Asia-Pacific Trade Facilitation Forum: Background Paper for Session 1 (Logistics)

Enhancing International Trade Logistics Performance: Inclusive Development and Supply Chain Efficiency¹

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Executive Summary

This background paper provides an overview of the logistics sector from the perspective of supply chain efficiency and inclusive development. A review of international evidence on sectoral performance in the Asia-Pacific reveals considerable heterogeneity, ranging from world leaders to countries where the logistics environment is particularly challenging. The core of the paper, however, focuses on the identification of challenges facing the logistics sector from a policy perspective, and efforts to overcome them both inside and outside the region. Concretely, we identify ten particular challenges that Asia-Pacific countries will need to address going forward:

- Accurate measurement of logistics performance;
- The scope of commercially meaningful coverage of the logistics sectors;
- The lack of a demand side perspective;
- Difficulties relating to cross-border cooperation;
- Persistent policy barriers;
- Disadvantages that landlocked countries face, particularly transit issues;
- Ensuring consistency between hard and soft infrastructure;
- Poor internal logistics and domestic logistics capacity;
- Delays caused by criminal activities; and
- "Green logistics" as an emerging issue.

¹ This paper is prepared by Ben Shepherd and Shintaro Hamanaka for the Asia-Pacific Trade Facilitation Forum. The author appreciates comments from ADB and UNESCAP staff/consultants. The views expressed in this paper are those of the author and do not necessarily reflect the views and policies of ADB and UNESCAP.

After discussing each challenge in turn, the paper then presents a number of case studies that demonstrate ways in which countries have tried to address them on a policy level. Although the focus is on the Asia-Pacific, examples from outside the regional are also included for comparative and informative purposes. In particular, experience makes clear that there is significant potential for developing countries to engage not only in North-South knowledge sharing, but in South-South knowledge sharing too.

Based on this material, the paper suggests four questions for policy-level discussion at the 2013 Asia-Pacific Trade Facilitation Forum:

- What can be done to support private sector development in the trade logistics sector?
- What can be done to support increased cross-border cooperation in relation to trade logistics?
- How to sustain the ongoing international integration of trade logistics markets?
- How to balance the desire for enhanced supply chain efficiency with increased demand for environmentally friendly shipping options?

Although recommendations are preliminary at this stage, and will be revised in light of discussions at the Forum, we suggest that policy would benefit from being developed with the following points in mind:

- Efforts to integrate logistics markets on a regional and international basis should be intensified going forward, including through openness to international trade in goods and services, and investment.
- Initiatives for cross-border cooperation in the areas of hard and soft infrastructure should be strengthened, particularly in the case of landlocked countries.
- Policymakers need to include both the supply and demand sides—users and consumers in their assessments of appropriate actions going forward.

1 Introduction

Trade logistics is the sector responsible for connecting people to markets, and for connecting buyers to sellers. As such, it plays a key role in developing economic activity between countries and, incidentally, within them. This paper examines supply chain performance from an efficiency perspective, noting some of the ways in which trade logistics can be part of the broader inclusive development agenda. It concludes with a series of questions that policymakers will need to address in order to maximize the gains from developing the sector over the medium term.

Trade logistics refers to a cluster of related service activities that bring exporters in one country into contact with consumers (importers) in another. It is both a value chain in its own right, and the system that makes other value chains function. Internationalized business models, such as the consumer electronics value chains for which the Asia-Pacific has been widely recognized internationally, are simply not commercially viable without efficient trade logistics to support them. Like any sector, however, trade logistics is dependent on a number of inter-related factors for its smooth functioning: infrastructure, government services (such as border clearance), and service sector regulatory policies are particularly important. There is therefore much that policymakers can do in these three areas to promote development of the sector and improve performance.

