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Transport and logistics innovation towards the review of the Almaty Programme of Action in 2014

Note by the UNCTAD secretariat

Executive summary

The present note has been prepared as a contribution to the review of the implementation of the Almaty Programme of Action and as an input to the reflection on the preparatory process of the United Nations framework for a new development agenda for landlocked developing countries to be considered for adoption in 2014. It focuses on two main issues: the relevance of enabling transit transport policies to build efficient logistics systems as an essential condition for these countries to participate in global trade and the role that innovation and technology can play in the design and implementation of these enabling transit transport policies.

This note briefly reviews selected best practices in addressing commonly known obstacles to the smooth flow of trade in transit through coastal countries. Despite significant progress in understanding the rationale behind the operation of transit transport systems, there is still a need for transit transport policies that will open transport markets, develop logistics services and enable landlocked economies to integrate regional and global value chains. The components of such policies are now well known; public and business sectors should agree on enforcing them, and financial and technical means should follow.

Policy actions should address the skills of local operators along the transit corridors and enable innovative solutions to plan and design logistics services and infrastructures based on regulatory schemes that would allow for dependable and safe trade to and from landlocked countries.

Contents

Introduction

1. The adoption in 2003 of the Almaty Programme of Action[1] triggered a massive wave of research and in-depth analysis, which led to a better understanding of the mechanisms and intricacies of transit transport systems serving the trade of landlocked developing countries. This was followed by an active involvement of donors and cooperation agencies in the design and implementation of innovation and technology-based operational solutions. These efforts also benefited from the negotiations of the World Trade Organization on trade facilitation, which started in 2004 and resulted in a considerable increase in aid devoted to improvements in border-crossing and transit-trade-related procedures.

2. Thus, both landlocked and transit developing countries, especially in Africa, have over the past five years taken advantage of fresh additional technical and financial support[2] for activities focusing on transit transport improvements. As a result, local, national and regional capacities have also significantly increased. UNCTAD contributed to the process by holding governmental meetings during the 2003–2013 decade devoted to the challenges faced by landlocked developing countries on matters relating to transit transport.[3] UNCTAD also provided technical assistance to design and implement solutions aimed at developing sustainable capacities in selected landlocked and transit developing countries.[4]

3. The present note concentrates on two issues: first, recent developments in transit transport arrangements and their relevance for transit-transport-enabling policies; second, the role that innovation and technology can play in the design and enforcement of such policies.

4. The terms of reference adopted by the Trade and Development Board for the Multi-year Expert Meeting state that the first session will aim to look at opportunities for landlocked developing countries to design and implement, in cooperation with neighbouring transit developing countries, mutually beneficial transport and logistics solutions. In examining the progress made in the implementation of the Almaty Programme of Action, experts will also review and evaluate transport and logistics innovative arrangements.

5. While the locational determinants of global value chains are not specifically dealt with in this note, efficient transit services and infrastructures remain crucial for the

[1] Fully titled: Almaty Programme of Action: Addressing the Special Needs of Landlocked Developing Countries within a New Global Framework for Transit Transport Cooperation for Landlocked and Transit Developing Countries.

[2] *Building Trade Capacities for Africa's Transformation: A critical review of Aid for Trade*, http://www.uneca.org/sites/default/files/publications/globalreview-on-aft-2013report.pdf.

[3] Expert Meeting on Design and Implementation of Transit Transport Arrangements, Geneva, 24–26 November 2004; Expert Meeting on Regional Cooperation in Transit Transport: Solutions for Landlocked and Transit Developing Countries, Geneva, 27 and 28 September 2007; Global Preparatory Meeting on the Mid-Term Review of the Implementation of the Almaty Programme of Action on Trade Facilitation: Opportunities for Landlocked and Transit Developing Countries, Geneva, 8 and 9 July 2008; Ad Hoc Expert Meeting on Transit Ports Servicing Landlocked Developing Countries, 11 December 2009.

[4] Lao People's Democratic Republic and Thailand, Zambia and Namibia, Paraguay and Uruguay (between 2003 and 2007); Rwanda, Burundi and the United Republic of Tanzania (2012 and 2013).

participation of landlocked developing countries in trade and for attracting investment, of which global value chains constitute the nexus.[5]

6. Lastly, the present note is also to be seen as a contribution to the review of the implementation of the Almaty Programme of Action and as an input to the preparatory process of the framework for a new development agenda for landlocked developing countries to be considered for adoption in 2014.

I. Recent developments on transit transport arrangements

7. The main impediments faced by landlocked developing countries in accessing overseas markets are well known and have been extensively documented. These obstacles may be seen as both physical, in terms of remoteness from world overseas partners, and operational, in terms of dependence upon trade and transport facilities and services existing in neighbouring coastal countries. The degree to which both types of obstacles affect trade competitiveness of landlocked developing countries depends in turn on institutional, regulatory and technological factors that may hinder or, on the contrary, enhance the efficient functioning of transit systems. As a result, and depending on the weight of additional transaction costs to be borne, landlocked developing countries will be able to trade more or less with overseas markets.

