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**Economic and Social Commission for Asia and the Pacific****Seventy-fourth session**

Agenda item 3 (c)

**Resolution adopted by the Economic and Social Commission  
for Asia and the Pacific****74/2. Promotion of the regional framework for the planning,  
design, development and operation of dry ports of  
international importance**

*The Economic and Social Commission for Asia and the Pacific,*

*Encouraged* by the successful regional cooperation in the field of transport,

*Noting* the entry into force of the Intergovernmental Agreement on Dry Ports,<sup>1</sup>

*Recalling* the Ministerial Declaration on Sustainable Transport Connectivity in Asia and the Pacific, including the Regional Action Programme for Sustainable Transport Connectivity in Asia and the Pacific, phase I (2017–2021), adopted by the Ministerial Conference on Transport at its third session, held in Moscow from 5 to 9 December 2016,<sup>2</sup>

*Recalling also* its resolution 73/4 of 19 May 2017 on the implementation of the Ministerial Declaration on Sustainable Transport Connectivity in Asia and the Pacific,

*Recognizing* the significance of intermodal transport facilities such as dry ports in the establishment of integrated intermodal transport systems,

*Noting* the recommendation of the Working Group on Dry Ports at its second meeting, held in Bangkok on 14 and 15 November 2017, that the regional framework for the planning, design, development and operation of dry ports of international importance should be submitted to the Commission at its seventy-fourth session, in 2018, for its endorsement through a resolution,

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<sup>1</sup> United Nations, *Treaty Series*, No. 53630.

<sup>2</sup> E/ESCAP/73/15/Add.1.

*Noting also* the importance of well-managed dry ports, particularly those located at a significant distance from seaports, in reducing transportation costs and total transit time, in particular for the Asia-Pacific landlocked countries,

1. *Takes note* of the regional framework for the planning, design, development and operation of dry ports of international importance, as contained in the annex to the present resolution, and recognizes its potential for assisting member countries in facilitating the development of regional connectivity;

2. *Encourages* member States that have not already done so to consider becoming parties to the Intergovernmental Agreement on Dry Ports;<sup>1</sup>

3. *Requests* the Executive Secretary:

(a) To accord priority to the promotion of the regional framework for the planning, design, development and operation of dry ports of international importance by assisting members and associate members in their efforts to realize the vision of a sustainable integrated intermodal transport and logistics system;

(b) To encourage effective coordination with other United Nations and multilateral agencies, relevant subregional organizations, international and regional financing institutions, multilateral and bilateral donors and the private sector while promoting the regional framework;

(c) To facilitate the sharing of experiences and good practices in the planning, design, development and operation of dry ports of international importance while promoting the regional framework;

(d) To seek effective cooperation and collaboration with international and regional financing institutions, multilateral and bilateral donors, private sector investors and international organizations, as appropriate, to mobilize further financial and technical support to the wider development of dry ports of international importance in accordance with their respective mandates;

(e) To report to the Economic and Social Commission for Asia and the Pacific at its seventy-sixth session on progress made in the implementation of the present resolution.

*7th plenary meeting  
16 May 2018*

## Annex

### **Regional framework for the planning, design, development and operation of dry ports of international importance**

1. As a link in the transportation chain, dry ports have proved to have had a positive effect on the efficiency of the transport and logistic chain. Well-managed dry ports, particularly those located at a significant distance from a seaport, help reduce transportation costs and total transit time. This feature is particularly important for the Economic and Social Commission for Asia and the Pacific (ESCAP) region, which has vast hinterland areas and 12 of the world's 30 landlocked countries.

2. Following the signing and subsequent entry into force of the Intergovernmental Agreement on Dry Ports, the secretariat is undertaking follow-up activities to ensure its efficient implementation. In this regard, the regional framework for the planning, design, development and operation of dry ports of international importance has been formulated to facilitate the definition of a common approach to the development and operationalization of dry ports of international importance.

3. The key concept underlying this regional framework is that of a network of interconnected dry ports in the ESCAP region. It is envisaged that such a network could be formed from the dry ports nominated for coverage by the Intergovernmental Agreement. Some 150 existing and 86 potential dry ports have been nominated by member countries and included in annex I to the Agreement. This framework provides a means by which their development may be planned so that in the future they may follow the same standards and be interconnected.

