



## Logistical Infrastructure – A Route to Globalization : A Study on Indo-Canada with special reference to Logistical Infrastructure

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### ABSTRACT

*In literature logistics and SCM (Supply Chain Management) are often used interchangeably, though there is a subtle difference between the two while SCM is more strategic in nature, logistics is more operations oriented. The core logistical activities are transportation and warehousing. To execute these activities, the country should have infrastructure i.e Road Network; Rail Network, Airport, Seaport, Storage facilities and Communication infrastructure otherwise called as logistics assets (Logistical Infrastructure).*

*More recently, between 2002 and 2008, the increased labour productivity in Canada's retail sector was much higher than the private sector average. This good performance may be attributable to investments made by companies in that sector in innovative practices, particularly in the area of logistics management (Jacques roy). The world bank has published its report of countries based on a Logistics performance index (LPI) for 2014. In that Canada ranks 12th and India ranks 54th.*

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*It is therefore in order to compare Canada's supply chain management performance, both in terms of logistics practices adopted by Canadian companies in the domestic market. Supply chains are the backbone of international trade and commerce. The importance of good logistics performance for economic growth, diversification, and poverty reduction is now firmly established. Although logistics is performed mainly by private operators, it has become a public policy concern of national governments and regional and international organizations. Supply chains are a complex sequence of coordinated activities.*

*The performance of the whole depends on such government intervention's as infrastructure, logistics services provision, and cross-border trade facilitation. Improving logistics performance is at the core of the economic growth and competitiveness agenda. Policymakers globally recognize the logistics sector as one of their key pillars for development. Indeed, inefficient logistics raises the costs of trading and reduces the potential for global integration.*

*This paper highlights the current state of logistical Infrastructure in india - canada and opportunities for growth in India.*

### KEYWORDS :

#### Introduction

Food and other commodities were widely dispersed and were only available in abundance at certain times of the year. Early peoples had the choice of consuming goods at their immediate location or moving the goods to a preferred site and storing them for later use. However, because no well developed transportation and storage systems yet existed, the movement of goods was limited to what an individual could personally move, and storage of perishable commodities was possible for only a short time.

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This limited movement-storage system generally constrained people to live close to the sources of production and to consume a rather narrow range of goods (Ronald H Ballou)

As logistics systems improved, consumption and production began to separate geographically. Regions would specialize in those commodities that could be produced most efficiently. Excess production could be shipped economically to other producing (or consuming) areas, and needed goods not produced locally were imported. This exchange process follows the principle of comparative advantage. This same principle, when applied to world markets, helps to explain the high level of international trade that takes place today. Efficient logistics systems allow world businesses to take advantage of the fact that lands, and the people who occupy them, are not equally productive. Logistics is the very essence of trade. It contributes to a higher economic standard of living for us all (Ronald H Ballou). Markets are often national or international in scope, whereas production may

be concentrated at relatively few points. Logistics activities provide the bridge between production and market locations that are separated by time and distance (Ronald H Ballou). The world economy has globalised at a tremendous pace over the past 30 years. Economies have become more interdependent and the IT revolution has brought buyers and sellers from around the globe closer together. The changing picture of global trade is already providing opportunities and challenges for logistics sector (Price water house coopers ,2011).

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Globalization of the world economy and our supply chains has advanced at an almost unbelievable speed. Being part of this global economy is high on the priority list of most companies today (Supply chain digest). As international barriers to trade have effectively been lifted by the GATT/ WTO-agreements since the 1980s, global manufacturers have vertically disintegrated their fordist production systems into geographically dispersed and flexibly organized supply chain systems. The international trade regime allowed manufacturers to re-locate their production and assembly plants to more cost-efficient locations in developing economies, in turn generating a new spatial division of labour (Massey, 1984). Vertical disintegration allowed manufacturers to specialize and optimize by taking full advantage of ICT in the coordination of the disintegrated production chain, thus creating economies of scope through the reduction of inventory costs and by means of outsourcing those parts of the chain with the lowest profit margins. The geographical extension and dispersion of manufacturing have been conceptualized by development economists as the rise of Global Value Chains (Kaplinsky, 2004; Gereffi & Korzeniew-

icz, 1994), by economic geographers as Global Production Networks (Dicken et al, 2001) and what transport economists would call Global Supply Chains (Robinson, 2002). Regardless of the conceptualization, it can be stated that this generic process of economic globalization has increased the demand for global transport services enormously (wouter Jacobs).

