Improvement of the Inland Freight Transportation of Sri Lanka

Dr. Don S. Jayaweera

Director General
Department of Development Finance
Ministry of Finance and Planning

Introduction

The total volume of freight in Sri Lanka in the year 2010 included 109.431 million tonnes of agricultural produce, 6.2 million tonnes of industrial outputs which are exported and 20.4 million tonnes of imported commodities (motor vehicles and other commodities)[1]. Ninety eight percent of this freight uses the road network while only 0.8% uses the railways. Coastal shipping accounts for the balance. The average per capita freight in the year 2010 was 6.2 tonnes. The per capita consumption of all commodities has increased from 3.1 tonnes in the year 2000 to 6.2 tonnes in 2010. The mid-year population in the year 2010 was 20.6 million with Gross Domestic Product (GDP) per capita of US$ 2,399[2]. The freight transport demand is determined by the surplus of production in a given region and consumption items which are not produced within the same region. The total freight flow consists of surplus production in a given geographical area and the consumption items coming from other regions. A macro-economic forecast of the country has indicated that per capita GDP will be doubled (i.e., US $ 4,500) in 2015 with the expansion of the economy by increasing total investment from 25% of the GDP to 34% during next three years[3]. The investment in sectors such as tourism, transport (airports, seaports, roads and railways) and housing will be increased by 9% to 10%. These growth provide a path for 10% to 16% high growth in the costruction sector. Further, the demand for inputs from the manufacturing sector and its outputs will also increase. These development activities will influence to have high freight flow. Empirical studies on supply chain in Sri Lanka show that the growth of freight flow is always 4% to 5% higher than the growth of GDP[4]. This implies that if the Sri Lankan economy sustained a GDP growth of 8% per annum during next five years, the freight flow will expand by a minimum of 12% per annum.

Salient Features of Freight Transportation Market

The total freight flow of the island in the year 2011 was estimated at 129.831 million tonnes. Annually, 2.9 million tonnes of rice, the main food item of the Sri Lankan population is produced and consumed within the country. The main export product, in weight, is Tea. It amounted to 331,000 tonnes in the year 2010. The freight transport originated in the commodity-producing regions and transporting to regions or nodes for consumption or export is called freight flow. It was found that 99% of this freight flow of the country uses the road network. The high-demanding regions are those with high population such as Colombo, Gampaha and Kandy. Studies show that tea, rubber, and coconut-producing districts are not doing value addition and packaging in the same locality, but are transporting bulk to other locations of other regions. Most of these activities are located in the Industrial Zone in Katunayake in the north of Colombo. The theory of transport is that transporters choose the shortest path for freight transport. But, it was found that 60% of consumption items coming to the western province of the country is not using the shortest path. The total freight volume coming from other region to the western province is 77,899 million tonnes. This includes the all imports of raw material and consumer items. The active truck fleet of the country as at June, 2011 is 162,000 of which approximately 65,000 trucks are 2-axel or more. There was a rapid growth in the active truck fleet since 2009 as shown in Figure 1.

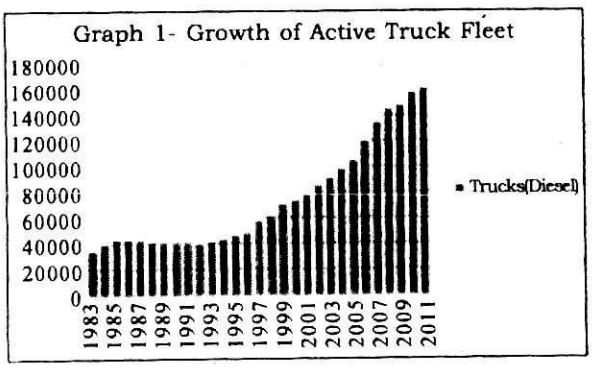

Figure 1 **Growth of active truck fleet from 1983 to 2011 in Sri Lanka**

Source: Revenue Licence Data from District Level and Author's Calculation

Total consumption of the country amounted to 30.158 million tonnes of all food items, and 3.4 million betel leaves, 39,412 oranges, 132,000 mangoes, 41,000 bread fruits, and 41,425 pineapples in 2009/10[5]. The regional distribution of consumption (weight of all items other than fruits) shows a high freight flow to and from the Western province of the country (Table 1).