4. In the framework, fundamental issues related to both the hard and the soft infrastructure of dry ports of international importance are identified. Following the description of each issue, a related target to be set when designing or operating dry ports of international importance is proposed, as well as the process to follow to reach each target.

#### **I. Basic requirements**

##### **Description of the issue**

5. To be able to exchange cargo effectively, dry ports must satisfy certain requirements as to the basic services that they provide and the facilities with which they are equipped in order to provide these services.

##### **Target**

6. Dry ports should have the infrastructure and equipment necessary for the handling, consolidation, storage and modal transfer of containers and other types of unitized cargo. They should also have the authority, capability and facilities for all border clearance of cargo and they should be located within, or close to, areas with a high concentration of industry which generate export or import trade, with adequate connections to seaports and other dry ports via rail and road linkages.

**Process**

7. Dry ports of international importance should adhere to the guiding principles for the development and operation of dry ports as contained in annex II to the Agreement.

**II. Dry port location****Description of the issue**

8. The location of a dry port is a major determinant of its operational and financial success, as well as of its success in minimizing logistics costs (overall handling, transport and storage costs between an origin and destination). Dry ports should be located as close as possible to cargo sources and trade-generating centres.

**Target**

9. Dry ports should be connected to cargo sources by short-distance road haulage services (either small break-bulk trucks for de-consolidated cargo or trailer trucks for containers), as transport by road is cost-effective for short distances, of less than 300 kilometres. For linkages to seaports or dry ports in other countries, dry ports should be connected by long-distance railway-container haulage services, as cargoes can be delivered cost-effectively by rail transport for distances over 300 kilometres.

**Process**

10. Transport infrastructure planners should locate dry ports as close to trade-generating centres as possible and at adequate distances from seaports and other dry ports to ensure the financial viability of the dry ports and to provide cost-effective transport solutions to industry.

**III. Transport infrastructure linkages****A. Dry port–seaport linkages****Description of the issue**

11. An important function of dry ports is to facilitate access to the sea for landlocked countries and the hinterland regions by consolidating cargo and by providing cost-effective land transport linkages to seaports. However, few seaports can accommodate full-length trains in loading and offloading sidings inside port boundaries. Few, if any, of the region's seaports have rail sidings located close to container stacks adjacent to berths (in most cases they are 500 metres to 2 kilometres away). This results in multiple handling of rail-delivered containers – typically three lifts per container to and from stacks as compared with only a single lift for road-delivered containers – and a significant competitive disadvantage for rail.

**Target**

12. Port operators need to commit to improving railway access inside seaports. Rail access inside ports should be as close to the container stacks as possible to reduce multiple handling of containers.

## Process

13. Transport planners in member States should, wherever possible, incorporate rail access as close to the container stacks inside ports as possible. In the case of existing ports, priority should be given to improving existing or creating new rail access inside ports.

## B. Rail infrastructure within dry ports

### Description of the issue

14. Rail-served dry ports must be connected to the nearest main line via a short access line which, in most cases, will be set up by the concerned infrastructure authorities. The rail network within the dry port should have adequate rail infrastructure to accommodate full-length trains.

### Target

15. The railway infrastructure to be provided inside a dry port should allow the receipt and dispatch of full-length-unit container trains running between a single origin and a single destination, without the need for them to be broken up or remarshalled outside the dry port.

16. The loading and unloading of trains should take place in centrally located sidings comprising at least three tracks, one each for loading and unloading and one for the release and repositioning of locomotives. The actual number of tracks for loading and unloading to be provided, however, depends on forecast traffic volumes. The container stacks of the container yard should be located on either side of the tracks and the paved areas on which the stacks rest should extend the entire length of the tracks, to allow container-handling equipment to discharge and load containers along the length of each train.

17. The length of the tracks for loading and unloading is determined by the quantity and length of the wagons that a train comprises. For example, for a train with 40 wagons pulled by one diesel locomotive, the track length required between the track points or switches may be calculated as 660 metres.<sup>1</sup>

18. The design axle load of the rail sidings should be compatible with that of the main line. In the case of metre-gauge railways, this is typically 20 tons per axle, and for wider gauges it is generally in the range of 22.5 to 25 tons. Even at the lower level, the axle load is sufficient to accept heavy locomotives and wagons carrying two fully loaded 20-foot containers or a single fully loaded 40-foot container.