8. In acknowledging this, the aim of any initiative to improve transit transport systems can only be geared towards a single, clear objective: to remove all possible obstacles so as to enable the access of landlocked countries to logistics systems at least equal to the conditions enjoyed by their counterparts in coastal countries.

9. Despite the simplicity of the aim, there are many dimensions to the improvement of transit logistics chains. The following are considered in chapter I: the policy environment, transit arrangements establishing regulatory and institutional frameworks, transit transport corridors as management and operational structures and selected cases of best practices to showcase potentially successful well-designed planning.

A. Transit transport development policies

10. Many landlocked countries see their capacity to fully engage in international maritime trade as depending heavily, if not solely, on the good will of coastal transit neighbours. As a result, the solutions to improve the transit of their trade would rest primarily with their coastal neighbours. While the geographical dependence is obvious, the responsibility for efficient transit operation is probably shared, as explained in recent empirical research and field studies. These show that a main source of non-moving times and transit delays are spent at both extremes of the land transit chain, namely the transit port located in the coastal country, but also, the inland origin or destination within the landlocked country.[6] Final or initial clearance and dispatch procedures in landlocked countries and transit countries alike can lead to long and costly delays.

11. Furthermore, excessive transport costs often stem from regulatory frameworks prevailing in landlocked countries.[7] For instance, freight allocation systems in West Africa

[5] See *World Investment Report 2013*: *Global Value Chains – Investment and Trade for Development*, chapter 4 (http://unctad.org/en/PublicationChapters/wir2013ch4_en.pdf).

[6] "Corridor Logistics Initiatives", presentation by Jean Kizito Kabanguka, Ad Hoc Expert Meeting on Transit Ports Servicing Landlocked Developing Countries, 11 December 2009.

[7] Daniel Saslavsky and Ben Shepherd, Facilitating International Production Networks: The Role of

that aim to share cargo among certain road hauliers are the main reason behind the lack of competition, resulting in low quality of services; these systems also impose a barrier to potentially more efficient market entrants. In other cases, protective schemes for domestic industry have led to high freight rates on the one hand and to an oversupply of old inefficient truck fleets on the other.

12. Transit traffic can be beneficial to a transit country by increasing trade volumes both on land and in ports, thereby bringing about economies of scale domestic customers can also benefit from. Transit countries should in principle be more inclined to promote their transport and trade support services, and therefore should be keen to develop transit policies aimed at enabling the development of transit service sectors. In reality, this is not the case either, as potential benefits deriving from the adoption of transit policies do not draw the attention of decision makers, due in part to the low volumes of trade and proportion of landlocked countries' trade within the transport system as a whole.

13. There are, of course, situations in which even the best-designed transit policy may not help. A recent study in West Africa shows that because of recent conflict-related instability in coastal countries in the region, container shipping lines may not be keen to serve trade8 of landlocked developing countries.

14. In general, most landlocked countries have signed transit transport or transit trade agreements with neighbouring coastal countries. These agreements usually include provisions governing the access to the transport of goods by respective domestic companies and customs-related transit documentation and guarantee schemes. Some also cover the development of facilities and specific zones made available in transit ports for landlocked countries to receive, store and dispatch their trade for inbound and outbound transit trade. Most of these instruments meet specific needs and have been designed and negotiated to grant open transit passage to trade of landlocked neighbouring countries. While the well-established right to freedom of transit[9] cannot be challenged and will remain an essential rationale for the bilateral instrument, it should not be the sole or main goal of a transit agreement.

15. There are several examples of non-comprehensive international transit agreements. For instance, the Customs Convention on the International Transport of Goods under Cover of TIR Carnets (TIR Convention)[10] was initially designed to support after the Second World War the anticipated rapid growth among European countries of goods trade that would be severely burdened by lengthy and cumbersome customs procedures each time goods crossed a border. In 1968, it was replaced in the European Community by the so-called common transit system for intra-Community trade. The Agreement on International Land Transport Among the Southern Cone Countries of South America (1989) was also designed to become an integration mechanism,[11] leading to the development of

Trade Logistics, Policy Research Working Paper 6224 (Washington, D.C., World Bank, 2012). Available at https://openknowledge.worldbank.org/handle/10986/12061.

[8] "Currently, no shipping company appears to have a firmly established system for serving landlocked countries and some shipowners even refuse to serve them as they are unable to ensure control of their freight traffic." Market Study on Container Terminals in West and Central Africa (MLTC/CATRAM), Final Report, CATRAM Consultants, 23 January 2013, p. 63.

[9] Since the Convention and Statute on Freedom of Transit (1921) and the Convention on Transit Trade of Landlocked States (1965).

[10] Adopted in Geneva on15 January 1959, revised on 14 November1975. See brief history of transit in http://ec.europa.eu/taxation_customs/resources/documents/annex_i_transit_brochure_en.pdf.

