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FACING THE CHALLENGE OF INTEGRATED TRANSPORT SERVICES

Report by the UNCTAD secretariat

CONTENTS

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Abbreviations

ACIS	Advance Cargo Information System
ALADI	Latin American Association for Integration
ASEAN	Association of South-East Asian Nations
BIS	Backbone Information System
c.i.f.	cost, insurance, freight
CIP	carriage, insurance paid to ...
CPT	carriage paid to ...
DDP	delivered duty paid
DDU	delivered duty unpaid
EDI	electronic data interchange
FALPRO	UNCTAD Facilitation Programme
FIATA	International Federation of Freight Forwarders Associations
f.o.b.	free on board
ICC	International Chamber of Commerce
ICD	inland clearance depot
INCOTERM	international commercial term
MERCOSUR	Latin American Southern Cone Common Market
MT	multimodal transport
MTO	multimodal transport operator
NAFTA	North American Free Trade Association
NTTFC	National Trade and Transport Facilitation Committee
OECD	Organisation for Economic Co-operation and Development
PC	personal computer
TNC	transnational corporation
UN-EDIFACT	United Nations Electronic Data Interchange for Administration, Commerce and Transport
UNCTAD	United Nations Conference on Trade and Development

Introduction

(i) The Standing Committee on Developing Services Sectors: Fostering Competitive Services Sectors in Developing Countries - Shipping, at its second session, decided to make multimodal transport one of its main items for consideration at its third session to allow a more in-depth discussion of the subject and the background documentation prepared by the UNCTAD secretariat[1] for that session.

(ii) This report has been prepared by the secretariat to present a brief view to the Standing Committee of the challenges in multimodal transport, containerization and technological developments in order to provide the Committee with additional information for its deliberations.

(iii) With the globalization of production, attempts at the liberalization of trade, the development of regional trading blocks, and the introduction of new technologies for international movement of goods, the role of international transport logistics operations is more important than ever. Moreover, such operations have become more complex in recent years. Consequently, the concept of multimodal transport is becoming relevant to the production process in general and to international trade in particular. Governments and the private sector should therefore coordinate their actions to create conditions for developing local competitive multimodal transport services and to ensure efficiency in transportation in order to enhance their international trade.

(iv) While it is outside the remit of UNCTAD to deal with multimodal transport at the national level, the comments made here that deal with the international multimodal transport of goods may often be applicable to national services also.

(v) Chapter I reviews the major trends in the supply and demand of international transport services. It stresses the governments' role to provide the proper environment for the development of these services and discusses the challenges. Chapter II describes the multimodal transport approach as a means to improve transport efficiency and outlines the main benefits to be derived by the three key partners: transport users, transport providers and government. Chapter III presents several issues a country may wish to consider when improving the transport efficiency of its international trade.

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1 *Containerization and standards* (UNCTAD/SDD/MT/2); *Mega multimodal transport operators and mega carriers* (UNCTAD/SDD/MT/4); and *Multimodal transport and trading opportunities* (UNCTAD/SDD/MT/5).

Summary and conclusions

A. Summary

1. Expansion of international trade is important for the sustainable development of developing countries and countries in transition. The concept of sustainability combines economic, environmental, social and energy goals, all of which affect and are affected by transportation. To contribute to sustainable development, a transport system should provide efficient and safe services under the best possible environmental and social conditions and safeguard against the harmful effects that its activities may generate.

2. Transport efficiency implies that, based on properly functioning domestic markets, the development of transport networks and the possibilities offered by the best technologies, enterprises should have access to transportation that corresponds in quality and performance to their needs and expectations. Access to these facilities should be of reasonable cost and consistent with their long- term maintenance and development. Transport services must also be safe for the users and for others who are at risk. Resource consumption and the environmental impact of transport policies in most developed countries are incompatible in the long run with a healthy world environment. To support sustainable development, reduction of threats to the environment, such as the greenhouse effect, should be taken into account when transport systems are designed.

3. Creating the best transport technology is becoming a complex and sophisticated task. For this reason, both transport providers and users rely more on intermodal, combined and multimodal transport services. Sometimes called "transport logistics services", they are most developed in the industrialized countries striving for transport efficiency. It is therefore essential, to use these countries' experience to help foster competitive multimodal transport services elsewhere in the world.

4. As information technology leap-frogs over all but the most assiduous Internet user, modern multimodal transport makes daily strides, unannounced and unnoticed by most -- yet it is probably the most revolutionary technological development in the movement of goods in containers. Transport innovations were first implemented in trade between developed countries, where there were high economic returns. However, the fact that information technology is being introduced throughout the world and that information and transport technologies are becoming interconnected means that new technological developments can be simultaneously implemented on a global basis.

5. While it might be technically possible to introduce such advanced transport concepts, only a few developing countries are prepared for the fundamental changes necessary to support the implementation of integrated transport services. Others, however, are unprepared for an evolution that requires cooperation between parties not used to considering the needs of other players. But if developing countries and countries in transition wish to expand their trade, they need not only competitive agricultural and manufacturing sectors, but also an efficient transport industry managed by skilled executives who are able to operate in an open market unfettered by red tape.

6. Excessive red tape is the major obstacle to efficient trade and transport and exists in all countries and at all levels of the transport chain. However, countries that have liberalized their trade have fewer procedural obstacles than those that have not.

7. The UNCTAD secretariat remains committed to helping developing countries and countries in transition reap the benefits that the successful conclusion of the Uruguay Round has put within their reach. However, the secretariat is convinced that these goals will not be achieved without restructuring the transport sector, a process where developing countries and countries in transition will require assistance.

8. For years, UNCTAD has helped developing countries to simplify their trade and transport procedures. In the past, their efforts focused primarily on the documentary procedures and were undertaken by UNCTAD's Facilitation Programme (FALPRO). However, no matter how much those procedures are streamlined, if other barriers are not removed, trade and transport will continue to be obstructed and the benefits of the Uruguay Round will remain mirages.