Trade logistics plays a critical role in promoting regional and international trade.² More efficient trade logistics decreases international trade costs (Arvis et al., 2013). There is also extensive evidence that better trade logistics tend to boost international trade performance, which can be the source of significant development gains (e.g., Saslavsky and Shepherd, Forthcoming). Indeed, Hoekman and Nicita (2011) find that trade facilitation and logistics have the strongest potential to boost trade of any of the policy measures considered in their analysis. These results form the basis of findings using computable general equilibrium models that improvements in trade facilitation-which includes trade logistics performance-can substantially boost both exports and national welfare, and that these effects are potentially larger than those coming from extensive tariff reductions on manufactured goods. For example, World Economic Forum (2013) finds that reducing supply chain barriers half way to global best practice could increase world GDP by nearly 5%. Recent research shows that trade facilitation initiatives-which include various types of improvements to trade logistics processes-benefit all internationally-linked firms, both small and large (Hoekman and Shepherd, 2013). Saslavsky and Shepherd (Forthcoming) show that countries with better logistics environments tend to specialize in the export of parts and components, which is one indicator of increased participation in international value chains. This finding reflects the fact that the value chain business model is unsustainable without a logistics sector that can reliably ensure on-time and low-cost delivery. Value chains provide developing countries with the opportunity to "move up" from low value-added assembly operations, to higher value-added manufacturing and development operations. They represent an important new paradigm in the process of trade-led industrialization.

 $^{^{2}}$ There is overwhelming evidence that international trade can be a source of productivity growth at the firm level (e.g., Pavcnik, 2002), which in turn drives sectoral and national productivity growth. Trade integration can, therefore, result in higher income levels, which are an important driver—under appropriate policy settings—of inclusive development.

How can trade logistics be leveraged for inclusive development? One example is that better logistics decreases the price gap between small producers, such as farmers in developing countries, and consumers both at home and overseas. By reducing this price wedge, efficient trade logistics can help farmers receive a larger share of the final price of their goods (Porto et al., 2011), at the same time as lowering prices for consumers. As farmers in developing countries are often among the poorest members of society, trade logistics plays a crucial role in raising incomes, and thereby promoting development.

Against this background, the paper proceeds as follows. The next section provides an overall description of the sector. Section 3 provides a review of key data on the logistics sector, focusing on overall performance, and the core processes that affect it. Section 4 discusses challenges facing countries eager to further develop the logistics sector. Section 5 discusses recent attempts in the Asia-Pacific to deal with some of those issues. Section 6 presents questions for discussion, and Section 7 presents recommendations based on the findings of the paper, and the results of the discussion. Finally, Section 8 summarizes the paper and concludes.

2 Description of the Sector

Trade logistics brings together a cluster of related service activities that help firms engage in international trade. At its broadest, the logistics sector includes transport, freight forwarding and express operations, warehousing, and retail and wholesale distribution. In a nutshell, it is the set of operations that bring producers in one country into contact with consumers in another; it is the "grease in the wheels" of international commerce, which makes trade relations possible. Trade logistics therefore incorporates two main components: international logistics, and domestic logistics. The former set of activities focuses on the way in which goods move between countries, and the latter focuses on their movement within countries.

We refer to logistics as a cluster of activities because each area involves a range of different actors and services. For example, transport includes international shipping and air transport to move goods between countries, as well as rail and road links to move goods within countries (and sometimes between them as well). Freight forwarders and express operators-like UPS, DHL, and FedEx, as well as a range of smaller, local operators-arrange shipping transactions between parties in different countries, as well as domestically. They organize transport nationally and internationally, and provide tracking and tracing services that help ensure the secure and timely delivery of merchandise. Warehousing activities are necessary at various points in the logistics supply chain, particularly at cargo entry points such as ports and airports. They allow shippers to temporarily store goods before moving them on to the next stage in the process; for example, storage at an international gateway port frequently occurs in developing countries due to the lag between completion of the international shipping leg and commencement of the goods' domestic movements. Finally, retail and wholesale distributors move goods respectively to consumers and to smaller retail outlets that have direct contact with consumers. They include super- and hyper-market chains, as well as convenience stores, and small, local operations. They represent the final stage in the logistics supply chain, as they provide the purchase point for consumers of goods that have passed through the chain.

Although we take a broad view of logistics in this paper, a common usage of the term limits it largely to a particular set of third party operations, especially freight forwarders and express operators. However, from a policy standpoint, the broader view is important because it is necessary to take a supply chain perspective to dealing with trade logistics. That perspective is necessarily holistic and multi-faceted. It facilitates a policy stance that reduces bottlenecks and chokepoints at all points in the chain, and thus facilitates trade transactions to the maximum possible extent.