[11] See summary of the "Reunión de Coordinación de las Iniciativas Regionales en las Áreas de Infraestructura para la Integración Física del Transporte, las Telecomunicaciones y la Integración Fronteriza" (Meeting on the coordination of regional initiatives in the areas of infrastructure for the

MERCOSUR and subsequently to the Initiative for the Integration of Regional Infrastructure in South America within the South American Infrastructure and Planning Council, known as COSIPLAN. The Northern Corridor Transit Agreement linking the Port of Mombasa to Uganda, Rwanda and Burundi is a good example of the way an enabling institutional framework can help support the development of a corridor operation.

16. Transit transport agreements may become powerful and effective instruments of development, as they can help create efficient access to markets of logistics services and promote regional economic integration and trade development. These agreements should also contain corresponding provisions that will benefit the trading and transport communities of both landlocked and transit countries. However, many existing transit agreements have been limited in their scope and objectives to manage transport and transit operations. In these cases, such agreements remain merely operational arrangements, often aimed at preserving interests, and miss the opportunity to promote tangible market improvements because they focus solely on compliance with the provisions of the agreements, rather than on promoting sector development.

17. By adopting existing international standards and transit agreements, many landlocked and transit countries would achieve closer alignment with existing effective transport facilitation standards such as, inter alia, the TIR Convention and the International Convention on the Harmonization of Frontier Controls of Goods (1982).

B. Transit transport corridors in Africa, Asia and South America

18. Conceptually and physically defined in the 1970s, corridors, as transport, transit or trade systems, make use of transport infrastructures and services within established regulatory schemes to serve the movement of passengers and goods between pairs of origins and destinations. Transit corridors have recently seen their development and operation become the focus of attention and initiatives by international organizations. Corridors can now count on institutional structures that, while largely in the hands of public sector entities, also host other corridor stakeholders. These corridor authorities build their development based on concerted efforts with public and private transport services providers.

19. Corridor management authorities have flourished in Africa, while they are still lagging in Asia and Latin America. In these two regions, bi-national and bilateral structures – such as border-crossing committees – have for many years ensured the coordination of cross-border trade, adopting a problem-solving approach rather than a systemic improvement process.

20. The Mesoamerica Project (former Puebla-Panama Plan), the Initiative for the Integration of Regional Infrastructure in South America and the Central Asia Regional Economic Cooperation Programme pursue transport development objectives. However, they were not designed to cater to the operational management of trade and transport port-anchored systems servicing landlocked countries.

21. Because they adopt a systemic or holistic approach to improve the quality of services, infrastructure development, and regulatory and institutional frameworks, corridor authorities in Eastern, Western and Southern Africa have over the 2003–2013 decade

physical integration of transport, telecommunications and border integration), Mexico City, 24 and 25 March 2011. Available at http://www.proyectomesoamerica.org/joomla/index.php?option=com_content&view=article&id=343&Itemid=85.

become the natural counterparts of donors for successful key trade and transport facilitation initiatives. Major donors such as the Department for International Development, the United States Agency for International Development, the African Development Bank and the World Bank, have partnered with corridor authorities as part of their regional development programmes.

C. Selected examples of best practices

22. The following examples illustrate how, at different levels and through various approaches, transport and logistics schemes could contribute to improving the transit operations serving the trade of landlocked countries. The case of Durban Port illustrates the challenges of tackling port congestion in the 1990s. It resulted in significant improvements of the port's efficiency, including for landlocked developing country users. The case of the Lao People's Democratic Republic shows how, with a national policy open to transit, the country is building a cooperation framework with its neighbours and the region with the aim of becoming a land-linked transit territory. Lastly, the case of Paraguay shows how a landlocked developing country that adopts a combination national logistics and transport master plan can achieve better integration in regional value chains and well serve as a model for other landlocked developing countries.

Efficiency reform at Durban Port

23. Durban Port[12] in South Africa offers a good example of a reform package, which has led to widespread changes in the operation of the container terminal and the role of all stakeholders in achieving benefits accruing to both port operators and users. The reform consisted in combining large infrastructure investments with port process reengineering and port pricing systems. The main lessons to be drawn from Durban Port are that, while cargo dwell time depends mainly on the efficient operation of private port users, public sector players such as customs and the port authority can help reduce cargo dwell time through better compliance with procedures. Prohibitive charges for storage, coupled with strict enforcement, the possibility to clear shipment with customs prior to the arrival of the goods and service-level agreements binding parties, were cited as critical in reducing cargo dwell time.

24. The transformation process, which lasted more than 10 years, was built around a clear and simple target: to reach an average dwell time of three days for containers passing through the Port of Durban. It started with an early multi-stakeholder diagnostic, produced in 1998, of the causes of a systematic congestion of the port and the establishment of priority measures for reform. A five-year investment plan was launched in 2001 and covered works in infrastructure, equipment and sophisticated information and communications systems helping to monitor vessel, land transport and terminal handling of containers. The customs procedures were also automated, allowing a three-hour maximum completion time for clearance. A new storage-pricing scheme for containers was also imposed to keep terminals and equipment at their optimal use within the targeted average dwell time.

