BRAZIL LOGISTICS INFRASTRUCTURE:

CHALLENGES TO FACE

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ABSTRACT

In order for organisations to be competitive in a globalised market they need to lead their products and services around the globe so as to meet customers' needs. The paper argues that competitiveness is related to an efficient infrastructure system that fosters the countries and companies' development, to which a competitive logistics transport system is crucial. This target should be attained when the strategies are aligned to multicultural awareness. This article aims to show the importance of the infrastructure and the logistics transport system to economic development. It also presents the current situation in Brazil and challenges to be faced, bearing in mind its role as one of the largest economies in the world.

Keywords: National logistics infrastructure

1. INTRODUCTION

Infrastructure can be defined by Ferreira [11] as: "*part of a structure; material or economic base of a society or an organisation*" (p. 765). Therefore infrastructure can be seen as the existent basic structure that fosters the good performance of the cities', states' or countries' essential services. In this sense, according to Batista [2], in order for a country to have a good logistics infrastructure system on the transport area, in the different modals, constant investments from both public and private sectors are needed.

Organisations, especially in a competitive and globalised world, require an infrastructure compatible to their needs and demands, in order to get their products and services among the different producers and demanding centres situated in different places in the world.

Apart from that, according to Canen and Canen [6], the sensibility to the cultural dimension helps the understanding of many crucial factors concerning business around the world. Canen and Canen [5] argue that "*understanding cultural differences and going beyond*

cultural boundaries may prove to be a cutting edge for the success of organisations… [affecting] *the logistics strategy of organisations so as to help minimise cultural clashes and ensure competitive edge"* (p.8).

It is a fact that nations, to be competitive, need to promote their respective comparative advantages in various areas, in which infrastructure and transport system are central, so as to create an attractive environment for business relationships and competitive strategies. As described in Canen and Tammela [7] strategies taken to increase nation competitiveness are more successful when a balance is reached between world market economical imperatives and cultural awareness. Therefore, multiculturalism is an important issue to ensure organisational success, because the competitive strategies take into account values and traditions inherent to the different countries and people in the world, affecting the way infrastructure is perceived.

Logistics aligned to multicultural awareness and infrastructure concerns could be viewed in an articulated form. This article aims to present the importance of infrastructure concerns mainly focusing the logistics transport system to a country economic development. It will present the current situation in Brazil and challenges to be faced, bearing in mind its role as one of the largest economies in the world.

2. INFRASTRUCTURE AS A COMPETITIVE FACTOR

Brazil is the largest Latin American country and the fifth in extension in the world. It is a country with continental dimensions compared to others, as well as in population terms.

Infrastructure as mentioned above can be understood as the basic structure directly related to the functioning of transport, education, health, sanitary, security, communication, energy systems and others that support countries' economic development.

To IMD [14], the fundamental factors to competitiveness are established by economic performance, government and business efficiency and infrastructure. Infrastructure is quantified through basic indicators, such as: technology and science, health, environment and education, being considered a pillar for competitiveness. Canen and Tammela [7] emphasised the relevance of multiculturalism for competitiveness.

Garelli [12] pointed out some detailed aspects of the principles listed above as well as the role of infrastructure to competitiveness. According to the mentioned author, a well-developed infrastructure including efficient business systems supports economic activity. Nutt [16], at a national level, argues that the prime purpose of infrastructure is to support and

sustain business and public endeavours of all kinds and across all sectors. According to what was mentioned before the infrastructure system is also related to a country logistics structure and its different modals. An efficient production aligned to goods and service flowing system influences the organisations' competitiveness especially to those located in different places and countries around the world.

To BNDES [3], the solution for infrastructure problems is the necessary condition for the population welfare improvement, allowing everyone to have access to basic services as electricity, communication, urban transport and sanitary. At the same time infrastructure enlargement promotes cost reduction, productivity increase, higher quality of goods and services for productive structure and regional integration consolidation. On the other hand WEF [21] considers competitiveness a composition of the following indexes: business competitiveness, institutions, infrastructure, macro-economy, health and primary education, high education and training, market efficiency, technological readiness, business sophistication and innovation. It should be pointed out that many of those, such as education and health, are related to infrastructure, as exposed above.