Unfortunately, the breadth of the logistics sector means that it is not treated independently in commonly used industrial classifications. It is therefore difficult even to measure the size of the logistics sector in different countries, let alone the full extent of its impacts on the international economy. Shepherd (2011) uses approximate measures from national accounts data and input-output tables to provide some preliminary information on the total value added of third-party logistics operations in different countries, the only cross-country basis on which the approximate size of the sector can be gauged. On average, logistics accounts for between 5% and 17% of total value added in the economy, depending on whether a narrow or broad definition is used. Of course, a significant part of this total is accounted for by domestic logistics activities; the total contribution of international trade logistics is necessarily smaller. Nonetheless, logistics is clearly an important source of value added in the economy, including in developing countries. For example, logistics services in India account for between 6% and 19% of GDP, and in Vietnam the corresponding figures are 2% and 13%.

In addition to making its size difficult to measure, the breadth of trade logistics activities means that a wide variety of private and public actors are involved in each transaction. Thus far, we have focused on the private sector. However, all trade logistics transactions take place against a basis of "hard" (physical) and "soft" (regulatory) infrastructure. For instance, transport infrastructure, as well as sectoral regulations, affect the way in which national and international transport operators do business, thus influencing costs throughout the supply chain. Similarly, trade-related regulations-such as border clearance formalities-affect the time, cost, and reliability associated with a variety of trade logistics activities that require goods to cross borders, which again influences costs throughout the supply chain. There is thus an important relationship between private and public sector perspectives when it comes to developing trade logistics neither half of the equation can act entirely independently from the other. Just as the private sector requires an efficient environment in which to operate-high quality infrastructure and economically rational regulation-so too the public sector depends on information flows from the private sector, as well as a relationship of trust and confidence with operators, to build a regulatory environment that achieves social goals at the same time as optimizing trade facilitation outcomes. The remainder of this paper will therefore discuss both private and public sector perspectives on improving trade logistics performance with a view to promoting inclusive development and supply chain efficiency.

3 Review of Current Status

The most commonly used set of indicators for measuring logistics efficiency across countries is the World Bank's Logistics Performance Index database (LPI; Arvis et al., 2012).³ Based on a survey of around 1,000 logistics professionals, the International LPI is an index number between one and five summarizing performance in six key areas: efficiency of the clearance process; quality of trade and transport infrastructure; ease of arranging competitively priced shipments; competence and quality of logistics services; ability to track and trace consignments; and timeliness of shipments in reaching their destination. The second part of the LPI database, the Domestic LPI, measures a variety of qualitative and quantitative indicators on more detailed aspects of logistics performance, including time, cost, and reliability.

Figure 1 shows International LPI scores for ADB economies according to region.⁴ Singapore, the world leader, is used as a point of comparison. Results show that on an overall basis—i.e., aggregating the six core dimensions of logistics performance referred to in the previous paragraph—East Asia is the leading region, followed at some distance by Southeast Asia. The other three ADB regions display similar levels of performance that are considerably lower. In all cases, however, the regional averages are well below the world technological frontier, represented by Singapore. The implication of this finding is that there is considerable work for the public and private sectors to do in the Asia-Pacific to improve overall logistics performance.



Figure 1: LPI score (index ranging from 1-5); by ADB region.

Source: LPI Database (2012); authors' calculations.

The International LPI also provides information on six core areas of logistics performance (Table 1). The ordering of regions closely follows that of the overall index, as would be expected given

³ Alternative data sources either focus on particular aspects, like red tape barriers (e.g., Doing Business), rather than multiple dimensions of logistics performance.