## Process

19. Dry-port planners should ensure that rail-served dry ports are equipped with the necessary rail infrastructure to ensure seamless connectivity between dry ports and seaports and/or other dry ports.

<sup>1</sup> The detailed calculation is as follows: 1 diesel electric main-line locomotive (22 metres) + 40 wagons measuring 2 twenty-foot equivalent units (14.45 metres) + 10-per-cent allowance for braking = 660 metres.

**C. Road transport linkages****Description of the issue**

20. Dry ports need good-quality road linkages to cargo sources and to seaports and/or other dry ports. Countries lacking a comprehensive rail network also need access to seaports via multi-lane highways. The Asian Highway network can provide good coverage to the region's dry ports. However, the quality of roads that make up the Asian Highway network varies across countries, which can affect transit times and contribute to congestion on highways.

**Target**

21. Dry-port planners need to ensure that there are no missing links in the highway networks linking the dry ports that prevent seamless transport between dry ports and seaports or between dry ports in the region, especially in countries where containers are transported to seaports by road instead of by rail. Road-capacity bottlenecks that hinder seamless connectivity between dry ports and seaports need to be eliminated.

**Process**

22. Dry-port planners should ensure adequate primary road links between seaports and inland trade-generating centres and dry ports. Any capacity bottlenecks along highways that hinder seamless transport connectivity should be eliminated.

**D. Road infrastructure within dry ports****Description of the issue**

23. The efficient operation of dry ports depends in large part on the unimpeded circulation of trucks throughout most of the dry port area, except at the intersection with the rail access line, which needs to be protected by automatic level-crossing barriers and warning devices.

**Target**

24. The internal roads within dry ports should be constructed with a width of 15 metres, to allow handling equipment and trucks to pass safely. Moreover, the roads should be designed taking into account the axle loads applicable to the local highway system, as the trucks delivering break-bulk cargo between shippers' or consignees' premises and the dry ports will have to meet these requirements.

**Process**

25. Dry-port planners should ensure that road infrastructure within dry ports is adequate to ensure the smooth flow of vehicles operating within, entering and exiting the dry ports.

**IV. Technical standards for dry ports****Description of the issue**

26. Adherence to identical design standards is not necessary for dry ports to function effectively as interrelated components of a regional network, but

there is a need for some consistency among them in terms of the basic types of services offered and the design of the infrastructure needed to provide these services.

### **Target**

27. In order to enable the direct consignment and transport of cargo from one dry port within the network to another, facilities need to be provided for the following:

(a) The handling, consolidation, storage and modal transfer of containers and cargo;

(b) The customs and other border control inspection and clearance of international cargo.

28. These facilities should, at a minimum, comprise the following: a fenced, secure customs area with a limited number of entry and exit points and with working areas and entry points segregated for the handling of different types of traffic; a container yard that can receive and dispatch containers by road and rail, as well as storing containers; a container freight station in which cargo can be loaded into and discharged from containers; a customs inspection area where cargo can be discharged for inspection; a bonded warehouse for the storage of bonded cargo; and an administration building of two or more levels accommodating dry-port management, offices for customs inspectors, offices for freight forwarders and cargo agents, offices for banking or financial service providers and staff amenities (such as a restaurant).

### **Process**

29. The scale of the necessary infrastructure must be planned in accordance with the projected peak level of container and cargo volume to be handled within the planning horizon (approximately 20 years). The areas of the container yard, container freight station and bonded warehouse, in particular, depend upon projected handling volume. The area of the container yard also depends upon the type of container-handling system to be employed, which is demand driven, and on the length and number of railway sidings to be incorporated into the design.

30. In order to satisfy the requirement of promoting environmentally sustainable forms of transport, dry ports must provide efficient access to rail. Where relevant, they should also be connected to inland-waterway transport landings and quays.

## **V. Container yard capacity and equipment**

### **Description of the issue**

31. The layout of the container yard depends upon the length of the rail siding tracks as well as the type of handling system to be employed.

