



Trade-Related Infrastructure Needs of India

Introduction

The role of infrastructure in the process of internationalisation of markets in particular and, more in general, as a trade-enhancing tool has often been marginalised in the mainstream trade policy debates. Only recently the literature demonstrated that poor infrastructure services act as a prohibitive tax to the domestic economy and a good transport or telecom system could enhance trade and spur economic growth. Consequently, governments and donors deployed more efforts to rebalance the focus of their interventions towards creating a better infrastructure network that supports trade.

The economic literature indicates that infrastructures are not only physical such as an efficient transport system, reliable supply of energy, good financing options and fast and developed telecommunication technology but also comprise 'soft infrastructure' such as a sound regulatory environment, competition policy, enforceable legal rights, predictable government procedures.

Both have a positive impact on the volume and quality of trade and are often inter-linked, although soft infrastructures still play a relatively marginal role in supporting trade compared to that of bridges, roads and telecom networks.

India is a particular case in this regard as it focused its attention mostly on developing soft infrastructure and a stable legal system while leaving 'hard infrastructure' services underdeveloped compared to other sectors of its economy. This is particularly true when we examine India's trade policy over the last ten years.

In spite of the target of an increased export as the main goal of trade policy, the government, particularly sub-national governments channelled

little efforts in developing hard infrastructure services to enhance and support exports. The only specific trade programme aimed at developing trade-supporting infrastructure is the Assistance to States for Infrastructure Development of Exports (ASIDE) Scheme, which channel funds to sub-national governments to develop local infrastructure system.

This paper argues that in order to comply with the target of increasing exports and with the goal of developing a robust and sound economy, the Indian government should pay more attention to developing an efficient and competitive infrastructure system. This can be done in a more coherent way not only by infusing government funds to build roads and telecom networks but also by putting infrastructure services and financing at the centre of India's trade policy.

Indeed, while hard infrastructures are often considered as a public good, which require a high degree of government intervention to achieve efficiency, infrastructure services are increasingly traded. Consequently, allowing more investment by the private sector and increased international competition can boost their efficiency.

From a trade policy perspective this can be achieved by promoting further services liberalisation in infrastructure services, especially at the regional level and by expanding public procurement to both domestic and foreign players.

In short, some important points are:

- Trade related infrastructures are essential for boosting trade performance
- The Indian trade policy does not do enough on that count, and it is essentially limited to channelling public funds to build infrastructures

Therefore, the Indian government should:

- liberalise infrastructure services as there is no economic rationale to keep them protected and focus especially on building regional infrastructure networks
- treat infrastructure as any other services and, beside putting more resources to build them, should also focus on increasing their efficiency by:
 - more services liberalisation (in the sectors where it is politically feasible)
 - liberalisation of government procurement (for all the sectors relevant to infrastructure, and especially for those sectors that cannot be liberalised)

The Importance of Infrastructures in International Trade

From an economic perspective infrastructures are crucial tools to achieve trade efficiency and ensure the competitiveness of domestic products in international markets. Good infrastructure systems have a direct positive correlation with trade costs and final price of the products (Nordas and Piermartini 2004).

Trade and infrastructure are inter-linked and they interact with each other at various levels. First, infrastructure, especially when they are monopolised, might charge more fees for their utilisation that would ultimately raise the final costs of products. Indeed, infrastructure services, like all the services in general, are an input to the production of other goods and services and their inefficiency acts as a heavy tax to a domestic economy. For instance, a poor infrastructure system would have direct impact on the total time required to move goods and services, and it will raise the risk of damage of losses, which will be reflected in higher insurance costs that impact the final price.

Second, a good infrastructure system has a positive impact on the overall volume of cross border trade. Capitalisation of an efficient air transport, or sea transport system, when served by an efficient terrestrial network, would allow the movement of more goods, particularly for containerised shipping.

Third, a good infrastructure system not only reduce the costs of transport and the overall production but it increases market access opportunities abroad via improved access of remotely located manufacturers to foreign markets.