While some have argued that ICT has been the major technological facilitator of economic globalization, creating a 'death of distance' (Cairncross, 1997) or a 'flat world' (Friedman, 2005),. . Logistics delivers value to the customer through three logistical phases as under :-

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**Inbound Logistics:** This includes movement of raw materials and components for processing from suppliers to manufacturer.

**Process Logistics:** Movement and storage of materials with in the organization.

**Out Bound Logistics:** The includes movement of finished products from manufactures to customer.

At a macro level the logistical infrastructure such as modes of transportation, transportation equipment storage facilities, connectivity and information processing are contributing to a large extent to the physical movement of goods produced in manufacturing mining and agriculture sectors. The speed and reliability in distribution from place of production to the place of consumption contributes greatly to a growth of a country's domestic and International trade (V.V Solpe, 2010). In recent years, the following three forces changed the perspectives on logistics:-

Globalization  
Supply chain management  
Out sourcing

The entire world has become a global village for the marketers because of the liberalization of economies of countries and emergence of world trade organization (WTO), which is forcing the business organizations to supply products beyond the national boundary wherever there is a market opportunity. In such situation, the role of logistics will include providing the time and place utility of the products to customers (V.V Solpe, 2010). One of the most obvious manifestations of logistics activities is the growth in freight transport due to the worldwide expansion of trade. In particular, the globalization of industry, including planning, sourcing, manufacturing

#### Subbu 6

and marketing activities has resulted in more complex trading and much more developed transport networks. Development of trade networks has also been facilitated by major regulatory and technical trends. Advances in telecommunications and information technology have given companies the means to improve the efficiency of their businesses across widely dispersed geographic locations (organization for economic development and cooperation,2002).

#### Need for Study

Canada is a advanced country and being ranked 14 by world bank in logistical performance for 2014.Globalaisation is the talk of the day and to participate in Globalization ,logistical infrastructure is must for any country. India being ranked 54 by world bank in logistics performance in 2014 and india and Canada are trading partners .It is therefore appropriate to compare india's logistical infrastructure with Canada for improvement in logistical performance. This situation necessitated a study to be undertaken on logistical infrastructure in india and Canada.

#### Objectives of Study

To study the logistical infrastructure in Canada.

To study the logistical infrastructure in india.

Implications for india.

#### Methodology

It is a qualitative study based on secondary data to include published articles, international journals / magazines, text books, world bank reports, OECD reports and

company reports...etc. The aim of study was to study the logistical infrastructure in both countries and drive the implications for India from the study.

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##### Review of Literature

The role of infrastructure development in economic growth has been well recognized in literature (Aschauer, 1989; Easterly and Rebelo, 1993; World Bank, 1994; Roller and Waverman, 2001; Calderon and Serven, 2003; Canning and Pedroni, 2004; Sahoo and Dash 2008; Sahoo and Dash, 2009). Further, investment on physical and social infrastructure positively affects poor directly and indirectly in multiple ways (World Bank, 1994; Jones, 2004 and Estache, 2006). Infrastructure development is one of the Major factors contributing to overall economic development in many ways such as (i) direct investment on infrastructure creates production facilities and stimulates economic activities (ii) it reduces transaction costs and trade costs improving competitiveness and (iii) it provides employment opportunities and physical and social infrastructure to poor. In contrast, lack of infrastructure creates bottlenecks for sustainable growth and poverty reduction. Infrastructure development contributes to output growth by stimulating economic activity, productive and enhancing the quality of life (World Bank, 1994). The empirical research on role of infrastructure in economic growth started after the seminal work by Aschauer (1989; 1993) where he found that the high output elasticity of infrastructure spending which ranges from 0.38 to 0.56. Further, he suggests that lack of infrastructure spending leads to slow down of productivity growth in United States (US). Supporting Aschauer, Munnell (1990a; 1990b; 1992) and Garcia-Mila and McGuire (1992) find high output elasticity, though comparatively lower than Aschauer, of public investment on infrastructure. Further, a series of country level studies support Aschauer's finding, though with lower

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elastically, (Gramlich, 1994; Holtz-Eakin and Schwartz, 1995; and Garcia-Mila et al, 1996), that infrastructure has positive and significant impact on output growth. Some of the important country studies which found positive impact of infrastructure development on economic growth are Uchimura and Gao (1993) for Korea, China and Taiwan ; Bregman and Marom (1993) for Israel; Shah(1992) for Mexico ; and Wylie (1996) for Canada, Sahoo and Dash (2009 and 2010) for India and South Asia; and Sahoo et al (2010) for China.

