APPLICATION OF NEW INFORMATION TECHNOLOGY
TO IMPROVE TRANSIT SYSTEMS*

Note prepared by the UNCTAD Secretariat*

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Introduction 1/

1.   Transit operations require not only the physical transportation of goods but also flows of information which are largely encoded in paper documents, and flows of money for the fulfilment of contracts. New information technology can be used, firstly, to computerize data-handling tasks undertaken by individual suppliers of transit services, including transport operators, freight forwarders, banks, insurance companies, warehouse operators, customs and providers of market information; secondly, to computerize information exchange between suppliers of transit services, for example, between port and railway authorities, or between national customs authorities.

2.   At present, in UNCTAD, there are various initiatives which illustrate the potential, and problems, of applying new information technology to improve transit operations. The most important ones are:

-       the Advance Cargo Information System (ACIS);
-       the Automated System for Customs Data and Management (ASYCUDA);
-       the Trade Point Programme.

(a)   Advance Cargo Information System (ACIS)

3.   Of these three initiatives, ACIS is the only programme which has been developed within projects specifically devised to support transit transport. ACIS is a management information system, which, through a software package designed by UNCTAD, provides relevant advance, spot and statistical information on movements of cargo from port of loading to final inland destination, and of movement of associated transport equipment. It consists of a number of modules, and implementation has focused particularly on two of these: PortTracker and RailTracker.

4.   The status of implementation of ACIS at the beginning of May 1993 was as follows: A sub-module of PortTracker, which enables shipowners to electronically transmit manifest data from abroad to the port of destination and vice versa using the UN/EDIFACT standard manifest message, can be used in the East African ports of Dar es Salaam, and Mombasa. Another sub-module of Port Tracker, which enables the Harbour Master to monitor ships' movements, port services and berth occupancy, is already operational in the above ports. The RailTracker, which involves tracking goods and rolling stock, is operational in the railway systems of a number of countries, namely Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, Kenya, Malawi, Senegal, Tanzania, Southern Zaire and Zambia. Wagon turnaround times are reported by Cameroon Railways to have been reduced by 20 per cent the first year after installation of RailTracker (obviating the need for a further purchase of 300 wagons). Potential foreign exchange savings are also reported SNCZ (the

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    1/ This note, which has been prepared in response to paragraph 10 of General Assembly resolution 46/212, only highlights the various initiatives underway in UNCTAD that are designed to establish a framework for applying new information technologies in various areas, including transit systems. These initiatives are largely at a nascent stage and considerable further analysis will be required to evaluate their technical capabilities and adequacy.

railway network in Southern Zaire), through the reduction of the time spent by South African wagons in the SNCZ network and the decrease in associated hire charges.

(b)   Automated System for Customs Data and Management (ASYCUDA)

5.   ASYCUDA is a programme to modernize and streamline customs administrations and their operational procedures. It introduces international norms and standards, paving the way to participation in international electronic data interchange. It facilitates trade through simplified procedures and accelerated clearing times while, at the same time, improving control by the strict and efficient application of customs law through the computerized system. As its main function the system handles manifests, customs declarations, accounting procedures, warehousing and inventory control, as well as import and export licenses. As of 19 May 1993 the system had either been installed or was being installed in 51 countries. The transit and land-locked developing countries which are benefiting from the ASYCUDA programme are : Benin, Burkina Faso, Burundi, Central African Republic, Mali, Niger, Rwanda, Viet Nam, and Zimbabwe. Projects are also currently under negotiation in 12 other countries, including Armenia, Mongolia, Mozambique, Namibia and Tanzania.

6.   The main benefits of ASYCUDA are: an increase in governmental revenue through the reinforcement of customs control and systemization of customs duty collection; an increase in speed of customs clearance of goods; the facilitation of trade through the reduction and standardization of administrative requirements; predictable and transparent procedures, with better management and reduced possibilities for illegal interference; and the provision of faster and more detailed external trade statistics. The latest versions of the ASYCUDA software include the possibility of electronic data interchange (EDI), which provides an important opportunity for the more efficient handling of transit documents. Realizing this opportunity requires cooperation between national customs authorities, appropriate telecommunications and adequate procedures to tally information for entry and exit of goods. Such procedures need to be adapted to situations where interruptions of communications are possible, which is partly a question of system design.

(c)   The Trade Point Programme

7.   The Trade Point Programme is presently in its implementation phase. A Trade Point is a trade facilitation centre where all service providers intervening in foreign trade transactions (customs, freight forwarders, banks, insurance companies, etc.) are grouped under the same physical or virtual (i.e., computer-linked) roof, and where it is possible to get market information, (including on transport), to clear trade formalities, and to carry out commercial transactions. Telecommunications tools installed at the Trade Point will enable traders to send and receive electronic data.

8.   At present, requests to start up Trade Points have been received from the following transit and land-locked developing countries: Armenia, Brazil, China, Georgia, India, Iran, Kenya, Peru, the Russian Federation, Senegal, Tanzania and Thailand. Uruguay, acting as spokesperson for MERCOSUR, also has

requested a Trade Point Programme in all four member countries (Argentina, Brazil, Paraguay, and Uruguay) in order to create a regional network.

(d)   Conclusions

9.   The key policy questions which need to be addressed in the future are:

        (a)   What are the applications of information and communication technology which can contribute most to the improvement of transit systems and the overall trade efficiency of land-locked countries?

        (b)   What are the technical and institutional pre-requisites for their implementation?

10.   In addressing these questions, it is necessary to identify the full spectrum of conventional means (paper-based and post, telephone, telex, fax, courier) and of new information technology-based systems that are used in support of transit operations in different regions and corridors. Moreover, given the very uneven and generally low level of investment and utilization of information technology, it is necessary to consider the organizational capacities of the key actors who will play the main role in the application of new technology to information processing and information exchange: firstly, organizations which develop and maintain telecommunications infrastructure (most notably public telecommunications operators); secondly, information service providers including, in particular, value added networks; and thirdly, the transport, customs and financial organizations which service physical trade.

11.   The level of relevant expertise in land-locked developing countries is generally low, organisational capacities are weak, and telecommunications infrastructure linking seaports to inland destinations is often unreliable. In these circumstances, the difficulties of implementing electronic data interchange to improve transit systems should not be underestimated. Efforts therefore need to be directed toward investing in the improvement of communications infrastructure in key transit corridors, and to integrate, where appropriate, computer skills into the human resource and institutional development programmes directed at providers of transit services. At the same time, however, it will be worthwhile to build upon present initiatives, particularly because transfer of technology and training are both subsumed under implementation. The main immediate priorities will be:

        (a)   to explore, through case-studies of working systems, the possibilities of improving Customs transit procedures through the new EDI capabilities of ASYCUDA;

        (b)   to interconnect adjacent national applications of the ACIS modal tracking modules into an international transport network.