25. The Port of Durban is also a transit port for neighbouring landlocked countries, and the efficiency gains achieved also benefited cargo coming from or going to Botswana, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe.

[12] See more detailed analysis in Tshepo Kgare, Gael Raballand and Hans W. Ittmann, Cargo Dwell Time in Durban: Lessons for Sub-Saharan African Ports – Policy Research Working Paper 5794 (Washington, D.C., World Bank, 2011).

Policy approach of the Lao People's Democratic Republic to transit facilitation

26. In the mid-1980s, the Lao People's Democratic Republic was the first landlocked developing country to openly declare its willingness to become a land-linked country. Since then, it has adopted a series of trade and transit facilitation measures that recently included the automation of customs clearance through the adoption of the UNCTAD Automated System for Customs Data (ASYCUDA). What could be seen as a yet incomplete transit policy package now consists of a number of bilateral agreements with neighbouring Thailand, Viet Nam and China and features active participation in the regional programmes of the Association of Southeast Asian Nations (ASEAN) and the Greater Mekong Subregion. (See box.)

27. Institution-building measures at the national level include the establishment of the National Transport Committee, chaired by the Minister of Public Works and Transport, with representatives from interested line ministries and business sectors related to transport and auxiliary trade services. The Committee is also responsible for following up and reporting on the implementation of the Almaty Programme of Action. Recent trade and transport facilitation measures include the automation of customs clearance processes through the ASYCUDA system and the adoption of a now completed dry port development strategy for the establishment of new inland container depots at the railway station in Thanaleng, on the border between Thailand and Viet Nam (East-West Economic Corridor) and in Pakse, Champasak.

Main transit arrangements concluded by the Lao People's Democratic Republic

Bilateral agreements and protocols with neighbouring countries:

- Bilateral trade agreement with Cambodia (25 May 1998), China (11 June 1997), Myanmar (8 May 1995), Thailand (20 June 1991) and Viet Nam (9 March 1998)
- Agreements and their protocols on road transport with Cambodia, China, Thailand and Viet Nam
- Bilateral memorandums of understanding with Thailand on the initial implementation of such agreement at Savannakhet, Lao People's Democratic Republic and Mukdahan, Thailand (4 July 2005) and with Viet Nam at Dansavanh, Lao People's Democratic Republic, and Lao-Bao, Viet Nam (25 March 2005)
- Trilateral memorandum of understanding with Thailand and Viet Nam on the initial implementation of such agreement at Savannakhet, Lao People's Democratic Republic, and Mukdahan, Thailand, and at Dansavanh, Lao People's Democratic Republic, and Lao-Bao, Viet Nam (23 August 2007)
- Arrangement on the operation of tourism road transport with Thailand and Viet Nam concluded in Singapore (2 November 2007)
- Protocol to implement the 1999 Agreement on Road Transport with Cambodia (14 December 2007)
- Memorandum of Understanding on Joint Cooperation for Maximizing the Utilization of the Second Friendship Bridge (Savannakhet-Mukdahan) and the Transport Infrastructure along the East-West Economic Corridor, concluded with Thailand and Viet Nam

Regional transport facilitation agreements:

- ASEAN Framework Agreement on the Facilitation of Goods in Transit and some of its protocols, the ASEAN Framework Agreement on Multimodal Transport and the ASEAN Framework Agreement on the Facilitation of Inter-State Transport
- Cross-border Transport Agreement on the Facilitation of the Movement of Goods and People in the Greater Mekong Subregion and its annexes and protocols between Cambodia, China, Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam
- Intergovernmental Agreement on the Trans-Asian Railway Network in Busan, Republic of Korea (10 November 2006) and its ratification
- Intergovernmental Agreement on the Asian Highways Network (4 April 2004); ratified 10 April 2008

Pending planned actions:

- The Lao People's Democratic Republic has not yet introduced the TIR scheme; the international transit system has been carried out by means of bilateral or multilateral agreements such as the Lao-Vietnamese Agreement, the Lao-Thai Agreement, ASEAN and the Greater Mekong Subregion. The Lao People's Democratic Republic signed the International Convention on the Harmonization of Frontier Control of Goods (1982). However, none of its neighbouring countries are party to the 17 international agreements and conventions relating to transit transport.