### **Target**

32. Generally, the choice of handling system is between a reach-stacker system and portal crane systems, such as rubber-tyre gantry cranes or rail-mounted gantry cranes. Reach-stackers are more land-intensive – requiring more land area to store a given number of containers – and are relatively inexpensive compared with portal crane systems, whereas the latter can

accommodate denser stacking of containers and are therefore less land-intensive.

33. The choice of handling system depends in part on the expected volume of containers to be handled. In general, the reach-stacker system is cost-effective for container yard throughputs of up to 200,000 twenty-foot equivalent units per year, beyond which a portal crane system may be justified.

34. Whether reach-stacker or portal crane systems are used, container-lifting equipment is required to work along the length of the tracks for loading and unloading.

35. In the case of a portal crane system, the crane straddles at least the tracks and a roadway, and possibly even the container stack as well. This is because containers may be stacked in dense blocks with very little space between the blocks.

36. In the case of a reach-stacker system, at least two reach-stacker units work simultaneously either side of the tracks for loading and unloading, with the container yard separated by the tracks into two paved areas. In each section, container stacks are arranged along the train working length in blocks of approximately four twenty-foot equivalent units in width, three twenty-foot equivalent units in depth and three to four twenty-foot equivalent units in height, each separated by a width of 13 metres to allow for the turning circle of a reach-stacker. The actual dimensions of the blocks depend upon the lifting capacity of the reach-stackers used.<sup>2</sup> The reach-stackers lift containers directly between wagons and the stacks, thereby avoiding the need to use prime movers and yard trailers, except for the repositioning of containers from the stack or wagons to the container freight station or customs inspection area.

37. The annual container throughput capacity of a dry port is determined by the number of times per year on average that its container yard storage volume is turned. If the container yard storage volume is 1,400 twenty-foot equivalent units, then the average dwell time for a container cannot exceed 4.5 days if the annual throughput is to reach 100,000 twenty-foot equivalent units (assuming an operating year of 330 days).

### **Process**

38. In order to minimize costs, the container yard should be constructed using heavy-duty flexible paving materials, such as interlocking paving blocks, but the pavement must be designed to withstand the heavy wheel loadings of container-lifting equipment. For example, the wheel loading of a reach-stacker lifting up to 45 tons is 25 tons per wheel.

## **VI. Design of other major facilities**

### **Description of the issue**

39. In some dry ports in the region, facilities such as the container freight station, bonded warehouse and customs inspection area are designed and built without proper consideration of the capacity and factual throughput of the dry port in question, which hinders the efficiency of its operations.

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<sup>2</sup> In this case, it was assumed that reach-stackers can lift near full loads of four twenty-foot equivalent units in height to and from the third row of containers in a stack.



**Target**

40. The area of the container freight station, bonded warehouse and customs inspection area is determined in proportion to the maximum container throughput volume expected to be handled in the dry port. The daily number of containers (in twenty-foot equivalent units) to be handled or processed through these facilities is calculated as a proportion of the expected throughput volume in twenty-foot equivalent units. The floor area of cargo discharged from these containers is calculated by applying to the volume an average area of 30 square metres per twenty-foot equivalent unit and a traffic circulation factor of 1.3.

41. The container freight station should be designed with container bays facing a raised platform for loading and unloading on one side, and bays for loading and unloading trucks on the other. Containers are packed and unpacked using forklift trucks while still on their trailers. Similarly, break-bulk trucks are loaded and unloaded from a raised platform by smaller forklifts.

**Process**

42. Detailed requirements for other buildings, such as the administration building, bonded warehouse, customs inspection facility and security building, should be determined through consultations with local customs staff as well as with freight forwarders and other service providers. The buildings design should take into account the expected volume of containers that will be handled at the facilities.

**VII. Terminal management information technology system****Description of the issue**

43. Application of real-time tracking systems of containers and other cargo based on information technology can increase the reliability and security of goods transport operations between dry ports and seaports, thus allowing the simplification of customs and other control formalities at dry ports.

**Target**

44. It is essential for the entry, exit and placement into storage of containers and cargo to be tracked by a real-time computer system, such that it is possible to locate any container or cargo consignment from its departure from a seaport, or from a shipper's premises, to its arrival in the dry port and placement into storage.