9. Many transport problems result from institutional, intergovernmental and legal issues, such as: decentralized decision-making at various levels of government; complex, and sometimes conflicting, responsibilities of government departments; and the difficulty of merging public goals with those of the private sector.

10. It is therefore essential to rationalize and coordinate transport policies through a closer relationship between service providers (transport companies, banks, insurance companies, etc.), their users and government authorities. This implies changing the responsibilities among government departments and establishing new coordinating entities and public-private partnerships in the operation of transport systems. This will help to eliminate trade barriers and turn the developing countries and countries in transition into powerful, homogeneous "export machines", where all links in the manufacturing and transport chain work in harmony and in tune with a flexible regulatory machinery designed to support trade expansion.

11. A new and different approach is required. The search for more efficient and sustainable transport systems must include planning and management strategies that:

a. cross modal boundaries, reaping the benefits of modal competition while improving modal cooperation;
b. lead to more consistent regulatory approaches across modes; and
c. take into account the requirements of new public-private working relationships.

12. For many years, the UNCTAD secretariat has promoted the establishment of National Facilitation Committees that unite a number of players to discuss solutions to common problems. Lately, a number of National Trade and Transport Facilitation Committees (NTTFCs) have been established. These have a somewhat larger membership than the previous committees, incorporating all the actors in a trade and transport transaction, including the relevant government departments. By meeting regularly and reaching decisions agreed to by all committee members, these NTTFCs are able to resolve misunderstandings and propose solutions, and thus promote transport efficiency.

13. In this context, the private sector must not only play the leading role, but must also be the *de facto* driving force. However, to play such a role at the international level, actions must be centrally coordinated, for example, by the International Chamber of Commerce (ICC).

14. It is suggested that, through collaboration between governments of developing countries and countries in transition, the private sector (for example, through the media of ICC and FIATA) and UNCTAD, activities be jointly undertaken to enhance transport efficiency and promote trade.

B. Conclusions

15. This report reaches several conclusions. It suggests that developing countries and countries in transition should consider the multimodal transport approach as one way to "re-engineer" their transport sectors and to increase their international trade, in particular South-South and South-North trades. Such an approach would prepare these countries to benefit fully from foreign participation in the transport of their international trade, within the context of a growing liberalization in trade and services.

16. It suggests that governments initiate a progressive liberalization of their transport markets, using other countries' experiences when implementing a multimodal transport approach and creating NTTFCs. This would enable them to set up similar committees and would allow governments to identify ways to reach a balance between liberalization and the protection of national interests. Furthermore, it would allow developing countries and countries in transition to import successful strategies, practices and technologies, and to avoid "reinventing the wheel" or making infant-industry errors, and thus rapidly proceed to a higher level of development.

17. Among the issues to be considered by governments is the question of how to elaborate a new and different international convention on the transport of goods that would cover their door-to-door movement, or how to revise the existing conventions after identifying the obstacles that have hindered their acceptance in the international community.

Chapter I

TRENDS IN SUPPLY AND DEMAND OF INTERNATIONAL TRANSPORT SERVICES

This chapter discusses the basic changes that are shaping international transport services. It reviews the issues of transport supply and demand, as well as government's role in international transport services. It describes the new challenges for governments and commercial parties.

18. The supply and demand of international transport services are dynamic -- they are always adapting to changes in world trade. As recently stressed by the Directors of the Transportation Research Board in the United States,[2] changes in transportation services, facilities, policies, and even research activities are made incrementally. An incremental approach has some advantages: it addresses practical transportation needs; minimizes technical risks; is usually politically feasible; and, if successful, offers immediate benefits. It also has some disadvantages, *inter alia*: it extrapolates the present situation and might increase congestion, pollution, energy consumption, etc.

19. The results of the incremental changes in one country can help another to decide how to make its own changes, taking into account the different development levels. Learning from the experience of others provides insights for strengthening the basis to formulate and implement policies. The country could avoid the time and cost of "reinventing the wheel" and making infant-industry errors, by being able to choose recognized transport infrastructure, technology and policies.

A. Demand for international transport services

20. The demand for international transport services is being influenced, *inter alia*, by three major and interrelated changes: industrial processes, the organization of international trade, and international trade patterns.

Changes in industrial processes

21. The demand for international transport services depends on the development of the economy as a whole. Recent changes in industrial processes, primarily of developed countries, have affected, and will continue to affect, this demand. In particular:

a. Changes in the structure of industrial processes from raw material to finished products have led to new production patterns within the same industry. Over time, these processes have been broken down into a number of separate yet complementary tasks. These tasks have been assigned to industries that are becoming more specialized in a

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[2] Thomas B. Deen, former Executive Director, and Robert E. Skinner, Jr., current Executive Director of the Transportation Research Board, in the article: "A paradigm for addressing change in the transportation environment", TR News 174, Washington, D.C., September-October 1994, pp.11-13.

limited number of specific activities. With specialization, economic advantages can be obtained through the mass production of standardized components and through competition. The size of these specialized industries is decreasing. They offer other industries more goods and services that can be integrated into their own production. The new organization of industrial processes results in moves from the original (generally urban) sites to new industrial sites in the same country or in other countries, and disperses economic activities. These changes are amplified by the continuing process of economic integration within regional trading blocks.

b. Changes in the production methods of industrial processes have led to stock reductions, flexible, diverse, rapid and tailor-made transport with smaller and more frequent shipments. Stocks are moved up from manufacturers to suppliers and apportioned among numerous suppliers; consignments are smaller and their unit value higher; delivery is becoming punctual and reliable.

22. For many years, the manufacturing industry organized its inventory to anticipate customers' requirements (the "speculation approach"[3]). In international trade, this means making shipments to distant vendors or manufacturers before the product is actually needed. Demand was for low-cost, time-insensitive services from manufacturing plants to warehouses in overseas markets and resulted in irregular and unreliable transport movements. There was always enough inventory to substitute for the undelivered products.