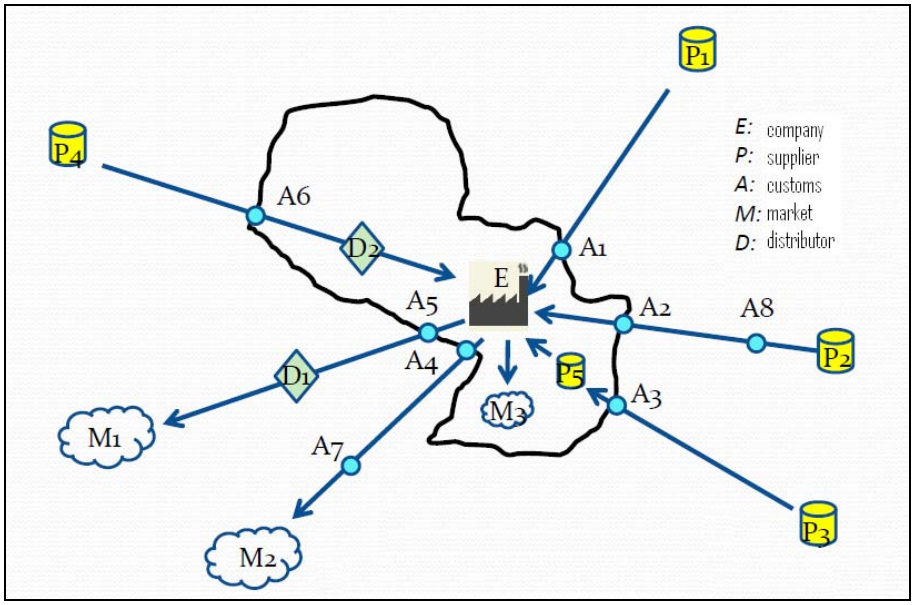
Source: Country paper: Lao People's Democratic Republic – The progress report on the implementation of the Almaty Programme of Action (Economic and Social Commission for Asia and the Pacific, 2010). Available at http://www.unescap.org/pdd/calendar/EGM-Almaty-POA-Jan2011/CP-LaoPDR.pdf and http://www.unescap.org/ttdw/common/Meetings/TFS/2011Regional-Road-Tx/Countries/LaoPDR.pdf.

Paraguay: National Logistics and Transport Master Plan

28. The recently completed National Logistics and Transport Master Plan of Paraguay,[13] elaborated from 2010 to 2012, encompasses two plans targeting the development of both transport and logistics (see figure 1). The plan is aimed at supporting national supply chains to integrate into regional value chains, helping reduce national transport costs as a share of gross domestic product from 10–9 per cent between 2016 and 2030.

[13] Plan Nacional de Logística y Transporte en Paraguay, http://kmpfl.devgateway.org/sites/default/files/observatorio_de_logistica_paraguay_-r.salinas.pdf.

Figure 1
National Logistics and Transport Master Plan of Paraguay



29. While national transport master plans are common in many countries, particularly in Latin America, what makes this case different is that international logistics are made part of the plan. Border-crossing procedures, intermodal transfer points and international links with neighbouring countries are also included. National value chains and their regional supply chains originating in Argentina, the Plurinational State of Bolivia and Brazil are taken into account.

30. The Master Plan includes institutional monitoring by means of logistics observatories. Skills development and logistics management are also incorporated into capacity-building programmes for national manufacturers and transport operators. Although it is still early on, the Master Plan contains all the ingredients that should help a landlocked country such as Paraguay face challenges relating to manufacturing supply chains and logistics management.

Other noteworthy best practices

31. The case of Djibouti as a transit country is exceptional in that more than 80 per cent of the cargo passing through its main port serves Ethiopia. The country has a comparative advantage in the transport and logistics sector due to its favourable geographical position in the main East-West trade lane. The port also benefits from its location to provide hub transhipment services for leading container shipping lines. Unlike the Netherlands or Uruguay which enjoy a similar situation, Djibouti has not yet developed a coherent transit service policy. A recent policy study recommendation suggests that Djibouti should aim at "serving very efficiently trade corridors to the Horn of Africa and remaining the prime gateway for Ethiopia".[14]The report sets out the following priorities: the adoption and implementation of a coherent investment strategy, "the creation of institutional mechanisms to bring together public and private stakeholders from both Djibouti and the landlocked

[14] Transport and logistics in Djibouti: Contribution to job creation and economic diversification, Report No. 75145 (Washington, D.C., World Bank, February 2013), p. 6.

neighbours",[15] measures to further facilitate transit and trade procedures, and "the development of training in specialized skills".[16]

32. Ethiopia has also launched several transport and logistics development initiatives. These include a strategy and transformation study of the Ethiopian Shipping and Logistics Services Enterprise to be conducted jointly with UNCTAD; a national logistics strategy for the United Nations Development Programme; and an investment climate trade logistics project designed to simplify and streamline regulations, processes and procedures to improve the doing business environment for the private sector. A study on domestic transport with a focus on related procedural and regional and international connectivity issues is planned at a later date.

33. A notable example of a comprehensive regional initiative in favour of landlocked countries is provided within the framework of the Economic Cooperation Organization Secretariat, of which 7 of its 10 Members have no access to the sea. Since 2009, the Organization has promoted the development of transport services along transit corridors specifically aimed at serving Central Asian landlocked member States through transit ports in Pakistan, the Islamic Republic of Iran and Turkey, where facilities have been especially devoted to traffic to and from landlocked member States.