Good logistics practices have a positive effect on operational business performance (speed of delivery, responsiveness, flexibility and delivery capacity) and on their trade performance (average growth of the market share, average growth in sales volume and average growth of sales in dollars). These results come from a survey of the American manufacturing sector with a sample of 142 respondents from organizations with over 500 employees (Green et al., 2008).

Using good logistics practices (integration, outsourcing and client service) and deploying logistics competencies (quality and services, operations and distribution, and design efficiency) would have a positive effect on companies' organizational performance, particularly in terms of their competitiveness. This survey was conducted among about 100 manufacturing companies in the United States and Taiwan (Chow et al., 2008).

Strategic logistics management, supported by quality improvement efforts, positively affects service performance indicators (speed, reliability, turnaround time and inventory turnover) and operational efficiency (operational costs), expressed in greater client satisfaction and better business performance (market share, sales volume and profitability). The data come from 225 respondents in Hong Kong

#### Subbu 9

(though 75% of them have their head office in the United States), Japan, the Netherlands and other countries (Yeung, 2008).

To properly manage the supply chain, companies must adopt new

information and communication technologies to facilitate the integration of upstream and downstream activities and enable the various stakeholders in the chain to collaborate among themselves. These technologies include information systems such as integrated business management systems (enterprise resource planning – ERP), warehouse management systems (WMS) and transportation management systems (TMS). Other communication technologies referred to are on-board computers, global positioning systems (GPS) and radio frequency identification tags (RFID) (Jacques roy). Logistics infrastructure covering the road, rail, waterways and air networks of a country, is the backbone on which the nation marches ahead. India's logistics infrastructure is insufficient, ill-equipped and ill-designed to support the expected growth rates of 7 to 8 percent over next decade. India should have a logistics infrastructure strategy that minimizes investment, maximizes cost efficiency, reduces loss for users is energy efficient. This will need India to build its freight infrastructure in a manner that creates an integrated network across modes and prioritizes high return programmes (McKinsey). Logistics facilitates in getting products and services as and when they are needed and desired to the customer. It also helps in economic transactions, serving as a major enabler of growth of trade and commerce in an economy. In order to achieve these objectives the functionality of logistics include processing the orders received from the customers, inventory planning and management, warehousing, transportation and packaging (PHD Chamber). Transport and road freight are arguably the backbone of meeting the supply and demand that keeps the Canadian economy chugging along;

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however, the industry continues to face changes and challenges that will be part of its evolution moving forward (Media planet, 2012).

#### CANADA

Canada is defined, among other things, by its geography: a 10-million square-kilometer land mass with the longest land border and most extensive coastline in the world, fronting three different oceans; a diversified landscape with a wealth of resources; and challenging topographical and meteorological conditions. Canada is also home to nearly 34 million inhabitants, and greets more than 16 million foreign visitors every year. It has an annual economic output of \$1.8 trillion—the 14th largest in the world (15th by capital)—as well as one of the most diversified economies. Transportation in Canada operates against this backdrop by moving people and goods over small and large distances, across towns, regions, provinces, territories and the nation itself as well as to and from other countries around the world. Canada's strategic location between Asia and Europe makes it a gateway to the Americas—a role of particular importance in today's global marketplace. While the activities of Canada's transportation service industry are highly diversified, several common values prevail among all stakeholders. These include a dedication to efficiency, a commitment to environmental responsibility, adherence to the highest standards of safety, and the determination to provide Canadians with a secure transportation system. These values anchor Canada's strategic transportation objectives and the cornerstone of the country's federal department of transportation, (Transportation in Canada 2011).