23. A revolution in logistics practices is under way in developed countries and is spreading to many others. This revolution is based on the "inventory postponement" strategy whose objective is to maximize a competitive advantage with a reasonable level of logistical expense, taking into consideration the external environmental forces and the trade-off costs between inventory and transportation. This strategy requires marketing conditions where there are few barriers to transportation and communications. So far, it has been developed in domestic markets and regional trading blocks where barriers are being reduced. Its potential for international trade is significant because it eliminates inventory and related costs. The "boom" of this postponement strategy is expected to have a major impact on international transport and on the relationships between transport providers and their customers.

24. In most developing countries and countries in transition where the transportation and communications infrastructures and institutions do not allow fast and reliable transportation, the best strategy involves speculation and forward-positioning of inventory to meet the customers' requirements. However, in countries and regions where there are state-of-the-art communications and efficient transportation services, logistics systems based on inventory postponement will give the user a competitive advantage in the market-place.

Changes in the organization of international trade

25. With the liberalization of trade and services, there is likely to be a growth of transnational corporations involved in regional and global production and marketing strategies through the

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[3] See Donald J. Bowersox and John C. Taylor, "*World trade to become more intra-regional*", in 2001 - A Transport Odyssey, Toronto, ICHCA, 1994, pp.2-6.

ownership and management of geographically dispersed but interdependent assets. Goods traded between countries will instead be traded between companies belonging to the same transnational corporations.[4] This globalization of production and markets will pose enormous challenges for the manufacturing industries and transport service providers in the next decade, and will influence production and transportation patterns and requirements.

26. Large trading or industrialized companies have competitive advantages over small traders because they often have their own transport and distribution departments, vehicles and equipment. They are staffed by professional teams with specialized knowledge of their companies' transport needs and outside markets. Such teams have the negotiating weight and skill to deal with transport providers, and are able to manage all distribution activities (chartering vessels, booking space, handling documents, Customs clearance, etc.). However, small and medium-sized enterprises, particularly those in developing countries and countries in transition, may have to rely on outside experts who, in many cases, may not be available at any price. Furthermore, they do not have many distribution channels and are forced to sell f.o.b. and buy c.i.f. The few distribution channels available are usually long and indirect and require middlemen or subcontractors in both the import and export countries.

27. Among the problems that affect the demand for international transport services in developing countries is the inappropriate choice of international commercial terms (INCOTERMs) by commercial parties. By using traditional terms such as c.i.f. or f.o.b.,[5] they cannot take advantage of door-to-door multimodal transport operations, since these terms make the parties at each end of the trade responsible for only a portion of the total transport operation. The continued use of c.i.f. and f.o.b. limits a country from reaping the savings in foreign currency inherent in multimodal transport and also from promoting local international transport operators. The use of more appropriate terms, such as "carriage, insurance paid to..." (CIP), "carriage paid to..." (CPT), "delivered duty paid to..." (DDU), and "delivered duty unpaid to..." (DDP), will stimulate the use of door-to-door transport and the provision of local transport services, and will generate economic benefits

28. The local manufacturing industries and transport service providers will face enormous challenges in order to maintain their participation in international trade. Those who can compete and offer better goods and services might survive but those who cannot will have to leave the market. If they want to compete, they must take a number of minor measures, such as joining forces and strengthening their professional associations (e.g. shippers' councils, freight forwarding associations, etc.), or more radical ones, such as mergers, etc. to increase their capital base.

Changes in international trade patterns

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4 An OECD economic study reports that "the share of United States intra-firm trade in total trade was roughly stable at around 35 to 40 per cent in the latter half of the 1980s". From "Globalisation and Intra-firm Trade: an Empirical Note", OECD Economic Studies No. 20, Paris, Spring 1993, pp.145-159.
The experience of Philips International B.V. shows that some 61 per cent of its international shipment value result from intercompany supplies between Philips' factories or production centres and their own sales organizations. From "The experience of the shipper", by D. Goedhart, ECMT Round Table 76, Paris, 1987, pp.69-90.
Some 80 per cent of the trade between Mexico and the United States is intrafirm trade from large companies such as Ford, General Motors or General Electric. From "La montée des firmes-réseaux", by F. Chesnais, Alternatives Economiques No. 23, Paris, January 1995, pp.26-29.

5 In some countries, commercial parties are bound by local regulations and banking practices to use these trade terms.

29. The expanding mass markets for uniform, common and standardized products are resulting in a steady growth of international trade, accompanied by a reduction in trade barriers. The emergence of geographical trading blocks (Andean Pact, Association of South-East Asian Nations (ASEAN), European Union, Latin American Southern Cone Common Market (MERCOSUR), North American Free Trade Association (NAFTA), etc.) is shifting world trade towards regional trade.

30. For developed market-economy countries in the same regions, international trade is continental (e.g. 74 per cent of European international trade is conducted between European countries). For many developing countries, particularly in Africa, international trade is conducted outside the regions, but in some regions, this situation is changing. For example, in Latin America, the share of intraregional trade has increased rapidly in recent years. In 1989, the share was 11 per cent of exports and 15.5 per cent of imports, rising in 1993 to 19.2 per cent and 16.9 per cent, respectively.

31. This situation creates a different transport demand with new commercial conditions: longer inland (continental) transport distances, shorter and more reliable deliveries, new distribution networks based on a reduction in the size and weight of shipments and more frequent shipments, shipment tracking, etc. Transport operations are becoming more complex as they are integrated within the logistics of the industry. With the shift towards regional trade, it is likely that international transportation will grow quickly in intraregional lanes within the emerging trading blocks. Transport demand in those regions will require efficient intermodal moves and premium package services, making the best use of available modal transport operations.

32. Most international trade between regions (intercontinental trade) is between developed market- economy countries (North-North trades). Trade between developed and developing countries (North-South trade) is limited and intercontinental trade between developing countries (South-South) even more so. One reason for the lack of intercontinental South-South trade has traditionally been lack of shipping services, but the imaginative use of multimodal transport services would overcome this. It is therefore suggested that developing countries and countries in transition should organize multimodal transport services to increase South-South trade, as well as South-North trade.