3. BRAZILIAN TRANSPORT INFRASTRUCTURE SYSTEM

In relation to the above, Nelson [15] shows that the transport infrastructure system in Mercosur, especially in Brazil, is on the limit and renders difficulties to the export raise and to the regional integration itself.

The existing logistics infrastructure may affect the economic performance and organisations competitiveness, as in Brazil and in the Mercosur, mainly in relation to the integration of the region. It is important to say that, Brazil is the 10th economy in the world, which allows a distinctive role in its relations both within the Mercosur and worldwide.

The transport infrastructure system in Brazil is composed by the following modals: road, rail, maritime, pipeline and air. According to CNT [4], in Brazil 61.1% of the cargo transported inside the country make use of the road system; in second place is the railway with 20.7%; in third place is the maritime with 13.6%; the pipeline system basically used to transport oil, gasoline, diesel, alcohol, natural gas and others, with 4.2%. The air system is the less used with 0.4%.

Brazilian road network has an extension around 1.6 million km, however only 12% of this amount is composed by paved roads as shown in CNT [4]; nevertheless there is no guarantee

that this pavement can be transited. In a recent research developed by the National Transport Confederation [20] undertaken in approximated 84,000 km of paved roads related to conservation, safety, signalling, and users' comfort, critical points in infrastructure were detected: 54.6% of the roads were found with regular, bad or very bad pavement; 70% presented problems related to signalling; 40% did not have hard shoulders.

Expenses in Brazilian roads related to accidents are approximated 11 billion dollars per year. In 2005, there were registered 109,745 accidents with 6,352 fatal deaths as in Peterson and Canegal [17]. According to Guandalini [13], in Brazil about 40,000 people die per year because of the bad conditions of the roads in car crashes, accidents and running over. The number of deaths in Brazil is two times more than in Mexico or almost 4 times more than England. Another problem affects the cargo transport on the roads, namely the large number of cargo robbery. Losses related to robbery cost about 350 million dollars in 2005, as presented by CEL [9].

Another point to be considered is the falling in infrastructure investments by the public sector in the country. Between 1995 and 2003 investment by the city councils in infrastructure have fallen down about 70%, by the states government 24% and federal government 57%. The mentioned data reflect the problems faced by Brazilian organisations concerning domestic production flowing and the loss of competitiveness.

Brazilian rail system, the second most used modal, totalizes 29,706 kilometres, concentrated in South, Southeast and Northeast regions; it also serves part of Centre and North of the country. It presents more safety compared to roads, less number of accidents and robbery. According to ANTT [1], the railway system is the largest of Latin America. It transports cargo of around 164.8 billions TUK (tons per useful kilometre).

According to Pesquisa Ferroviária [19] the main constraints of the Brazilian rail system are: 1) invasions by the population; 2) critical grade crossings – risk due to the movement of people, deficient or inappropriate signalling, accidents, safety problems, among others; 3) logistics bottlenecks – rail traffic conflicts with vehicles and pedestrians; 4) a lack of expansion and integration of the Brazilian railway network; 5) problems with sector regulation; 5) lack of investments in trains, wagons and equipments.

As for the maritime system, it is only 13.6% of cargo transportation. However, port terminals play a fundamental role in logistics system in foreign trade. They concentrate more than 90% of international cargo movement in the country, as mentioned in Pesquisa

Aquaviária [18]. Most part of the cargo movement happen in private terminal: 63% against 37 % in public terminals.

As described in Pesquisa Aquaviária [18], a research developed by the National Transport Confederation, one of the largest problems in Brazilian ports is the bureaucracy, which causes a waste of time and high costs, reducing their competitiveness. Private ports are chosen by the majority part of organisations because they are more efficient, faster and have more attractive costs. Road and rail accesses to the ports are considered inadequate and badly preserved according to the mentioned research.

Maritime accesses to Brazilian ports seem to be adequate but they present problems in the canals depth. As mentioned by Dualibi [10] Brazilian ports have the capacity to receive 6,000 containers maximum, half compared to international ports such as Rotterdam (Holland), Singapore, Busan (South Korea) and Shanghai (China).