**Air Transportation:** Fresh traffic at Canadian Airport was 1.1 Mt in 2012, 1.9% up from 2011. Domestic traffic increased year over year by 7%. Passenger traffic at

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Canadian airports increased 4.8% in 2012 to reach 118.5 million passengers (Transportation in Canada, 2012).

**Marine Transportation:** In 2011, Marine freight traffic in Canadian reached 404 Mt, an increase of 3% over the 2010 the 2010 tonnage. As much as 62 Mt was recorded in domestic flows, 97 Mt in transporter traffic and 245 Mt in other international traffic. Marine transportation services handled \$ 205.3 billion in international traffic in 2011 (UP 21% from 2010) with and 106 billion in imports and \$ 99.3 billion in exports (Transportation in Canada, 2012).

Rail Transportation: In 2011, Canadian railways carried a total of 326.3 Mt of freight. This is an increase of 5% from 2010 (Transportation in

Canada, 2012).

**Road Transportation :** In 2011, Canadian traffic carries moved 224 billion tone-kilo meters of freight up 1% from 2010. Roughly 136 billion tone kilometers (61%) were carried in the domestic sector and 88 billion tone kilo meter (39%) in International sector.

In 2012, bus industry revenues were estimated at \$ 15.5 billion, an increase of 7% over 2011. In the intercity bus sector, Canada-us bus travel accounted for 1.9 million passenger in 2012 up 7% from 2011 (Transportation in Canada, 2012).

#### Strategy: Gate Ways And Trade Corridors:

Under the National Policy Framework, Canada's Gateways are divided into three strategic regions:

the Asia-Pacific Gateway and Corridor

the Ontario- Quebec Continental Gateway

The Atlantic Gateway and Trade Corridor.

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As each gateway is unique, specific strategies aim to reflect each region's local realities, opportunities and challenges, while recognizing that these gateways are complementary to one another. Gateway development reaches beyond infrastructure. A broad analytical of same work has been developed to evaluate how gateway and strategic trade corridor interact operationally to examine end-to-end supply chain performance by focusing on the time component and to identify capacity and demand of the multi model system by determining issues and bottle necks that affect the efficient flow of international freight as well as the competitions of the system (transportation in Canada 2011)

#### Infrastructure challenges for Canada:

How to optimize use of current infrastructure to alleviate congestion and adapt to ever growing traffic volumes (transportation Canada, 2011).

How to address the issues of ageing infrastructure with in the current fiscal frame work (Transportation in Canada 2011) .

#### Beyond Infrastructure (Non –Infrastructure Improvement) :-

In many cases improvements have been identified and implemented to reduce policy, regulatory and financial barriers to improve the business environment for trade growth and to enhance freight operations at key level facilities by way of company level agreements, application of new technology and establishment of innovative operational practices. In addition to include modified customers traffic rules, Elimination of duties amendment to Canada marine Act, eliminations of many manufacturing tariffs free trade agreements (Transportation in Canada, 2011).

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##### INDIA

**Road transport:** India has the second largest road network in the world. It handles about 65% of freight and 85% of the passenger traffic. It has a dominant role in India's transportation sector with a share of 4.6% in India's GDP in 2007-08 as per Census Statistical Organization (CSO).

According to the planning commission's working group report on road transport, the road transport's share in freight traffic in India has gone up from 13.8% in 1950-51 to over 65% in 2007-08. (Source- CII's National Conference-23 April 2010)

**Rail transport:** Indian railways has the largest network in Asia and the World's second largest, under a single management. The freight traffic carried by the railways during 2008-09 was 833.1 MT and recorded a growth of 4.9% over the performance of 2007-2008. The contribution of railways to the logistics system is undoubtedly very significant. (Source- CII's National Conference - 23 April 2010)

**Marine Transport:** The annual aggregate cargo handling capacity

of major ports increased from 532.07 million tonnes per annum in 2007-08 to 574.77 million tonnes per annum in 2008-09. This is a very nominal increase in installed capacity

considering the rate at which trade is growing in Indian (Source- CII's National Conference- 23 April 2010).

**Air transport:** Indian Airports handled around 15.50 lakh metric tonnes of cargo in 2006-2007. The five major Airports (Mumbai, Delhi, Kolkata, Chennai & Bangalore) account for 80-85% and total cargo handled in India (Source- CII's National Conference - 23 April 2010).