45. In addition, a computerized yard control system should be used to determine with precision where a container is to be placed in the stack.

**Process**

46. Dry-port planners or operators of existing dry ports should consider deploying information technology systems that identify in real time the location of containers or other consignments to be shipped to a dry port from a seaport, as well as computerized container-yard management systems.

## **VIII. Coding of dry ports of international importance**

### **Description of the issue**

47. The United Nations Code for Trade and Transport Locations refers to a system of codes developed for uniquely identifying locations, such as airports, seaports and inland freight terminals, that handle international trade. The codes are of a five-character format, the first two characters indicating the country in which the place is located followed by three characters indicating the specific location.

48. However, so far very few dry ports have applied for a code, which prevents them from being easily identified and recognized as points of origin or destination in the course of transport operations and limits the possibility of establishing a network of dry ports of international importance.

### **Target**

49. Through the adoption of international port codes, electronic links can be established between dry ports in the regional network. This would be of considerable benefit in facilitating trade and the electronic exchange of documents between dry ports located in different countries. Indeed, this is already happening for the exchange of cargo between dry ports located in at least two countries in the region.

50. The codes are managed, maintained and updated by the secretariat of the Economic Commission for Europe. They are maintained as a relational database, and may be updated on request from users.

### **Process**

51. It is strongly recommended that all dry ports that have not yet applied for a code should do so. There is a procedure for interested parties to register new locations online, details of which are available on the website of the Economic Commission for Europe. The ESCAP Transport Division is available to assist countries in this process.

## **IX. Incorporation of dry ports into international transport documents**

### **Description of the issue**

52. In practice, the transport documents that are applied to cross-border transport operations are already used for the consignment of cargo between dry ports located in different countries in the region. The current format of these documents is adequate for international cargo exchanges between dry ports. In particular, there are practical examples of the application of the multimodal transport bill of lading of the International Federation of Freight Forwarders Associations to operations between dry ports in the region. Similarly, the existing international railway consignment notes (such as that under the Agreement on International Railway Freight Communications – SMGS – and the common CIM/SMGS consignment note under the Uniform Rules concerning the Contract for International Carriage of Goods by Rail – CIM – and SMGS) and international road transport consignment note (under the Convention on the Contract for the International Carriage of Goods by Road) can also be applied to operations between dry ports.

53. However, transport operations between dry ports are generally uncommon in the region.

54. One of the reasons for this is the lack of recognition of dry ports by government authorities as points of origin or destination where customs formalities and other control procedures associated with cross-border transport operations can be fully discharged with due efficiency.

#### **Target**

55. All dry ports covered by the Agreement should widely serve as points of origin or destination for cross-border transport operations and be identified accordingly in the related transport documents.

#### **Process**

56. Cross-border transport operations between dry ports located in different countries should be further promoted among shippers, freight forwarders and transport operators. There is no need for changes to the transport documents utilized for cross-border transport operations.

57. However, the introduction of transport operations between dry ports in some countries may (but not necessarily) require the adjustment of domestic regulations related to customs and other control procedures and formalities.

58. The recognition of dry ports by government control authorities as points where customs and other control formalities related to cross-border transport operations can be efficiently carried out may be another important precondition for the introduction of dry ports as points of origin and destination for cross-border transport operations.

### **X. Proposed arrangements for customs clearance at dry ports**

#### **Description of the issue**

59. Dry ports must be able to offer the full range of functions (customs, quarantine and health) for the border clearance of international cargo. As already observed, for there to be effective interoperability between dry ports within a regional network, the dry ports must have the facilities and full authority to clear international cargo and intermediate border checks must be kept to the minimum necessary for border security.

60. Preferably, there should be border inspection staff based permanently at dry ports, or alternatively staff should be available on demand to undertake inspections there. Customs inspection staff are permanently based at many existing dry ports in the region.

#### **Target**

61. In order to make fully effective the border clearance functions of dry ports, it is necessary to integrate the different border control processes (customs, quarantine and health) and documentation under a single authority within each dry port. This is the single-window concept, the adoption of which is essential to eliminate the duplication of procedures and staff and reduce the volume of documents to be processed in dry ports.