As shown in Table 1, only 20% of consumption was in the Western province while 60% freight flow was originated or passing through the Western province. The main export earning of the island was from apparel industry which amounted to US$ 3.5 billion. The apparel industry acquires most of its input as imported raw material and makes 60% value addition to them. Large majority of these raw materials are being transported to the factories located in regions which are located out side the Western province, and finished products are brought back for packaging and export through the Port of Colombo. The second highest export commodity is tea which also has its value addition and packaging in the Western province and is exported through Colombo sea port.

Growth of Freight Market with Economic Growth

The economic growth of a country has very high correlation with freight. The correlation between growth of GDP and growth of freight flow for Sri Lanka is shown in Table 2. The correlation coefficient between the GDP growth and growth of freight flow was estimated at 0.967.

It was found that the total freight flow of 24 commodities including consumer and production items of the country is 8,828 billion tonne kms in 2011. This freight flow has generated a considerable truck kms as shown in Table 3.

The medium-term economic development plan of the government envisages the expansion of exports, construction industry and agriculture production. The importation of consumption items and raw material for the following development activities has targeted at 6%-9% growth during the next five years:

i. Construction of 45,000 new room capacity for the tourist industry

ii. Investment of Rs. 200 billion annually on road construction

iii. Investment of Rs. 100 billion on the construction of urban housing

iv. Development of Sri Lanka as the port and aviation services hub in the region for value addition and processing

v. Investment on special industrial zones such as Trincomalee and Hambantota

vi. Development of Sri Lanka as a high-end tourist destination during next four years.

This economic development scenario of the government may increase the total freight flow by average of 14% per annum. There may be instances of short-term growth of the total freight flow by 20% in some years. The construction of new roads generates more traffic by increasing travel demand due to the diversion of the existing traffic from other routes.[7] Thus, with the opening of the Southern expressway in this year may generate new traffic and may also shift the rail freight on the coastline to the road. This has to be monitored to identify transport strategies to minimise freight cost.

This will increase the freight flow by about 14% annually with short-term increase of 20% for next three years with the boom of investment on construction. Further, by the end of this year, 115 kms of express way will be opened for traffic which has an impact on generating additional truck kms, shifting traffic from other modes such as railways and coastal shipping.

Table 4 clearly illustrates that 57% of trucks fall into the small lorry (LGV) category and only 43% are medium and large truck category within the Colombo area. Therefore, this traffic highly contributes to urban traffic congestion. The freight transport should not contribute to congestion, accidents and inefficiency on the usage of the urban road network. Therefore, considering the fact that freight transport is the backbone of economy, an alternative mode has to be mobilised with necessary infrastructure, if the country is aiming at achieving its economic growth targets.

Table 1 Total consumption by districts (all commodities in tonnes)

District	Weight (t)	District	Weight (t)
Colombo	3,110,352	12. Batticaloa	714,204
Gampaha	2,834,532	13. Ampara	1,038,912
Kalutara	1,653,582	14. Trincomalee	542,198
Kandy	2,059,281	15. Kurunagala	2,542,545
Matale	785,669	16. Puttalam	1,046,257
Nuwara Eliya	1,248,472	17. Anuradhapura	1,373,979
Galle	1,586,131	18. Polonnaruwa	738,024
Matara	1,357,448	19. Badulla	1,504,362
Hambantota	1,071,198	20. Monaragala	867,885
Jaffna	634,445	21. Ratnapura	2,000,334
Vavuniya	197,162	22. Kegalle	1,252,092

Source: Household Income and Expenditure Survey (HIES), 2009/2010, Department of Census and Statistics, Sri Lanka

Impediments to the Freight Transportation and Inter-modalism[8]

A review of government policies and strategies indicates that impediments for the supply chain process have not been addressed in the government policy framework . This was the case during the last two decades too. Therefore, it was disadvantageous for our products to fetch a

Table 2 **GDP[6] (in '000 US $) and freight flow ('000 tonnes) from 1982 to 2010 in Sri Lanka**

