood, Railway sleepers and construction of Railway lines through forest areas. Due to deforestation, lot of natural calamities occurred and environmental circumstances polluted. But at the same time easy access to travel from one place to another remote place is very easy for the people. With the introduction of Railways in India a turning point began in the transport system of India. Even though the British started Railways for serving the needs of their administration, it became a boon to India. Different Railway companies like Great Indian Peninsula Company, East Indian Railway Company, Madras Railway Company, Bombay, Baroda and Central India Railway Company and the Bengal Nagpur Railway Company played an important role in the introduction of Railways in India. The year 1853 is remarkable in the history of India as it laid the foundation of the Railways.

There were facilities to undertake excursions with the help of Railways to places like Palani, Madura, Dhanushkodi, and other places of interest in South
India. Scientists, Artists, Sociologists, Philosophers and Economists travelled from place to place to participate in conferences, seminars and other intellectual forums with the help of the Railways. This had enriched their knowledge and benefited the people at large. They met together in scientific and cultural conferences held at different centres in the country. Thus mass education, science culture and the spirit of nationalism began to grow due to the improvement of Railways in the country.

Each of the Railways played a distinctive role. The Madras and Southern Mahratta Railway covered both the states of Madras and Bombay and brought them together serving the north and south of India. The Mysore Railway filled a gap left by the Madras and Southern Mahratta Railways. The South Indian Railway brought the states of Madras and Travancore-Cochin together. In 1947, after India became independent, the railways were integrated in to different number of zones. On 14.4.1951 these Railways were merged to form the Southern Railways, the first zonal Railway on the Indian Railway System.\(^\text{13}\)

At present the different Government Railways were therefore regrouped and formed into six Zonal Railway systems. They are, Southern Railway was formed on 14\(^\text{th}\) April 1951 by the amalgamation of Madras and Southern Mahratta Railway, the South Indian Railway and the Mysore State Railway. It’s route mileage was 6016(9682km).\(^\text{14}\) Central Railway was formed on 5\(^\text{th}\) November 1951 by amalgamation of the Great Indian Peninsula Railway Company, the Nizam’s state, the Scindia and Dholpur state Railways. Its route mileage was 5428 (8735km).\(^\text{15}\) Western Railway was formed on 5\(^\text{th}\) November 1951 by the integration of the Bombay, Baroda and the Central India Railway

\(^\text{15}\) J.Johnson, The Economics of Indian Transport, Allied Publishers Pvt.td., Madras, p.96
Company, Saurashtra Railway, the Jaipur State Railway, the Rajasthan Railway, the Cutch State Railway and the Marwar - Pulad section of the Jodhpur Railway. It’s route mileage was 5461 (8788kms).\textsuperscript{16} Northern Railway was formed on 14\textsuperscript{th} April 1952 by the integration of the Jodhpur Bikaner State and Eastern Punjab Railways, Lucknow Moradabad and Allahabad divisions of the East Indian Railway and the Delhi - Rewani - Fazilka section of the Western Railway. Its route mileage was 6000 (9656kms).\textsuperscript{17}

Eastern Railway was formed on 14\textsuperscript{th} April 1952 by the amalgamation of the Bengal-Nagpur Railway with the divisions of the East Indian Railway not transferred to the Northern Railway. Its route mileage was 5667 (9120kms).\textsuperscript{18} North Eastern Railway was formed on 14\textsuperscript{th} April, 1952 by the integration of the Oudh - Tirhut and the Assam Railways and the Kanpur - Achnera section of the Western Railway.\textsuperscript{19} In 1955 the Eastern Railway was divided into Eastern and South Eastern zones. In 1958 the North Eastern Railway was divided into the North East and the North East Frontier Railways.\textsuperscript{20} In 1966, the ninth Railway Zone, the South Central Railway comprising portions of Southern and Central Railways was formed.\textsuperscript{21}

In 1955 the Eastern Railway was divided into Eastern and South Eastern Zones. In 1958 the North Eastern Railway was divided into the North East Frontier Railways.\textsuperscript{22} In ninth Railway Zone, the South Central Railways comprising portions of Southern and central Railways was formed.\textsuperscript{23}

\textsuperscript{16} Ibid.
\textsuperscript{17} Deshabhimani Daily, dated 15.4.1952.
\textsuperscript{18} Malayala Manorama Daily, dated 15.41952.
\textsuperscript{19} Mathrubhoomi Daily, dated 15.4.1952.
\textsuperscript{20} V.V.V.Subburaj(ed), Malayala Manorama Year Book 2009, Thiruvananthapuram, 2009, pp.625-27.
\textsuperscript{21} J.S.Mathur and S.P.Agrawal, Surface Transport in India, print well publishers, Jaipur, 1999, p.110.
\textsuperscript{22} V.V.K.Subburaj (ed), Malayala Manorama Year Book 2009, Thiruvananthapuram, 2009, pp.625-627.
Southern Railway took effective steps in the modernisation process of Gauge conversation. In February 1964 the Chief Minister of Kerala addressed the need for converting the metre gauge line from Ernakulam to Thiruvananthapuram to broad gauge. The decade of 1980’s and 1990’s saw remarkable progress in the field of gauge conversion.\textsuperscript{24}

Railway system was thus introduced and developed in Madras Presidency. The Railway system rapidly grew line by line in all over the Madras Presidency. It connected the important cities like Madurai, Coimbatore, Erode, Salem, Tirunelveli and the small portion of Travancore state. The wide network of Madras Railway was useful to the public not just for transportation of people but also for transporting goods commodities.

Though Deforestation was a side effect of Railway network development, it is our duty to bring a reformation in forest. It is our responsibility to bring a renaissance, a new birth in forestry. The Forest areas which have been destroyed earlier are needed to be planted again. We need to get back all the natural resources which have been lost in the past history through the Act or process of creative a new forest where none had existed before on reforestation of areas long deforested.

\textsuperscript{24} Satish Tiwari, Transport and Communication, New Delhi, Anmol Publications, 2000,p.62.