It also is important to mention the high number of unqualified labour force. Santos Port, the largest in Brazil, has almost the same number of workers compared to Rotterdam Port in Holland; nevertheless Brazilian productivity is a quarter of the Dutch [10]. Labour costs represent nowadays from 2 to 5 times more than infrastructure costs.

In spite of the air system having low share in cargo transport, the income in 2004 was about 470 million dollars and 350 million dollars in domestic and international traffic respectively. Most part of the international cargo transport has the United States as the first destination. According to Casado [8], Brazilian passenger air traffic from 2003 to May 2007 raised 40%. At the same time, the government cut 49% of the budget from the flying safety institutes.

As mentioned by Guandalini [13], logistics bottleneck in Brazil impose to soy exporters losses of nearly 1 billion dollars per year and hinder Brazilian field productivity. According to estimations, GDP growth average rate is about 4%. Without those infrastructure problems, Brazil’s GDP growth rate could be 6% per year. Brazil loses nearly 125 billion dollars with infrastructure problems, more than four times Paraguay and Uruguay GDP in US$ dollars.

As seen above, Brazil has to face challenges related to logistics transport infrastructure. Brazilian government is aware about the necessity of investments in this area. They will make a series of investments in infrastructure named PAC (Programa de Aceleração do Crescimento). However, expected investments among the years 2008 and 2011, according to Batista [2], may be insufficient to solve all infrastructure problems in Brazil. It is indicated

that during the reported time, investments of 36.35 billion dollars would be needed to transport sector in the whole country. However PAC will invest only about 18 billion dollars.

According to Batista [2], in order for a country to have a good logistics infrastructure system on the transport area, it needs constant investments from both public and private sectors; however government investments seem to be insufficient in the face of an increasing demand for economic development.

Therefore, Brazil is facing real challenges in all transport modals, which influences its economic development, logistics systems and GDP growth.

Culturally Brazil and other countries are different, as in language, religion, backgrounds and heritages, which greatly influence and explain their competitiveness positions and diversity as described in Canen and Tammela [7]. The referred authors exposed that multicultural awareness to national and other cultural issues could be helpful in order to understand ways by which cultural barriers could be broken in order to ensure national environment that positively impact on organisations, allowing them to enhance their tools for competitive advantage. In this sense, a cultural shift in outlook in Brazil would mean to get away from a vision that overemphasises economic factors and matters not directly linked with education, logistics and infrastructure.

As mentioned before, logistics allied to multiculturalism seems to be the cutting edge for a sustainable competitive advantage that leads organisations to leadership. In order to reach that goal, nations and organisations need to have a competitive environment and an infrastructure system that fosters it. Brazil has to increase investments in infrastructure and be aware of cultural issues that take part in this globalised world, in order to be able to face ongoing challenges and be competitive.

4. CONCLUSIONS

Brazil is one of the largest countries and economies in the world. It is the most competitive compared to its Mercosur partners and a leader in South America. However this position is not sustained when compared to other countries, its competitiveness indexes being quite lower. Competitiveness is related to a health environment fostered by the nations to its organisations and society grows. It is also linked to macroeconomic environment, business, technology, innovation, education and infrastructure.

Brazilian infrastructure system faces many challenges. Some of them relate to unpaved roads, obsolete and non-integrated railways and maritime systems, as well as a problematic air system. Those might be the result of lack of investments by the Brazilian government.

These problems on transport cause enormous costs that affect the organisations in Brazil, especially in the face of its competitors around the world. In order to achieve economic development and competitiveness, countries and organisations need an environment that fosters this development, especially related to infrastructure. Thus Brazil needs to culturally perceive the relevant role of an efficient logistics infrastructure to sustain its growth and development. In order to do so, it has to review some of its cultural assumptions that tend to overemphasise economic/political factors to the detriment of logistics infrastructure management.

This article has shown that a competitive country is the one that creates value for its society and its organisation. Countries are culturally different and this may impact their decisions related to competitive strategies. Logistics strategies aligned to multicultural awareness could be helpful in order to understand those differences, so as to create competitive advantage.

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