Year	GDP US $	Freight Flow	Year	GDP US $	Freight Flow
1982	4,768,765	24,864	1997	15,091,930	59,043
1983	5,167,913	25,032	1998	15,794,972	69,424
1984	6,043,474	26,002	1999	15,656,342	68,043
1985	5,978,460	29,456	2000	16,330,810	76,239
1986	6,405,210	31,976	2001	15,746,224	67,043
1987	6,682,167	34,182	2002	17,102,623	79,760
1988	6,978,371	33,764	2003	18,881,765	81,243
1989	6,987,267	32,602	2004	20,662,525	87,237
1990	8,032,552	35,980	2005	24,405,791	95,870
1991	9,000,362	36,705	2006	28,281,012	110,340
1992	9,703,011	37,870	2007	32,357,034	120,765
1993	10,338,679	39,508	2008	40,714,178	107,150
1994	11,717,604	42,424	2009	42,065,425	102,904
1995	13,029,697	43,809	2010	49,548,912	97,427
1996	13,897,738	47,645			

Source: CBSL, Sri Lanka and Author's Calculation on Freight Flow based on data from Department of Census and Statistics

competitive price in the global market and to reach the market at appropriate time.

The key issue of the freight transport is the use of roads for 99% of the freight and the rail mode only for 1%. This has contributed to urban traffic congestion and road damages as a result of over loading of 2-axel vehicles. All Sri Lankan roads are having a designed axel- load capacity to allow transport of freight vehicles. The trucks used by the freight transporters in the country are overloading without adhering to the specified axel load designed by the truck or lorry manufacturers causing damages to roads. This is an "in-efficient" and "un-economical" use of roads. The overloading can be observed in the majority of small and 2-axel trucks. The import duty and other taxes applicable for the importation of trucks do not encourage the multi-axel trucks to be imported by the freight industry. This impediment has been removed by the budget proposal of 2012.

The inter-modal transport means the integrating all modes of transport in the supply chain depending on the transport cost and reliability. A low-cost supply chain of freight transport has been developed with inter-modal freight transportation systems in Europe and the USA making their exports highly competitiveness in both global and local markets. Sri Lanka has not considered this as a key priority area, other than Sri Lanka the Sri Lanka Ports Authority which is looking for container yard for their functions. The land transport authorities have left freight transport completely to decide by the market forces and, even up to now, any economic tool or instruments have not been used with a clear vision to develop freight transport in the country.

Table 3 **Operated truck kms, freight in '000 tonnes and operated freight tonne kms from 2007 to 2010**

Description	2007	2008	2009	2010
Operated truck/lorry kms	1,410,904,656	1,290,964,752	1,277,377,868	1,209,393,793
Freight volume (tonnes)	120,764,620	107,150,074	102,904,058	97,427,341
Freight flow (tonne kms)	7,728,935,706	7,071,904,911	6,997,475,958	6,625,059,197

Source: Author's calculation based on traffic data, fuel consumption and data on production and consumption of Department of Census and Statistics

The Asian Development Bank has provided some technical assistance to identify and develop a concept of logistic centre, but it does not match with the country's economic development program. The impediments for freight transportation have to be comprehensively addressed considering the needs of a low-middle-income country. The Dubai dry ports/logistics centres have illustrated the reduction of traffic congestion in urban roads due to freight traffic originated at sea and air ports by reducing the fees and charges on shippers for the freight transport.

There is a stimulated package or road map to develop freight transportation supply chain which has to be evolved with inter-modal transportation. This has been recognised by the National Transport Policy of 2009[9]. However, current projects and programs of the transport sector are not in line with those mentioned in this policy document. Further, it is observed that comprehensive transport strategies indicated in the "*Mahinda Chinthana Idiri Dakma*" policy document have not been taken into consideration in any implementation programs of the transport sector due to high concentration on micro operational aspects [10]such as routine maintenance of government own buses.