B. Supply of international transport services

33. The supply of transport services depends on the availability of infrastructure and equipment, and on their use through appropriate transport operations.

Transport infrastructure and equipment

34. In most countries, particularly in developing countries and countries in transition, decisions to plan and develop infrastructure are generally decentralized across levels of government, which leads to a lack of coordination in the development of road, rail, inland waterways, and transport terminal facilities, and restricts the achievement of potential economies of scale in transport services.

35. In many cases, transport planners do not pay enough attention to the movement of goods,

which may result in a shortage of transport and storage capacity and of distribution centres in the major areas of production and consumption. As a consequence, cargo is often held in inadequate facilities, where it deteriorates or is lost, or it is left in rail wagons or road vehicles, tying up much needed transport capacity. Transport infrastructure is rebuilt periodically rather than maintained recurrently. Because of the chronic shortage of foreign currency funds to replace it and because of poor maintenance, transport equipment also becomes run-down.

36. Technological developments in transport infrastructure and equipment will respond to the problems created by growth in transport demand and by the challenge to develop sustainable transport systems. The transport industry will design vehicles with increased speed and capacity, within commercially and environmentally viable constraints. Cargo unitization techniques will be standardized with better weight/dimension efficiency. Handling equipment technology at interface locations will be automated.

37. If developing countries and countries in transition wish to increase their participation in international trade, they must adapt their infrastructure and equipment to modern transport technology. Major issues for those countries might be:

a. to choose technologies that appear most promising for providing goods mobility at minimal cost and inconvenience to users, and how can they most effectively be brought to the market-place by public policies? and
b. how can the transport sector organize itself to test, evaluate, disseminate, and adopt promising new technologies more quickly?

Transport mode operations

38. Increasing the efficiency of the existing transport infrastructure and equipment will continue to be a critical issue for all modes of transport. Modal and interface operators must take advantage of new developments in infrastructure and equipment to cope with increased transport demand and environmental conditions. As a result, new transportation patterns will appear (for example, the development in Europe of combined transport, short-sea shipping or "rolling highway" operations).

39. Among the latest trends in transport mode operations is the merger of transport management with information technology. Leading multinational multimodal transport providers are spending large sums on technically advanced procedures to increase their market share and to ensure that they will not be challenged by smaller operators. Only wealthy companies can develop and support such strategies. The explosion in information technology has increased their market power to an unimaginable degree and, in a few years, will overwhelm transport providers from developing countries unless urgent measures are taken. For example, the Economic Commission for Europe stated in a recent report that although sufficient market niches would still exist for small and medium-sized transport companies, "*the participation and integration of any party in modern distribution chains will only be possible if the required EDI linkage is guaranteed.*"[6]

40. Developed countries are paying more attention to the interaction between transport modes,

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6 *Logistics and combined transport* (TRANS/WP.24/R.64), para. 23, p. 4.

but treatment differs for each mode. In western countries, ocean and inland waterway transport is mostly private with limited government support of the infrastructure (ports, canals, etc.) and users pay commercial rates based on market forces. Rail transport is still entirely government owned in most countries. Although this type of ownership is changing, there are charges to use the infrastructure, but not enough to pay for the infrastructure and operations, let alone for a profit. It is almost invariably been the State that provides the infrastructure for road transport, but in many countries, users pay only minimal charges (highway tolls, vehicle taxes, etc.).

41. This unequal treatment of different modes has created competition, with a bias towards the less expensive mode. However, as pollution problems are becoming more critical (particularly in developed countries), several countries are charging the users ("user pays"), not only to use the infrastructure (internal costs), but also for the damage done to the environment by a certain mode (external costs). The internalization of external costs will be a major aspect of transport policies that integrate the protection of the environment.

42. The near saturation of road transport in western Europe has led the European Commission to evaluate the environmental impact of the different transport modes[7] and has convinced it of the need to direct transport from the roads to other transport modes, preferably rail, coastal and short-sea services. In a policy paper produced by the [then] Commission of the European Communities, for example, it is stated that,

> *"transport is never environmentally neutral, but... the effects on the environment vary in scale and nature according to the mode of transport. They take the form mainly of energy consumption, operational pollution, land-take, congestion and the potential impact of the carriage of dangerous goods."*[8]

43. The Commission goes on to state that,

> *"it will also be necessary to rationalise and manage transport demand by means of a traffic volume oriented approach, including a shift towards environmental-friendly modes and ... a better utilisation of existing capacity. The development of multi-modal and combined transport, coastal shipping... are viewed by industry and transport operators as ways of inducing such a shift for the carriage of goods."*[9]

44. While the Commission's paper deals with the situation within the [then] European Community, transport conditions in other parts of the world may be similar, and the recommendations made for Europe may be applicable elsewhere. There are many subregions

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7 The International Road Transport Union (IRU) recognizes: *"The problem of congestion is considerable in terms of energy costs, and can triple the level of emissions on sections of problem roads"*. See "The transport of goods by road and its environment in the Europe of tomorrow", study commissioned by the IRU and carried out by the NEA Institute, Rijswijk, 1992, Conclusions, p.15.

8 The future development of the common transport policy, a global approach to the construction of a Community framework for sustainable mobility (COM(92) 494 final), para.150, p.56.

9 *Ibid.*, para158, p.58.

where a shift to coastal or short-sea shipping services as components of a multimodal transport system would diminish the pressure on the land infrastructure.

45. For most sectors of the transport industry of developing countries and countries in transition, Europe's concern with saturation of the road network may be of marginal interest. However, most of the developing countries' exports and imports to and from Europe have the same bottlenecks as the European transport providers, and the situation in Europe thus has a direct bearing on the delivered costs of their exports and imports to and from Europe.

Door-to-door transport services

46. To meet the international transport demand, there will be a continued development of integrated door-to-door transport services that can provide uninterrupted moves across countries and continents. Some of these services will be provided by non-asset based operators, such as international versions of domestic intermodal marketing companies which link specialized carriers through intermodal transportation and information systems. However, there might also be a stronger trend towards asset-based integrated transportation providers that offer "one-stop" shopping for multimodal capacity linking all regions of the world.