Fourth, progressive creation of production networks at a regional level needs infrastructure as its main input and a good logistic or transport

system could induce specialisation in various level of a value chain. As the quality and competitiveness of infrastructure services influences the competitiveness of other sector of an economy, they could positively affect the comparative advantage of a country and allow the creation of new niches of specialisation. This is particularly true for transport services and the export of perishable goods and, more in general, for time-sensitive goods.

Finally, reduced price of services will increase overall producer and consumer welfare.

Coming to specific sectors, the most crucial infrastructure industries are transport and logistic. High transport and logistic costs could offset the benefits of trade liberalisation, affect the composition and volume of trade flows, and also undermine a country's absolute or comparative advantage.

Limao and Venables (2001) found that for landlocked countries domestic and transit country infrastructure together account for 60 percent of transport costs, while it is around 40 percent for other countries. They also found that an improvement in transport infrastructure that reduces say 10 percent of a country's trade costs could increase its exports by over 20 percent (Box 1).

Telecommunication is another crucial sector. An effective Internet-based telecommunication system provides low cost channel to search, gather, and

Box 1: Impact of Transport Infrastructures in Democratic Republic of Congo

In the Kinshasa region in DRC the transport system was underdeveloped and the quality of the road was such that a trip from a remote village located about 300 kilometres from the capital would take four days by road and twenty days by boat.

A study of Minten and Kyle (2004) showed how the quality of infrastructure can affect the final price of the goods traded. It showed that the cost of transport by road takes around 30 percent of the final price, while the cost of transport by boat takes 20 percent.

According to this study, if the road is bad the cost of transport rises by around 6.2 percent for every 100 km, while it increases only by 3.2 percent on paved roads. This mean that a farmer living 500 km from Kinshasa, where 400 km is on paved roads and 100 km is on dirt roads, would enjoy a 15 percent increase in the producer price if the dirt road was paved.

Source: World Trade Report, WTO, 2004

exchange information that, in turn, reduces the final costs and increase market opportunities. Similarly, financial services, especially those providing trade finance, have a pivotal role in allowing trade to happen. Trade finance helps in transferring the ownership of a product across borders, while covering the risk of international trade transactions. As it was seen during the recent financial crisis, the lack of trade finance would severely undermine the possibility to sell and transfer goods across borders and thereby act as a *de facto* barrier to trade.

India's Foreign Trade Policy and Trade-related Infrastructure

Based on this analysis, the importance of infrastructures to enhance India's trade performance is unquestioned. Similarly, there is no doubt that India needs a serious upgrading of its transport and logistic system to further boost its exports. A clear indication in this regard is the share of aid for trade (AfT) coming to India allocated to infrastructure development that now covers around 74 percent of the overall AfT disbursement to India.

However, when it comes to the role of infrastructure in the process of India's trade policy formulation, it seems that there is little room for infrastructure development, compared with other trade enhancing tools, such as export zones, towns of export excellence, and other such measures.

The Preamble to the National Foreign Trade Policy (NFTP) of India states that the final goals of this Policy are "facilitating development of India as a global hub for manufacturing, trading and services" and upgrade India's "infrastructural network, both

physical and virtual, related to the entire foreign trade chain, to international standards".

Nonetheless, the only specific measure enacted to develop infrastructure is the ASIDE Scheme, which encourages state governments to participate in the promotion of exports through the allocation of funds for the modernisation of local export-related infrastructures.

More specifically, under the ASIDE Scheme "The States shall utilise the funds for developing infrastructure such as roads connecting production centres with the ports, setting up of Inland Container Depots and Container Freight Stations, creating new State level export promotion industrial parks/zones, augmenting common facilities in the existing zones, equity participation in infrastructure projects, development of minor ports and jetties, assistance in setting up of common effluent treatment facilities, stabilising power supply and any other activity as may be notified by Department of Commerce, Government of India from time to time".

The 2009-2014 NFTP of India adds to this list the setting up of electronics and other related infrastructure in export zones. In all the foreign trade policy documents there is no other mention of infrastructure development strategies and of their strategic role in boosting exports.