D. Concluding remarks

34. A brief review of the current situation of transit transport systems across regions shows that significant progress has been made in understanding the rationale behind the operation of these systems. It also shows that some exemplary solutions have been put in place at different levels, including in ports, countries or regional economic groupings. What seems to be lacking is the development of transit transport policies in both landlocked and transit neighbours that go beyond the recognition of the right to access the sea in order to open transport markets by developing logistics services, enabling landlocked economies to integrate regional value chains and creating global ones in conditions where only the extra distance covered by land would make the difference. The components of such encompassing and development-fostering policies are now well known. If the public authorities and businesses can agree on enforcing them, the financial and technical means will follow, either in the form of investment or official development aid.

II. Technology and innovation in transit transport systems

35. Information and communication technologies in logistics, trade facilitation and supply chain security have helped improve transport operations. While various information systems have been developed to meet specific needs in their respective sectors, such systems could in many cases add additional efficiency, if interconnected where possible. They are categorized according to three main purposes: cargo operation, customs transit monitoring and supply chain security goals.

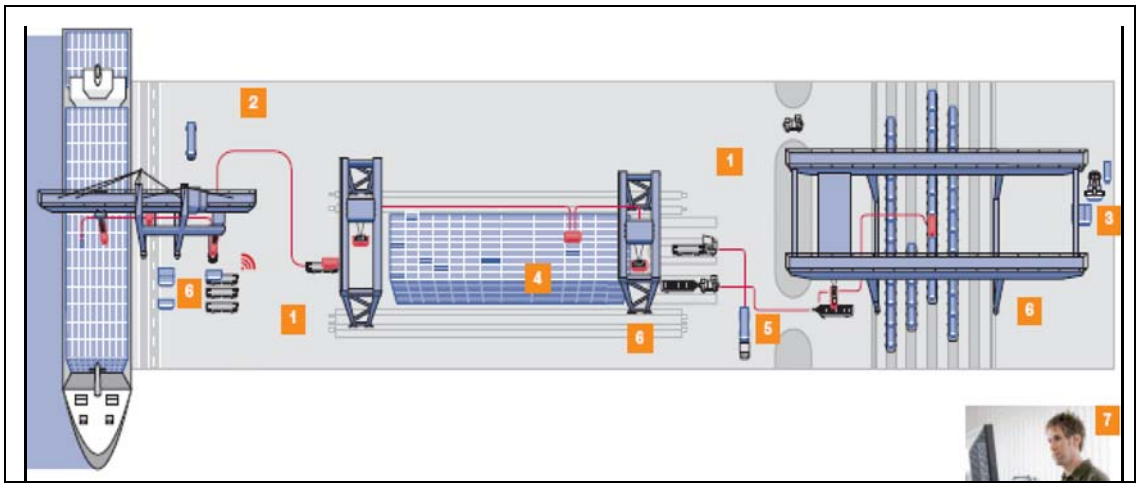
A. The technology component in transit transport and ports

36. Innovative information technology solutions in ports have focused mainly on cargo handling and storage operations, in particular container terminal and vessel bay plan

[15] Ibid.
[16] Ibid.

management. While the first type of computer systems allow for the monitoring of containers in the yards, the latter allows for the planned allocation of the boxes within a vessel to level the load and ensure efficient loading and unloading in the sequence of ports of call. Both systems, one on shore and the other on the ship, benefit from being interconnected, as they are crucial to expedite ship-to-shore operations making optimal use of cargo handling equipment (figure 2).

Figure 2
Software system for integrated terminal operation management



Key

1 Process control
- Control of workflows
- Synchronization of unloading of a ship by quay cranes

2 Vessel manager
- Interface to ship stowage planning system, receiving and processing of job requests
- Planning of loading and discharge operations, workload balancing

3 Hinterland manager
- Administration, optimization and assignment of landside work packages

4 Yard control
- Balancing yard capacity
- Optimized stacking and positioning of load units
- Handling of empties, reefers, dangerous goods

5 Gate control
- Schedules for external trucks, truck-handling times
- Location changes for trucks

6 Equipment control
- Quay crane, stacking crane, vehicle, rail crane

7 Operations control
- Overall yard status, workload of equipment and statistical data

Source: http://www.terminalstar.eu/application.htm.

37. Over the 2003–2013 decade, most transit ports serving landlocked countries have seen the introduction of such state-of-the-art systems on their seaside interface. With land operators, the transport sea–land connection remains nevertheless much less widely equipped with information systems. Although all customs administrations are now operating with automated clearance systems, including for transit operations, and port community structures connecting all players in ports are also rapidly spreading, land carriers, both road and rail, still lag behind their counterparts in the transit transport chain.

38. Satellite navigation systems have become increasingly affordable and available. They have developed rapidly in the past five years for two types of use. For example, in Jordan, they have been employed by government agencies for transit security purposes, in dealing with goods unloaded in Aqaba and destined to the Syrian Arab Republic and Iraq. More frequently, they have been used by trucking companies for management fleet purposes. In three documented cases in Africa, satellite navigation systems have been used to track trucks carrying cargo to and from landlocked countries in Cameroon, Ghana and

Kenya. In all three cases, these tracking systems are linked to customs clearance automated systems in one way or another. Contrary to the message sometimes conveyed by their providers, satellite navigation systems do not allow for cargo monitoring. They can be used only to trace vehicle location, since the tracking device is usually fitted to the vehicle, not the cargo trailer.