⁴ Data coverage is extremely limited for the Pacific, and results should be treated as indicative only. Data for East Asia include a number of developed economies, which makes comparison with developing regions potentially problematic.

the strong correlation among the various dimensions. Performance is strongest in all regions in the case of timeliness, which is a very positive factor given the importance that time plays as a determinant of supply chain efficiency. In all regions except Central Asia, the weakest performance dimension is border clearance, including—but not limited to—customs. Regulatory reform to improve the time and cost associated with procedures such as customs clearance, quarantine inspection, and quality inspection is therefore a priority area for most regions. In Central Asia, the most serious constraint is infrastructure. This finding perhaps reflects the fact that most of the Central Asian economies are landlocked—a constraint that is addressed in more detailed in Section 4, below. Notwithstanding these differences in performance across indicators and regions, a supply chain is only as strong as its weakest link (Arvis et al., 2012), and progress is necessary on each of these fronts if a country is to strengthen its general trade logistics environment.

	Central	East	South	Southeast	The
	Asia	Asia	Asia	Asia	Pacific
Efficiency of the Border Clearance	2.44	3.29	2.37	2.78	2.14
Process					
Quality of Infrastructure	2.41	3.59	2.38	2.82	2.15
Ease of Arranging Competitively	2.48	3.44	2.48	3.02	2.40
Priced Shipments					
Competence and Quality of Logistics	2.43	3.46	2.59	2.95	2.17
Services					
Ability to Track and Trace	2.49	3.55	2.51	3.11	2.46
Consignments					
Timeliness of Delivery	2.89	3.90	2.91	3.42	3.06

Table 1: Scores (1-5) on core areas of logistics performance, as measured by the elements of the International LPI; by ADB region.

Source: LPI Database (2012); authors' calculations.

The Domestic LPI database can be used to unpack these aggregate results and obtain more details on the drivers of particular results. One particularly important example is the identification of major sources of delay, which are in important determinant of timeliness. The data cover delays due to the following causes: compulsory warehousing and transloading; pre-shipment inspection; maritime transshipment; criminal activities (such as theft); and solicitation of informal payments in association with logistics activities. For each source of delay, the LPI database reports the percentage of survey respondents indicating that major delays are "nearly always" or "often" experienced for that reason.

Results are in Table 2. In line with the results on timeliness reported in Table 1, the data show that delays are generally much less prevalent in East Asia than elsewhere. In nearly all cases, delays are most prevalent in Central Asia, again probably due to the fact that most countries in this group are landlocked (see further in Section 4, below). The most significant sources of delay vary considerably across regions. In Central Asia and Southeast Asia, it is pre-shipment inspection. In South Asia, it is maritime transshipment, whereas in East Asia, it is compulsory warehousing and transloading. These categories make clear that delays are usually due to the interaction between private and public agents and processes. There is thus an important role for

public policy as well as private sector development in reducing the prevalence of delays, and improving supply chain efficiency.

	Central Asia	East Asia	South Asia	Southeast Asia	The Pacific
Compulsory Warehousing and	55%	11%	30%	19%	NA
Transloading					
Pre-Shipment Inspection	63%	9%	23%	31%	NA
Maritime Transshipment	42%	4%	40%	13%	NA
Criminal Activities	1%	3%	6%	9%	NA
Informal Payments	34%	6%	25%	17%	NA

Table 2: Percentage of LPI survey respondents indicating that they "nearly always" or "often" experience major delays due to the listed factors.

Source: LPI Database (2012); authors' calculations.

4 Ten Challenges

The six dimensions of logistics performance reviewed in Section 3 all relate to three key parameters: time, cost, and reliability. These factors are increasingly reflected at the policy level. For example, APEC's Supply Chain Connectivity Framework explicitly mentions them, and the interim progress assessment (APEC, 2013) uses indicators including those described in the previous section to examine performance among the 21 economies of that forum. Indeed, a focus on time, cost, and reliability from a supply chain point of view can be seen as a "new generation" trade facilitation initiative, which moves beyond traditional concerns such as streamlining border processes and lowering trade costs, to deal with factors that promote the development of global and regional value chains. Transport and logistics are important value chains in their own right, but they also make it possible for value chains to arise in other areas, such as electronic goods, and even agrifood sectors (Shepherd, 2013).

In this section, we address ten commercially important issues that affect logistics performance as measured in Section 3, and thus also impact supply chain efficiency more generally.

Challenge 1: Accurate measurement of logistics performance

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