Clearly, given the primary importance of infrastructure in overall economic and social development of India, infrastructure policy is also dealt in other policy frameworks, and its development can be enhanced through various measures such as foreign aid and more investment.

Table 1: Financial Implications to Meet the Likely Gap in Infrastructure in 2014

Sector	Unit	2009-10	Projections in view of India's exports in 2014	Projections by concerned agencies	Gap	Additional financial outlay (₹ crore)
Port	Million Tonnes	574	1692	1093.5	(-)598.5	24191
Road						
6 Lane	Kilometre	731	6758	2321	(-)4437	44370
4 Lane	Kilometre	14584	112635	46315	(-)66320	636672
Railways						
		Cost (₹Crore/km)	Projected addition in 2014 (km)	Financial implications projected by the Ministry of Railways	Financial implications projected by the Department of Commerce	Gap (additional financial outlay) (₹Crore)
New Lines		7.08	11677	82708	2280985	2198277
Doubling of Single Lines		11.27	13759	155101	366814	211713
Total Additional Financial Outlay						3115223
Source: Strategy for Doubling Exports in Next Three Years (2011-12 to 2013-14), Department of Commerce, Government of India, 2011						

It is clear that more has to be done to develop robust and efficient trade-supporting infrastructures.

A question is whether the development of trade-related infrastructure should not only rely on infusion of public money to build roads, ports and other networks but also on the development of their efficiency and in the reduction of their costs. More specifically, here the issue is whether trade infrastructure should be subject of trade policy, similar to any other economic sector, and be liberalised through appropriate policy methods in order to boost their development.

An answer to this question could unfold through two steps. First, benefit of a liberalised infrastructure network, especially at a regional level, should be analysed. Second, the crucial importance of services liberalisation and the role of government procurement as a primary tool for the development of trade-supporting infrastructures should be argued.

The Department of Commerce, Government of India has estimated the infrastructure requirements based on a projected trade volume of US\$1158bn in 2014. Table 1 shows that in order to achieve this projected trade volume in 2014 an additional financial outlay of ₹3,115,223 crore (US\$692.27bn). It is unlikely that such a huge volume of investment will come from government sources alone; neither it is desirable.

Benefits of a Liberalised Infrastructure Regime and the Push for Regionalisation

Stiglitz (2006) has shown how an open infrastructure policy that allows the involvement of foreign operators can substantially increase overall trade efficiency. Inefficient domestic infrastructure can substantially raise the cost of production and will act as a export tax leading otherwise efficient firms to lose competitiveness *vis-à-vis* less efficient firms from countries with better infrastructure.

Infrastructure services are public goods used by virtually all consumers. An inefficient and protected infrastructure sector would have a negative impact on the finance of any household and will reduce consumer welfare. Domestic infrastructure policies, in particular, can create substantial indirect trade barriers.

For example, a highly inefficient transportation system can effectively protect inefficient domestic firms in the interior of a nation from competition from superior foreign suppliers by increasing the advantage of close proximity between buyers and sellers.

From a political economy perspective protectionist development of infrastructure policies without any liberalisation would ultimately result in a “quest for national advantage” that could

Box 2: Mekong Corridors and their Impact on Trade Flows

In the South Mekong region regionalisation of infrastructure almost doubled trade among neighbouring regions. In 1990s the governments of Laos, Thailand and Vietnam, with support from the Asian Development Bank, launched three projects (the East-West, the GMS North-South, and the Economic Corridors) that aimed at connecting the road networks of the Mekong delta region in order to spur intra-regional trade.

The projects not only focused on developing hard infrastructures but also were complemented by regulatory convergence in various other aspects of infrastructure development. The three governments signed a Cross-Border Transport Agreement (CBTA) that covered all aspects related to goods and services flows – including customs inspections, transit traffic, and road and bridge design. The CBTA allowed 500 licenses to trucks to operate along the corridor without paying transshipment fees.