39. The few rail companies serving landlocked trade to and from transit ports use proprietary information technology (IT) systems mainly oriented towards rolling stock management and invoicing, including in some cases space booking and cargo-tracking systems for their clients. A most welcome outcome of the increased use of information technology by many private and public operators in different transit stages of the transport to and from landlocked countries is the vast production of precise transit data. When these are made available, they become key to feeding the operation of transit facilitation solutions design and to planning units such as transport observatories, which measure the performance of transit corridors.

40. However, most initiatives concerning IT developments come from a few major players in the private sector; government agencies remain well behind, with the exception of customs administrations and some port authorities. Appropriate policies should, as a matter of urgency, be adopted and implemented to remedy the situation. These policies should not be limited to the automation of administrative services, but should extend to the development of skills required by local small and medium enterprises to be able to partner with global transport operators and serve national traders in the use of modern logistics systems.

B. Customs transit monitoring systems

41. Most regional transport arrangements contain a common transit system based on the adoption of a single document – whether in printed or electronic format – and agreed procedures. However, a fundamental obstacle to the implementation of online tracing systems has been for government authorities to agree on exchanging customs transit clearance data. Solutions have been introduced involving filing advance information both in transit ports and at border crossings, sometimes with remarkable results in terms of reducing the time required, but until now they have remained confined to national fiscal territories.

42. A recently developed solution in Central America does offer an electronic cross-border approach.[17] Other proposed solutions have focused on developing comprehensive IT solutions relevant for landlocked countries, encompassing regulatory, institutional, operational and procedural reforms. An example of such a solution is the transit of goods through the Port of Douala, Cameroon, with linkages to the landlocked countries of Chad and the Central African Republic. In addition to the benefits for the countries involved, the scheme is also an example of cooperation between three national institutions and one regional economic community – the Central African Economic and Monetary Community – in close coordination with UNCTAD, the World Bank and the European Union as executing and financing agencies.

43. In the Central African Economic and Monetary Community, the existing regulatory framework consisted of an international convention for road transit signed in 1991 (TIPAC

[17] http://www.proyectomesoamerica.org/joomla/index.php?option=com_content&view=article&id=183&Itemid=112.

Convention)[18] based on the TIR system (physical carnet guaranteed by an association). However, it was never applied due to a lack of funds and a guaranteeing association. The proposed new transit regime came as an adaptation of the common transit system for intra-Community trade, comprising one transit document based on the single administrative document commonly known as SAD. It enables the removal of all checkpoints and uses an IT solution that interfaces with national ASYCUDA systems and makes use of ASYCUDA transit modules, with bar code and optical reading at starting, destination and border-crossing offices.

44. The ASYCUDA technology solution allows for the online interconnection of three different national systems and one regional data centre, enabling real-time monitoring of the customs transit clearance process at the port of transit and border-crossing customs offices.

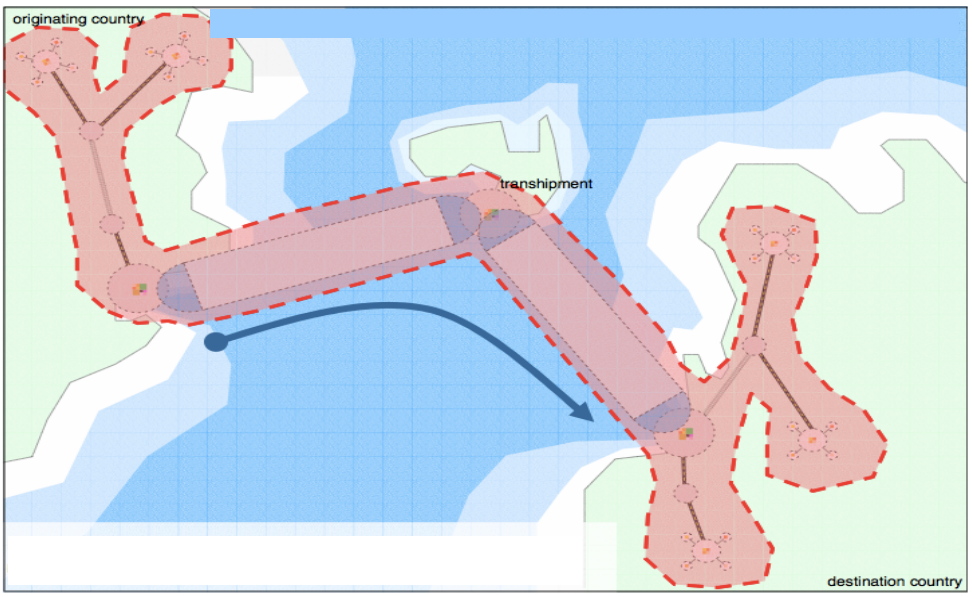
C. Transit transport chain security

45. Security for international trade is an area in which IT has been progressing very rapidly. Starting at the port with the exchange of electronic information on vessels and shipments, then on to the port gates, where scanning devices interconnect with customs automated systems, IT has spread to various stages of global trade operations. Radio frequency identification devices and electronic seals have become essential information transmittal components allowing for constant tracking of containers and, in some cases vehicles. These complementary systems are briefly described below as examples of the types of logistics security information networks that the authorities of landlocked countries and traders may, in relevant cases, connect to and use.