47. More advanced countries already have access to global full-service third-party logistics firms, including large global transportation operators that operate most regions of the world. To cope with competition, these international transport providers are developing strategic alliances with manufacturers based on value-added services, such as full real-time tracking capability, Customs facilitation through in-house brokerage services, *en route* diversion and processing, and other services that facilitate postponement-oriented strategies. Electronic data interchange (EDI) communications systems are as crucial for these services as they are for modal transport services. These systems allow, *inter alia*, consignment management and tracking that control and monitor the flow of cargo through transport networks, and provide pertinent, reliable and real-time information on goods transported along different modes and interfaces.

48. One such system is the Advance Cargo Information System (ACIS), developed by the UNCTAD secretariat. It is a "tool-box" of computer applications designed to produce information on management and to address problems of multimodal cargo transit and transport resources. Its modularity allows each application to be independent of the other, while enabling all to "co-habit" and freely exchange data in an industry-accepted standard form (UN-EDIFACT). ACIS is a real-time system based on personal computer (PC) networking. It offers the opportunity to enhance resource planning and, hence, better use of equipment through an improved supply of transport data to the users. ACIS has four components, each of which tracks transport equipment and cargo on a mode or interface: port, road, rail and lake. The components have main modules that perform different but interrelated functions, especially with regard to statistics and performance indicators. The Backbone Information System (BIS) links the transmission of transport data to users between ACIS-participating countries.

49. Competition leads to more care and responsibility for cargo on international transport chains. In many countries, there is still some uncertainty about liability and responsibility for specific door-to-door transport operations, largely because of the lack of knowledge of the implications of multimodal transport. The legal regime covering the movement of cargo in

multimodal transport is complex and makes it difficult to attribute loss or damage to the responsible party. The segmentation of a door-to-door transport operation between modes creates a proliferation of documents, each applying to a different operator. As a consequence, claims are not settled promptly.

50. The subject of responsibility in the international door-to-door transport of goods concerns both developed and developing countries. This is the case, for example, in Europe with its development of short-sea shipping operations as an innovative form of combined transport. Indeed, the liability regimes applied to combined transport operators within the European Union vary between Member States, and according to the transport modes involved in the multimodal transport operation.[10]

C. The role of governments in the supply of transport services

51. In most developing countries and countries in transition, the transport sector lacks technical capacity and has institutional problems. These issues slow the process of transforming it into a market-oriented system. Although governments are not directly involved in the specifics of international transport operations, they are concerned with the development of the framework within which such operations are set up.

52. With the worldwide trend towards liberalization in trade and services, governments must combine "*regulation with the discipline of competition*".[11] They should relax their regulations and interfere less in order to stimulate competition, enhance the role of private enterprises, and create more efficient and profitable market forces.

53. By expanding market access and national treatment[12] to foreign operators, liberalization of the transport sector may result in a gradual transfer of transport capabilities from domestic to foreign services providers, if justified by the market size. Local unimodal transport and interface operators, some of which were traditionally government institutions (e.g., railways or ports), will face increased competition at the national level within the same mode or between transport modes. This competition might become tougher with the entry of foreign competitors into the same market. Local door-to-door transport service providers will be equally affected. Only operators that can react swiftly to changing market conditions are likely to survive. The best organized (and therefore most competitive) local operators might find a niche by informing foreign operators (through joint-ventures, for example) of the local practices and conditions needed for efficient transport operations.

54. Liberalization of the transport sector will benefit the development of multimodal transport. It will give multimodal transport operators (MTOs) the possibility of choosing subcontractors (and partners in a door-to-door transport operation) on a commercial basis. Without

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10 *Ibid.*, para.109, p.42.

11 See Liberalizing International Transactions in Services: A Handbook (United Nations publications, Sales No. E.94.II.A.11), p.38.

12 National treatment means that foreign providers, once they have entered the local market, are treated in a way that is no less favourable than the treatment accorded to similar domestic services and service producers.

liberalization, MTOs may have no other choice than to use "imposed" operators (e.g. port operators in many ports, or railway companies in some transit countries) when arranging door-to-door transport operations. Under such circumstances and to play "safe", MTOs arrange these operations to the best of their abilities, but avoid accepting responsibility and liability for the links in the transport chain where lack of liberalization prevents a competitive choice.[13]

55. While excessive government intervention may have a negative impact on the availability of efficient transport services (by reducing flexibility and innovation and increasing transport costs), some government regulations are necessary for defining the institutional and legal environment of international transport services. Unfortunately, in most countries, there is no institution that supervises the issues of international transport operations. Decision-making is generally fragmented on a modal basis, with complex and sometimes conflicting responsibilities shared among different government departments. The merging of public goals with those of the private sector is difficult because of the limited opportunities for commercial private partners (traders and services providers, including transport operators) to participate in any decision process that may lead to substantial changes. As a result, there may be either a legal "vacuum" or overregulation of commercially viable and efficient transport operations. This is the case, for example, for freight forwarding companies that are often only commercial entities and are not legally considered as transport companies. Some regulation of their activities would provide an orderly system in which transport users could be protected from informal or "fly-by-night" operators, and freight forwarders acting as carriers would be recognized by banks, insurance companies and other services providers.

56. In developed market-economy countries, particularly within regional trading blocks, governments are seeking convergence of provisions established by laws, regulations or administrative action. This may lead to a situation where, in particular: (a) social, energy and environmental requirements and safety standards would be established at the highest feasible level; (b) border crossings would be easier; (c) the compatibility of technical systems (especially intermodal transport technology) would be ensured; and (d) fiscal policy measures would conform to the comprehensive transport concept adopted and contribute to its implementation.

57. Governments must find the right balance of policies that favour the development of coherent, integrated national transport systems, using the best available technology. With liberalization, the opening of their markets for international transport services could help transport companies in developing countries to seek support (through joint ventures, management contracts or sale of shares) from established international multimodal transport operators from developed countries. This would reduce operational and technical problems, improve management performance and increase transfer of know-how and technology, using various forms of technological development, including EDI.