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**Warehousing:** This industry in India is largely (nearly 50%) controlled by the unorganized sector. This is a significant number considering the fact that warehousing accounts for 20% of total domestic logistics industry and the current capacity in India stands at 60-70m MT. Of the organized sectors, majority of it is being managed by the government. (Source- CII's National Conference - 23 April 2010).

**Container Corporation of India:** Container Corporation (CONCOR) of India was setup in 1988 with the aim of developing multi-modal logistics support for India's international and domestic containerized cargo and trade.

**Inland Container Depot (ICD) & container freight station (CFS):** A large part of India is land based and number of states are with no sea port. For these states accessible transport to the sea ports is one of the major concern and multi-modal transport is a very effective solution to these logistics bottlenecks. The first inland container depot (ICD) in India was setup at Bangalore in August 1981. Initially, the Container Depot of India had been involved in establishing and managing ICDs and Container Freight Stations (CFSs), mainly based on rail transport. Subsequently ICDs and CFSs were established and managed by the Central Warehousing Corporation and some state corporations. There had been a major boost with the enactment of the multi-modal transportation act, 1993. These facilities and infrastructure have to be extended to all parts of the country even the remotest parts.

#### Issues and challenges for indian logistics:-

##### Road transport:

- Shorter vehicle life due to poor roads.
- Traffic
- Encroachment

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- Frequent stops
- Inordinate delay in acquisition of land.
- Skewed truck ownership patterns.
- Overloading of trucks.
- Aging trucks increases fuel consumption.
- Limited technology.
- Variable tax system.

##### Rail transport:-

- Delay in execution of Infrastructure projects.
- Absence of professional manpower.
- Lack of operational excellence.

##### Marine transport:-

- Saturated capacity
- Below par productivity
- Out dated technology
- Connecting problems
- Regulatory aspects

##### Air transport:-

- Major airports running out of capacity
- Development of new airports at snail's pace
- High waiting time and congestion in airports.
- High fuel lost
- Taxation

- Lack of EDI

#### Subbu 16

##### Warehousing and storage:-

- Conventionality syndrome
- Inadequate investment
- Non existence of warehouse standards
- Safety issues of pilferage
- Limited adoption of modern system technologies
- Shortage of expertise.
- Limited ICDs and CFSs
- Common Challenges for Both Countries
- Availability of fuel
- Cost of fuel
- Pollution caused by emission from transportation
- Noise pollution from transportation
- Alternate fuel
- Fuel efficient engines
- Changing ICT environment
- Safe operations of logistics system
- Security of logistics system.

#### Implications For India

India and Canada are trading partners. India can attract investment from Canada to invest in India's logistical infrastructure and learn from Canada's logistics practices. They can work together in areas of common challenges faced by both countries as discussed above.

#### Subbu 17 Discussion

Transportation is integral to international trade. GVCs—also called global commodity chains, global production networks, or global supply chains—depend on efficient, affordable transportation, logistics and information and communications technologies (ICT). Today's global production activities are transport-intensive and rely heavily on responsive transportation and logistics capabilities. There is simply no value-added without the physical movement of resources, people, intermediate and finished goods—or transportation. The geographical extent of global production hinges on efficient transportation and logistics. Canada's ability to prosper as a trading nation in the international marketplace is directly linked to the capacity of the transportation sector to support global value chains. Global value chains can be defined as "the full range of activities undertaken to bring a product or service from its conception to its end use and how these activities are distributed over geographic space and across international borders (Transportation in Canada 2011). India is also part of GVC. However much more scope is there for India to achieve best practices in the area of logistics and which may lead to higher economic growth in India.

#### Conclusion

Transportation and logistics are at the very core of global value chains, which aim for the seamless flow of commodities, people, knowledge, information, capital and goods. An embedded transportation cost lies in all finished and semi-finished goods. Transportation becomes value-adding when it is reliable and in sync with all stages of production, but can become value subtracting when it is underperforming and unreliable. Global value chains offer both challenges and opportunities for any country. It is the duty of the Government to provide competitive, reliable and secure gateways in support of its international trade goals. To achieve this, the

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transportation system of that country should be efficient, safe, secure and environmentally sustainable to ensure country's integration into GVCs as well as the country's long-term trade economic prosperity.

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