The results of the projects are really encouraging. After a few years, the total trade flow between countries rose up to 50 percent per annum. Average travel and transport time were reduced by 50 percent, and the number of vehicles and people crossing the borders almost tripled.

The economic effects were not only reduced to pure trade. Industrial estates were developed in Lao Bao, Dong Ha provinces, respectively in Laos and Vietnam. Increased connectivity has led to an expansion of tourism and other services sectors.

Source: ADB/ESCAP, 2009

favour inefficient domestic operators as against efficient entities (Kessides, Noll and Benjamin, 2010).

For these reasons, countries are increasingly resorting to a progressive internationalisation of their infrastructure systems, especially at a regional level. The push for regionalisation has different reasons compared to traditional preferential trade arrangements. The process of regionalisation of markets create interdependencies that raise the need for trade related infrastructures to complement traditional preferential access schemes.

At the regional level, an integrated infrastructure system achieves its highest potential as it reduces transport costs for regional trade flows (which usually occupy a big share of the overall international trade flows of each country). Furthermore, not only it promotes the expansion of economies of scale in both traded consumer goods and supporting services such as distribution, but also in the infrastructure sectors themselves such as transport, ITC, energy etc.

Finally, an integrated regional infrastructure network is more likely to attract foreign direct investment. When markets cross national boundaries an integrated regional infrastructure system would naturally promote competition and efficiency among operators with beneficial spill-over to the rest of an economy.

Furthermore, adjacent infrastructure networks that share capacity would reduce sunk costs by sharing them among different countries and minimise waste. Thus, the coordination of infrastructure systems among neighbouring countries promote a more efficient and rational use of resources.

An Open Public Procurement Regime and Its Benefits to Infrastructure Development

While liberalisation of public services will bring positive benefits, it is not always easy or feasible from a political perspective. Indeed, in many countries public utilities are still under government/semi-government domain as they generate revenues for the state and guarantee employment to a high number of people. Nonetheless, the efficiency of public services can be enhanced in an indirect way by opening the procurement market for infrastructure related services and for the goods necessary to their production to domestic as well as foreign producers and suppliers. The opening of the procurement market, not essentially limited to public utilities, would have a number of positive benefits, while maintaining the prerogative of the state in generating employment and revenues.

First, it would lead to increased competition, which in turn will reduce consistently the costs and

increase the quality of trade supporting infrastructure. Indeed, governments often suffer from asymmetry of information when grating a procurement contract. This is because the costs of building a road or any other infrastructure are usually higher for public entities compared to private contractors. Hence, governments do not know the minimum market price that can be obtained from private contractors. Increasing the competition for a contract would not only grant a higher quality available in the market but it would also reduce the price of projects to their effective value (Estache and Limi, 2008).

Second, an open procurement market would increase transparency of the procurement process and reduce significantly collusive agreements. This would ensure highest quality as well as lowest price for public works.

A possible way to achieve a liberalised procurement regime is through accession to the World Trade Organisation's Plurilateral Government Procurement Agreement (GPA). This instrument allows WTO Members to enjoy the benefit of an open procurement market, while maintaining a certain policy space for using public procurement as an industrial policy tool. Indeed, as per the GPA WTO Members can choose the sectors, the level of the contract, and which state entities (central

Box 3: Some Experiences of Government Procurement Liberalisation

- In Pakistan, an open and transparent bidding process has resulted in savings of more than US\$3.1mn for the Karachi Water and Sewerage Board
- After introducing transparent procurement procedures in its energy sector, Bangladesh were able to reduce electricity prices at less than US\$0.03 a kilowatt-hour – roughly half the price of directly negotiated deals in Indonesia
- A research conducted by Thailand Development Research Institute on the benefits of Thailand's accession to the WTO GPA showed that the Thai government could save up to 2.5 percent of its public expenditure, if its procurement market is liberalised under the WTO GPA and it would translate into an annual saving of US\$10-101mn; highest gains would come from reduction in costs of infrastructure projects

Source: Tangkitvanich, S. and A. Manasboonphempoon, 2008; OECD, 2003

government or sub-national entities) that they would like to open in their procurement market. It also allows policy space to carve-out sectors of “strategic importance” to a country and at the same time ensure highest quality for the sectors open to international competitive bidding.