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[13] This situation can often be observed in North-South trade routes. Operators of developed country offer door-to-door transport operations, accepting responsibility as principals between the origin of the operation and the port of unloading in the developing country. From there to the final destination, they only accept responsibility as agents of the shipper.

D. Concluding remarks

58. In summary, it is expected that the transport sector will undergo structural changes that involve new entrants into certain markets and new relationships between and concentrations of different types of transport enterprises. Only transport systems and operators that provide efficient and safe services under the best possible environmental and social conditions are likely to remain in business.

59. Joining transport supply and demand in an uninterrupted door-to-door transport chain is the aim of consignees and carriers in developed countries. The choices for shippers from developing countries may become more limited, partly because the number of dependable MTOs on any one route (except perhaps the Far East/Europe route) is likely to shrink rather than grow, and partly because the developed countries' consignees will continue to dictate routing conditions. The question is no longer which carrier to choose, but how to preserve the foreign exchange from the sale of products. That will mean cutting red tape dramatically.

60. The generalization that transport is not a barrier to trade in the developed countries of OECD and a few other countries is probably valid. From the point of view of efficiency, availability and quality, logistics and cost, traders in those regions are well served by transport providers. This is made possible to a large extent by the considerable investments made in transport infrastructure and equipment, and by developing the skills of transport management.

61. In the rest of the world, local traders face being left behind in international trade. Their inability to cope with logistics techniques (at the supply, production and distribution levels), modern transport technologies and efficient commercial practices required by their trading partners may reduce their participation in global markets. Governments in those countries should establish mechanisms that can improve transport operations management, reorganize transport enterprises, and develop a private sector of multimodal transport providers and forwarding companies.

62. To face this challenge, a closer relationship is needed between service providers (transport companies, banks, insurance companies, etc.), their users and government authorities. This will allow a new and different approach to the organization of complex international door-to-door transport operations and stress the role of multimodal transport in international trade.

Chapter II

A ROLE FOR MULTIMODAL TRANSPORT IN INTERNATIONAL TRADE

This chapter lists some basic definitions and then describes how a local framework for complex international door-to-door transport operations should be developed through a multimodal transport approach involving all public and private concerns.

A. Definitions

63. Multimodal transport is broadly defined as the movement of goods from one country to another by at least two different modes of transport (e.g. sea, land, air) performed under one contract. It used to be called "combined" or "intermodal" transport. There is still not a uniform definition of these terms.

64. For example, in Europe, different parts of the transport industry use identical terms ("multimodal" and "combined" transport) when referring to different types of transport operations. It is particularly confusing that, for shipowners, the definitions of these terms are similar to those of the United Nations Convention on International Multimodal Transport of Goods (the Multimodal Transport (MT) Convention),[14] while for the European railway industry "combined" transport refers to bimodal road/rail transport, without any reference to the carrier's liability.

65. The retirement by the International Chamber of Commerce (ICC) of its old Rules for Combined Transport and their replacement by the UNCTAD/ICC Rules for Multimodal Transport Documents has allowed the (European) transport industry to use the term "combined" transport to mean road/rail combinations only. Thus "multimodal" transport has only the meaning given to it by both the MT Convention and the UNCTAD/ICC Rules.

66. In order to establish an unambiguous definition of terms, the UNCTAD secretariat drafted a set of definitions where each term means one thing only:[15]

Unimodal transport — The transport of goods by one mode of transport by one or more carriers. If there is only one carrier, he issues his own transport document, e.g. a bill of lading, an air waybill, a consignment note, etc. If there is more than one carrier, for example, carriage from one port via a second port to a third port with transhipment at the intermediate port, one of the carriers may issue a through bill of lading that covers the entire transport. Depending on the back clauses of the through bill of lading, the issuing carrier may be responsible for the entire port-to-port transport or only for that part which takes place on board

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14 Article 1 of the MT Convention defines international multimodal transport as "*the carriage of goods by at least two different modes of transport on the basis of a multimodal transport contract from a place in one country at which the goods are taken in charge by the multimodal transport operator to a place designated for delivery situated in a different country*".

15 These definitions have been expanded from, but are consistent with, e.g. N. Sansom, "Containerization and through bills of lading", *Bills of Lading Course* held at the London Marriott Hotel, Legal Studies & Services Ltd., np. (London), n.d. (1988), p.2; and with "Multi-modal carriage: a Club view", by Stephen Martin, London, *Lloyd's List*, 23 June 1988, p.8.

his own vessel.

Intermodal transport — The transport of goods by several modes of transport where one of the carriers organizes the entire transport from one point or port of origin via one or more interface points to a final port or point. Depending on how the responsibility for the entire transport is shared, different types of transport document are issued:

Segmented transport — If the carrier who organizes the transport takes responsibility only for the portion he performs himself, he may issue an intermodal or combined transport bill of lading.

Multimodal transport — If the carrier organizing the transport takes responsibility for the entire transport, he issues a MT document.

Combined transport — The transport of goods in one and the same loading unit or vehicle by a combination of road, rail and inland waterway modes.

B. The basic characteristics of multimodal transport

67. As with the other types of transport, the principal aim of multimodal transport is to move goods to its destination on time, in good condition, and at as low a price as possible. One of its distinctive aspects is that, in order to facilitate the movement of goods, it provides for the continuous supervision and responsibility of a single operator for all phases of the transport process. Considerations of a commercial, organizational or physical nature relate to the fact that multimodal transport primarily aims at fulfilling individual cargo requirements, regardless of the mode of transport employed. This may be considered the most important and overriding aspect of multimodal transport, underpinning considerations relating to, for example, carriers and points of transfer.