62. The border clearance functions of dry ports can also be enhanced by providing on-site inspection staff with the information technology systems necessary to carry out risk assessment of import consignments. In some countries in the region, customs authorities have adopted a system of cargo pre-clearance whereby import consignments are assessed for risk 72 hours

before the vessel's arrival in port. Such assessments are carried out with the assistance of online information related to customer (or consignee) profiles to determine whether clearance of consignments poses an acceptable level of risk. There are strong benefits to be realized from such assessments being carried out by border control staff based at dry ports, particularly if they will in future have ultimate authority for the clearance of cargo consigned to their facility.

### **Process**

63. Where necessary, the relevant regulations should be amended to eliminate comprehensive checking of cargo at maritime or land borders and to allow full clearance procedures to be carried out at destination dry ports.

## **XI. Policy measures, legislation and solutions for planning dry port development**

### **Description of the issue**

64. Generally fragmented authority for the coordination and planning of dry port development in the region has limited the effectiveness and delivery of government policies designed to assist this development. Coordination is particularly weak in countries that rely extensively (and sometimes exclusively) on private sector investment in dry port development.

### **Target**

65. The activities of a proper coordination agency can be usefully directed at developing and applying the following policy initiatives to assist the development and establishment of dry ports:

(a) Taxation and other financial measures, including tax holidays or waivers and concessional land rent or public utility rates;

(b) Priority development of transport infrastructure connecting to dry ports, including, where relevant, the provision of investment incentives for private developers of dry ports;

(c) Incorporation of dry ports into export processing or other free trade zones, taking care to ensure the capability of such facilities to generate cargo-handling volume for dry ports;

(d) Regulatory measures to encourage sustainable transport connections to dry ports, including the regulation of truck weights and dimensions to discourage the operation of environmentally damaging vehicles.

### **Process**

66. Policy measure (a) above does not seem to have been applied widely within the region, and where it has applied, it seems not to have been very effective. There is evidence that measure (b) has been applied successfully in at least one country in the region. Measure (c) can be successful in generating sufficient volume to ensure the financial viability of dry ports, but only where the free trade zone has a strong manufacturing base. A free trade zone located at or near an inland border is unlikely to have this characteristic.

67. In the case of policy measure (d), there may be a need to reverse the direction of policies previously applied to relax regulations related to truck weights and dimensions.

68. Coordination of planning activities for dry port development should be assigned to an inter-agency committee, under the authority of a single transport ministry and with representation from all agencies that have a regulatory interest and are involved in dry port development and operation. There is evidence that such an approach is being applied successfully in a few countries in the region.

## **XII. Practical options for financing the development and operation of dry ports**

### **Description of the issue**

69. Within the region, public-private partnerships are currently the most popular option for financing investment in new dry port development, but there are relatively few existing dry port projects that have been financed in this way. The concepts of public-private partnerships have recently been applied widely throughout the region to transport infrastructure projects, such as highways and seaports, where the level and stability of demand is guaranteed. There is a high risk associated with dry port investments, owing to the uncertain level and stability of demand, particularly in some inland areas, and in some cases the uncertain level of competition.

### **Target**

70. There are three main options for financing the development and operation of dry ports:

- (a) Option 1: Financing by the public sector and outsourcing of operation through a management contract with the private sector;
- (b) Option 2: Private sector financing and operation;
- (c) Option 3: Public-private partnership variants.

71. There are varying levels of investment risk associated with these options. Under option 1, all of the risk is assumed by the public sector, which may make it unattractive relative to the constraints and limitations of the public sector budget. Option 2 assigns all of the risk to the private sector, which may make the project unattractive to some potential investors. Variants of option 3 assume different levels of participation by public and private sector parties, ranging from maximum public sector investment in land and infrastructure on the one hand to minimal public sector and maximum private sector investment in infrastructure and equipment on the other.

### **Process**

72. Public-private partnerships are seen to offer an opportunity for Governments to reduce the burden on national budgets, by attracting private investments for expensive infrastructure projects, and at the same time to introduce private sector expertise to the management and operation of these projects.

73. Governments can make public-private partnerships more appealing to potential private sector investors by shouldering a larger part of the capital cost and associated risk. There are several examples in the region when a public-private partnership scheme was successful because the public sector covered all of the project's infrastructure costs, in addition to providing the land for the project.