In Lieu of a Conclusion

Increase in government spending toward building roads and ports as part of improving trade facilitation, as it is done through the ASIDE Scheme, is certainly one way to ensure the development of the architecture that supports Indian’s trade. These

measures are to be combined with liberalisation of infrastructures services and to enhance their efficiency through a more open procurement regime for their supply.

The main point is that infrastructures can be traded and similar to all other sectors of an economy their cost and quality can be improved by opening the market of infrastructure production and supply to foreign competition. Arguably, the opening of the infrastructure supply to foreign competitors will reduce price, increase quality, boost efficiency and competitiveness while inducing a massive flow of foreign investment eager to seize the various opportunities offered by the Indian market.

References

- Asian Development Bank/United Nations Economic and Social Commission for Asia and the Pacific (2009), *Designing and Implementing Trade Facilitations in Asia and the Pacific*, Asian Development Bank, Manila
- Bhattacharyya, A. and D. Chakraborty (2010), *India’s Recent Infrastructure Development Initiatives: A Comparative Analysis of South and Southeast Asia*, MPRA Paper No. 23030; <http://mpa.ub.uni-muenchen.de/23030/>
- Brook, Douglas H. (2008), *Infrastructures and Asia’s Trade Costs*, ADBI Research Policy Brief 27, Asian Development Bank Institute, Tokyo
- Department of Commerce, Government of India (2011), *Strategy for Doubling Exports in Next Three Years (2011-12 to 2013-14)*
- Estache, A. and A. Iimi (2011), *The Economics of Public Infrastructure Procurement in Developing Countries: Theory and Evidence*, Centre for Economic Policy Research, London, UK
- Estache, A. and A. Iimi (2008), *Procurement Efficiency for Infrastructure Development and Financial Needs Reassessed*, ECARES Working Paper 2008-022, Université Libre de Bruxelles, Belgium
- Francois, J. and M. Manchin (2006), *Institutions, Infrastructures and Trade*, <http://www.i4ide.org/people/~francois/>
- Jansen, M. and M. K. Nordas (2004), *Institutions, Infrastructure, Trade Policy and Trade Flows*, Discussion Paper No. 4418, Centre for Economic Policy Research, London, UK
- Kessides, Ioannis N., Roger G. Noll and Nancy C. Benjamin (2010), *Regionalising Infrastructure Reform in Developing Countries*, World Economics, Vol. 11, No. 3, July-September 2010
- Limao, N. and A. Venables (2001), *Infrastructures, Geographical Disadvantage and Transport Costs*, World Bank Policy Research Working Paper 2257, The World Bank, Washington DC, USA
- Organisation for Economic Cooperation and Development (2003), *Transparency in Government Procurement: The Benefits of Efficient Governance*, TD/TC/WP/(2002)31/Rev2/14, April 2003
- Portugal-Perez, A. and J. S. Wilson (2010), *Export Performance and Trade Facilitation Reforms*, World Bank Policy Research Working Paper 5261, The World Bank, Washington DC, USA
- Stiglitz, J. (2006), *Making Liberalization Work*, W. W. Norton, New York, USA
- Tangkitvanich, S. and A. Manasboonphempoon (2008), *Estimating the Benefits of Public Procurement Liberalization: A Case Study of Thailand*, TDRI Quarterly Review 3, Thailand Development Research Institute, Bangkok, Thailand
- World Trade Organisation (2004), “Infrastructures in Trade and Economic Development (Part 2, B)” in *The World Trade Report 2004*, Geneva, Switzerland

This Briefing Paper is researched and written by Federico Lupo Pasini, Fellow, CUTS International and Bipul Chatterjee, Deputy Executive Director, CUTS International.

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