68. Relevant operations are carried out by a MTO who acts as a principal and assumes responsibility for the execution of the contract. MTOs, therefore, as principals and not as agents or on behalf of the consignor or of the carriers participating in the transport, conclude contracts covering more than one mode of transport, regardless of who actually performs the transport. Multimodal transport therefore implies that a transport operator is capable of controlling the entire door-to-door transport operation, as well as of assessing and preventing inherent risks related to such an operation (risk-management capability).

C. The complexity of international transport

69. As a result of an international trade transaction, the commercial party bearing the costs and risks for transportation of the traded goods has to arrange for the organization of an international door-to-door transport operation. This operation crosses borders and is likely to require the use of several modes of transport and the transfer of goods through various interface facilities. The transport operation is intermodal and requires coordination between modes and interfaces (logistics), as well as some responsibility for this coordination.

70. There are a number of reasons which impose the use of intermodal transport, for example:

a. *Geographical considerations:*

i. If the transport operation is intercontinental, it requires the use of two or more transport modes and corresponding interface facilities;

ii. A continental transport operation might use, for various reasons, a combination of transport modes, including, *inter alia*:

- road and rail for goods in containers, in swap-bodies, in trailers accompanied by a driver, or in non-accompanied trailers;
- road and ferry ("Ro-Ro") for goods in trailers accompanied by a driver, or non-accompanied trailers;
- road and sea ("Lo-Lo") for goods in containers.

b. *Economic considerations:*

To take advantage of mass transport and possible economies of scale on certain links ("hub & spoke" systems).

c. *Environmental considerations:*

As a result of pricing policies charging external (e.g. environmental) costs to certain modes, to take advantage of particular intermodal options, such as combined or "piggy-back" operations, short-sea shipping, etc.

d. *Social considerations:*

As a result of, for instance, time limits on driving in certain countries, to take advantage of particular intermodal options that provide sufficient time for a driver to rest between two operations.

e. *Regulatory considerations:*

As a result of technical regulations (e.g. axle-weight limitations) in some countries, certain types of vehicles may not use available transport facilities.

71. The intermodal transport operation could be organized by the commercial party responsible for the transport of the traded goods. This party would make all necessary arrangements with the different service providers (modes and interfaces) to move the goods towards their final destination, or he might delegate this task to an agent (e.g. a freight forwarder) who would act on his instructions. The cost of these arrangements are: the price paid to each intervening service provider (including the agent's fee); the insurance premium; and the financial and indirect costs corresponding to the inventory in-transit.

72. Alternatively, the commercial party may decide to delegate the organization of the operation to a single, qualified door-to-door transport operator, within the multimodal transport concept. This operator will assemble and be legally responsible for the combination and coordination of efficient transport modes and interface facilities, based on the appropriate technologies. This will result in a better service and a reduction in (direct and indirect) transaction costs.

73. The multimodal transport concept provides a solution for the organization of responsible door-to-door transport operations. It broadens the scope of intermodal transport and is relevant to both developed and developing countries. Indeed, although intermodal transport is operational in developed countries, the problem of door-to-door responsibility often remains unsolved, as in the example mentioned earlier on European short-sea shipping operations.

74. In developing countries and countries in transition, some of the basic ingredients for multimodal transport are still missing. The impact of natural and man-made barriers may be such that the trading community wants to move its goods before thinking about improvements. This might explain why, for example, traders in developing countries base their international trade transactions on commercial terms which preclude the intervention of local transport operators and benefit foreign transport operators. However, although the development of multimodal transport might appear more distant, its concept could stimulate all public and private national concerns to initiate the steps towards improving the environment for international transport operations.

D. Multimodal transport as the solution

75. The multimodal transport approach promotes thinking in terms of transport rather than of modes. This implies the consideration of the impact (in terms of cost, price, market, demand, etc.) on one mode from changes in another. An MT approach to transport problems therefore embodies the simultaneous consideration of all available modes of transport, taking into account all means and operations related to terminals as well as loading and unloading facilities, if a change is planned in either the field of infrastructure or regulations.

76. The MT approach brings together the three key players involved in the transport of the country's international trade: transport users, services providers and government:

a. the **transport users** (importers and exporters), who can take advantage of multimodal transport operations in their international trade transactions;
b. the **transport providers** (modal carriers, freight forwarders, MTOs, etc.), who can offer market-oriented multimodal transport operations within the framework of national and international trade and transport practices; and
c. the **government**, which designs and implements national laws and regulations regarding trade and transport.

77. The MT approach gives these players the opportunity to review and assess jointly national priorities for trade and transport, in particular the use of modern technologies and international practices, changes in commercial and administrative behaviour, and the need for institutional reforms, which will result in immediate benefits. While these benefits have already been discussed in a previous report by the secretariat,[16] it is important to recall some of the most relevant.

78. **Transport users** can expect economic and financial benefits, mainly from the greater care taken by an MTO of the goods in his custody, in the form of:

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16 *Multimodal Transport and Trading Opportunities* (UNCTAD/SDD/MT/5), pp.22-23.

a. reduced transit time; punctuality; and increased cargo security, particularly at interface points; and
b. reduced transport costs (e.g. from negotiated volume rates) and other associated costs (resulting from the use of modern transport-related technologies: containers, EDI, computerized cargo-tracking systems, etc.).

79. These two factors will improve the quality and price of door-to-door transport services. Quality will be improved by the coordination of schedules combined with reliable and predictable services, which makes it possible to meet the goal of commercially agreed on-time deliveries. Price may remain competitive considering the structure of the total transport costs. Traditionally, in typical North-South transport operations, indirect transport costs represent a bigger share than direct transport costs because of the long transit time and poor cargo security. With the advent of multimodal transport, the indirect transport costs are likely to become a smaller share of the total transport costs, even if the direct transport costs may slightly increase in "out-of-pocket" expenses.

80. **Services providers** and, particularly, transport operators could gain immediate benefits from:

a. commercial incentives to adapt to transport-related technologies (transfer of technology effect), such as containerization and EDI; and
b. the need to reconsider their marketing strategies and, for example, concentrate their activities in "niche" operations to serve specific commodities on specific trade routes. Commercial arrangements with mega-carriers, as well as partnerships between modal operators (e.g. rail and road) in the transport of goods in various subregions (North America, Europe), may create new opportunities.