46. Following previous national unilateral or sectorial multilateral security initiatives and programmes, the adoption in 2005 of the World Customs Organization Framework of Standards to Secure and Facilitate Global Trade was a stepping stone to a series of technological developments, ushering in new players in the industry, with rapid deployment in many regions of the world. These security standards triggered an increasingly extensive use of a wide array of solutions, including electronic seals for containers or closed wagons and truck compartments, satellite navigation systems for vehicles and radio frequency identification for cargo, all of which use satellite-based tracking and monitoring systems. Visual control devices such as video cameras and cargo or vehicle-scanning devices are now present in all major ports and freight terminals.

[18] Stands for the French title of the convention: “Transit inter-États des pays de l’Afrique centrale”.

Figure 3
Customs–Trade Partnership against Terrorism container security logistics chain



Source: *Container Transport Security Across Modes* (Paris, Organization of Economic Cooperation and Development and European Conference of Ministers of Transport, 2005).

Note: The Partnership is a supply chain security initiative, known by its acronym C-TPAT, launched by the Government of the United States of America.

47. The central idea in the use of this security-related technology remains to keep a vigilant eye on acts and actors in global supply chains. Figure 3 shows how C-TPAT proposes to move the control of containers from the destination country upstream to the country of origin. It would appear that the detailed information provided by these security systems could also be used for planning and designing transit transport services and infrastructures. Innovative bi-national or regional schemes could also benefit from these systems in building track records of compliance for transit operators. This would enable the development of trusted cross-border operators as proposed in recent literature on the challenges and possible solutions relating to transit transport operations for landlocked countries to access seaports.[19]

D. Concluding remarks

48. As currently applied to transit transport systems, technology focuses mainly on information systems used by government agencies and private sector players to support transit monitoring processes or operational management. While these recent developments have now reached most landlocked and transit developing countries, there is still much room for improvement in terms of policy actions aimed at boosting the skills of local operators along transit corridors. Innovative solutions based on the collection of data in planning and designing logistics services and infrastructures could be used to identify and work with trusted operators within regulatory schemes.

[19] *The Way to the Ocean: Transit Corridors Servicing the Trade of Landlocked Developing Countries*, UNCTAD/DTL/TLB/2012/1 (New York and Geneva, United Nations, 2013).

III. The way forward and issues for discussion

49. In 2008, participants in the UNCTAD global midterm review of the Almaty Programme of Action agreed to call on the international community to provide technical expertise and capacity-building support to further progress in collaborative arrangements between landlocked and transit developing countries, as well as in the implementation of transit corridor performance measurement systems. In 2013, tangible steps were taken to meet these demands, and a detailed understanding of the rationale behind the practices and interests of parties involved in transit has strengthened significantly. Transit corridors have grown in their relevance as enabling environments for transit transport operations through coastal countries. These mesoeconomic systems will continue to offer well-defined instruments for the improvement of transit operations.

50. In view of the new framework to be adopted in 2014, participants may wish to explore the following issue: How can more efficient, predictable and cost-effective transit logistics enable producers in landlocked countries to enter global value chains? How will improving transit transport operations at the regional level affect the participation of landlocked countries in regional value chains, which in turn may be connected to global value systems?

51. As a priority issue, participants may wish to consider how to establish comprehensive and consistent national and regional transit policies that include regulatory frameworks ensuring market access to transport and logistics services to serve the greater participation of landlocked countries in global trade. In this context, they may also wish to discuss how regional integration organizations and development partners can help ensure that new institutional schemes foster rather than prevent technological innovation and easier access to the most efficient services.

52. Participants may wish to discuss how innovation and technology policies can support the implementation of logistics and transit policies and their frameworks. Such policies could, for instance, be aimed at helping government agencies catch up with levels attained by the most advanced global players and improve national and regional trading communities' competitiveness. Long-term capacity-building programmes could also be addressed in this context.

53. Lastly, participants may wish to discuss the technological means and ways to support the development of innovative transit solutions aimed at having the trade of landlocked countries treated the same way as any other cargo travelling along a transport corridor or passing through a port.

54. In close connection with the issues raised in this note, expert deliberations may also benefit from the outcomes of the regional review meetings for Asia and Central Asia held in Vientiane on 5–7 March 2013, and, in Addis Ababa on 16–18 July 2013 for the African region, as part of the 10-year review of the implementation of the Almaty Programme of Action.