Main Issues of the Freight Transportation in the Island

The main issue related to the freight transport in Sri Lanka has been identified through the analysis of mode of transport, origin, destination, axel loads, fleet characteristics, regulatory regimes and demand for freight transport. The main issues are:

i. The total freight transport market has grown by 7.5% during the last ten years. The road haulage has accounted for 99% and the share of railway has been less than 1% of the freight market

which resulted in increasing the transport cost.

ii. Unguided investment on supply chain infrastructure such as warehouses, processing centres, and container depots

Table 4 Contribution to urban traffic congestion by the freight transport in Colombo city

Station	Car	Light goods vehicle	Bus	Medium capacity lorry	Large bus	3 Wheels	Medium and large trucks
Mattakkuliya	2,244	**1,032**	38	3,070	11	2,541	**88**
Japan-Sri Lanka Friendship Bridge	10,482	**5,132**	718	8,626	2,606	9,371	**7,689**
New Kelani Bridge	31,704	**17,518**	2,356	19,290	7,841	12,139	**15,258**
Sri Lanka Land Reclamation and Development Corporation	47,295	**10,038**	330	17,501	330	14,407	**4,444**
Wellampitiya Bridge	3,392	**2,153**	278	6,797	2,076	8,505	**3,278**
Kirulapone Bridge	27,849	**6,292**	362	13,422	4,094	11,854	**3,136**
Near Ayurveda Hospital	7,351	**3,752**	858	6,819	5,053	7,235	**2,195**
Pamankada Bridge	21,075	**5,206**	530	9,244	1,502	9,084	**4,799**
Dehiwala Bridge	30,639	**8,342**	1,350	11,699	5,378	16,572	**1,448**

Source: Primary data from RDA and author's calculation

iii. The growth of economically inefficient rolling stocks of road freight transport, where 57% of road truck fleet is small truck and only 38% is medium and large trucks.

iv. Non-availability of economic instruments to invest on supply chain infrastructure by the private sector as no clear policy interventions have been evolved by the policymakers.

v. Ad-hoc regulatory regimes by several institutions including the Department of Motor Traffic, Department of Police, etc.

vi. Non-growth of third party suppliers of freight transport because there is no organised structure due to non-identification of the importance of the role of third party suppliers within the supply chain by the policymakers

vii. Overloading of trucks, specially two-axel trucks and use of roads sections by some trucks which are not designed for heavy loads.

Making a Competitive Freight Transport System

Efficient freight transportation system will create high competitiveness for exports in the global market and will reduce the wastage of resources thereby reduces the prices. This analysis of the freight transportation system in Sri Lanka makes the following recommendations, if the economic development targets of the government are to be achieved:

i. Revise tax structure for the importation of freight transport equipment such as prime movers, lorry and trucks. This revision should be based on the productivity of the transport equipment, road damages caused by such vehicles, and the cost of a consignment.

ii. Identify and designate appropriate locations of areas for establishing logistic centres close to railways, roads, seaports and airports.

iii. Reform the land use policy by integrating the Colombo outer circular road, rail network and highways for freight transportation nodes to minimise the cost to the country.

iv. Identify and incorporate technical inputs and toolss on specifications for trucks and their norms for freight transportation in the Island.

Conclusion

The efficiency and effectiveness of a freight transport system is a fundamental requirement for economic development of any country. The vision of the government of Sri Lanka to double its per capita GDP by 2015, from US$ 2,399 to US$ 4,500 may not be materialised if an appropriate freight transport system is not developed. The experience of the countries which have achieved rapid development shows that development of freight transport systems is a high priority area in their economic development plans.

Footnotes

[1] Department of Customs, Department of Census and Statistics and Author's calculation

[2] Annual report, 2010, Central Bank of Sri Lanka

[3] Budget Speech , 2011

[4] Cook Peter, "Supply Chain Study for Sri Lanka", US-Aid study, September, 2007, Page 21.

[5] Household Income and Expenditure Survey (HIES), 2009/2010, Department of Census and Statistics, Sri Lanka

[6] Current Prices

[7] McDonald, Jhon F, d'Ouvill, Edmond, and Liu, Louie Nan- "Economic of Urban Highway Congestion Pricing"-Kluwer Academic Publishers, Boston/Dordrechet/ London, 1999

[8] Interconnected different mode of transportation

[9] The National Policy for Transport Sector – Ministry of Transport – Presented at Parliament on September, 2009

[10] Manifesto , 2010 Presidential Election "MAHINDA CHINTHANA IDIRI DAKMA", January, 2010