81. **Governments** can also benefit from the MT approach since it offers the opportunity to streamline and update trade- and transport-related administrative procedures and regulations. By setting up a NTTFC, governments can stimulate innovative solutions from trade and transport partners and can promote fundamental changes in existing practices. The MT approach also stimulates trade, promotes new activities for the country’s transport sector and saves (and possibly earns) hard currency. Finally, it can strengthen the complementarity between transport modes, instead of creating competition.

Chapter III

THE PROMOTION OF MULTIMODAL TRANSPORT: ISSUES FOR CONSIDERATION

This chapter presents some issues which should be analysed through a multimodal transport approach to international transport of foreign trade.

82. Governments should play a leading role to improve the transport efficiency by promoting multimodal transport. They might consider a number of issues requiring their intervention at national and international levels, in a dynamic approach supported by policy analysis, conceptual innovation, research and inputs from both governmental and non-governmental experts and actors.

A. The national level

83. Governments may wish to initiate a liberalization process of their local transport market, including, *inter alia*:

a. The progressive freeing of access to the transport market to secure efficient transport operations organized by local or international operators. This should be based on fair, reciprocal and mutually advantageous competition, within a framework of laws (e.g. antitrust regulations) to correct market failures to protect the public interest;
b. The recognition of local freight forwarders and MTOs as providers of total physical distribution, logistics and "total transport" services, to develop a local capacity to manage international transport issues and to organize international transport operations; and
c. The establishment of conditions to secure equal and fair access to foreign markets for local MTOs.

84. Governments could consider the best available ways and means to anticipate, adapt to, and capitalize on opportunities presented by international developments in transport technology and management, with a view to "importing" successful strategies, as well as new practices and technologies of other nations. This would include, *inter alia*, identifying developments that could have far-reaching consequences for local firms and domestic transport systems, and monitoring the establishment of multimodal transport laws, regulations and administrative procedures in different regions.

85. In promoting international multimodal transport, governments have to take into account aspects beyond the scope of the transport sector. They might support the establishment of NTTFCs as a means to solve the major cross-sectorial issues that affect international multimodal transport (e.g. Customs, banking and insurance).

86. Governments could consider infrastructure development policies which would facilitate a modal choice transfer from road transport towards inland waterway and coastal shipping in a multimodal transport chain, with a view to improving environmental and economic performance. These policies should be coordinated with subregional developments, particularly

in terms of modernization, interconnectivity and interoperability of transport networks.

87. In order to achieve an equitable balance between transport modes, governments could adjust the charges in the transport sector to cover at least the costs of providing the infrastructure, taking account external cost factors as a means to protect the environment.

88. To foster local competitiveness, governments could support the development of strategic alliances between domestic and international transport operators and the local industry, in particular regarding transnational corporations' (TNCs) transport operations.

89. Governments should take advantage of the different forms and modes of transport when dealing with problems such as congestion, safety and environmental damage, and recognize their complementarity. They also could promote the use of new and available transport technologies which could yield the highest return on investment while maintaining initial capital and maintenance costs. This would include, *inter alia*: the development of logistics platforms and inland clearance depots (ICDs); the use of containers; the use of EDI and UN-EDIFACT; and the use of computer tools such as MULTISHIP and ACIS.

B. The international level

90. Governments might wish to harmonize national regulations and procedures with international commercial practices and recognize the need for a globally accepted framework for multimodal transport operations. In light of the slow ratification of the MT convention and of the increasing importance given to MT by commercial parties (through the development of the UNCTAD/ICC Rules on MT documents) and some governments (regional legislation such as the one implemented in the Andean Pact or the one proposed by the Latin American Association for Integration (ALADI)), governments might consider elaborating a new international instrument. This could be a convention on the transport of goods and would cover the door-to-door movement of goods, or it could be achieved by overhauling the existing conventions, by means of a protocol, after identifying the obstacles that have prevented their ratification (or adherence to them).

91. When introducing new technical systems, governments might seek compatibility with those introduced or to be introduced by other states or regions. Uniform technical standards to insure interoperability should be established, especially for multimodal transport systems, and coordinated measures taken to encourage and develop them.

92. Governments might wish to take advantage of the experience of international governmental and non-governmental institutions in establishing local conditions to develop efficient multimodal transport and logistics services, through transfer of know-how and technical assistance. They might wish to participate in the regional commissions' activities to promote administrative, management and maintenance activities in multimodal transport and containerization and also the adherence to a number of international conventions for facilitating the international movement of goods.

Information Retrieval

KEY WORDS

ACIS, competitiveness, containerization, definitions, door-to-door transport, EDI, environment, European Commission, globalization, INCOTERMs, industrial processes, intermodal coordination, International Chamber of Commerce, international trade, liberalization, MT Convention, multimodal transport operator, MULTISHIP, national trade and transport facilitation committee (NTTFC), short-sea transport operations, Standing Committee on Developing Services Sectors, technological developments, trade efficiency, trade patterns, transport efficiency, transport logistics, UNCTAD/ FALPRO, UN-EDIFACT.

ABSTRACT

This report presents some of the new challenges to be met in the fields of multimodal transport, containerization and technological developments. It describes the multimodal transport approach as a means to improve transport efficiency in a country. It suggests a progressive liberalization of the transport market, through coordination between governments and the private sector, "importing" successful strategies, practices and technologies from other countries regarding the implementation of a multimodal transport approach and the creation of the NTTFCs.

The question is raised of elaborating a new and different international convention on the transport of goods, or overhauling the existing ones after identifying the obstacles which have hindered their acceptance in the international community.

The report contains an introduction, a summary and conclusions and three chapters which cover the following:

Chapter I: Trends in supply and demand of international transport services;

Chapter II: A role for multimodal transport in international trade;

Chapter III: The promotion of multimodal transport: issues for consideration.

1 Facing the challenge of integrated transport services.