# Dry ports
## An international overview

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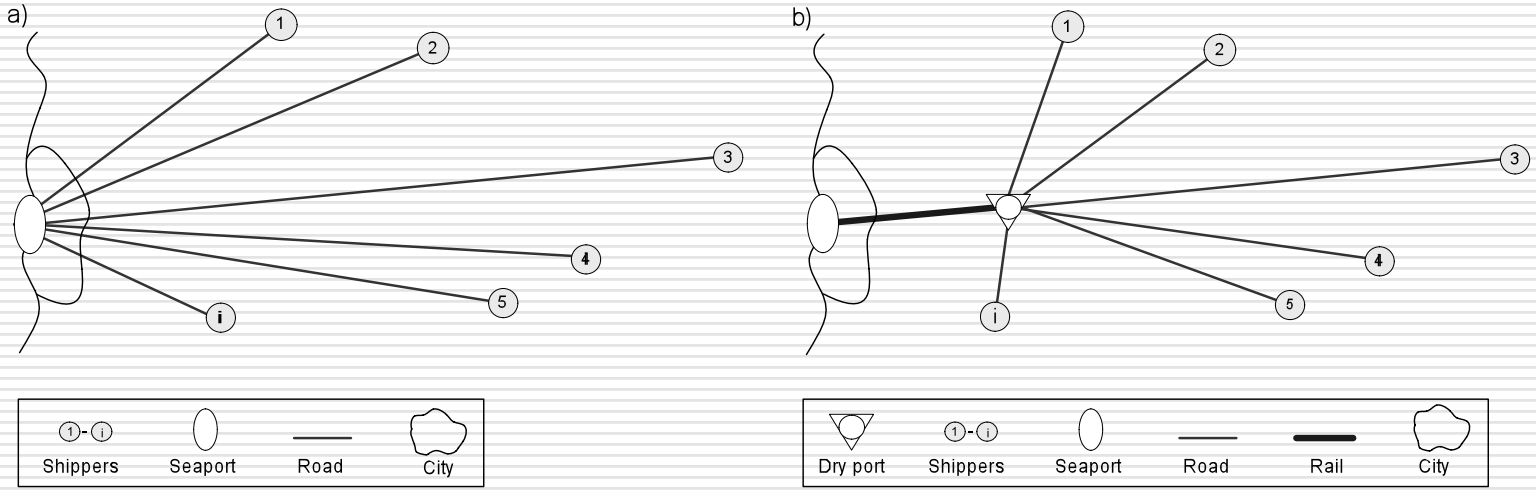
# Background


# Backgroud

- Hanappe (1986) - The first mention of dry port, in the context of intermodal transport in scientific journals. Hanappe relates to dry ports as multifunctional logistics centers with a variety of firms operating at the same site – it corresponds to concept of freight villages
- It took almost 20 years to revive the interest for the subject among researchers
- Beresford and Dubey (1990), in their survey of dry ports in Africa, define dry port as an Inland Clearance Depot

# The dry port concept

"A dry port is an inland intermodal terminal directly connected to a seaport by rail, where customers can leave and/or collect their standardised units as if directly to the seaport"



# The dry port concept

- Intermodal terminal
- Situated inland
- Rail connection to a seaport
- Offers service that are available at seaports (customs clearance, maintenance of containers,  storage, forwarding, etc.)

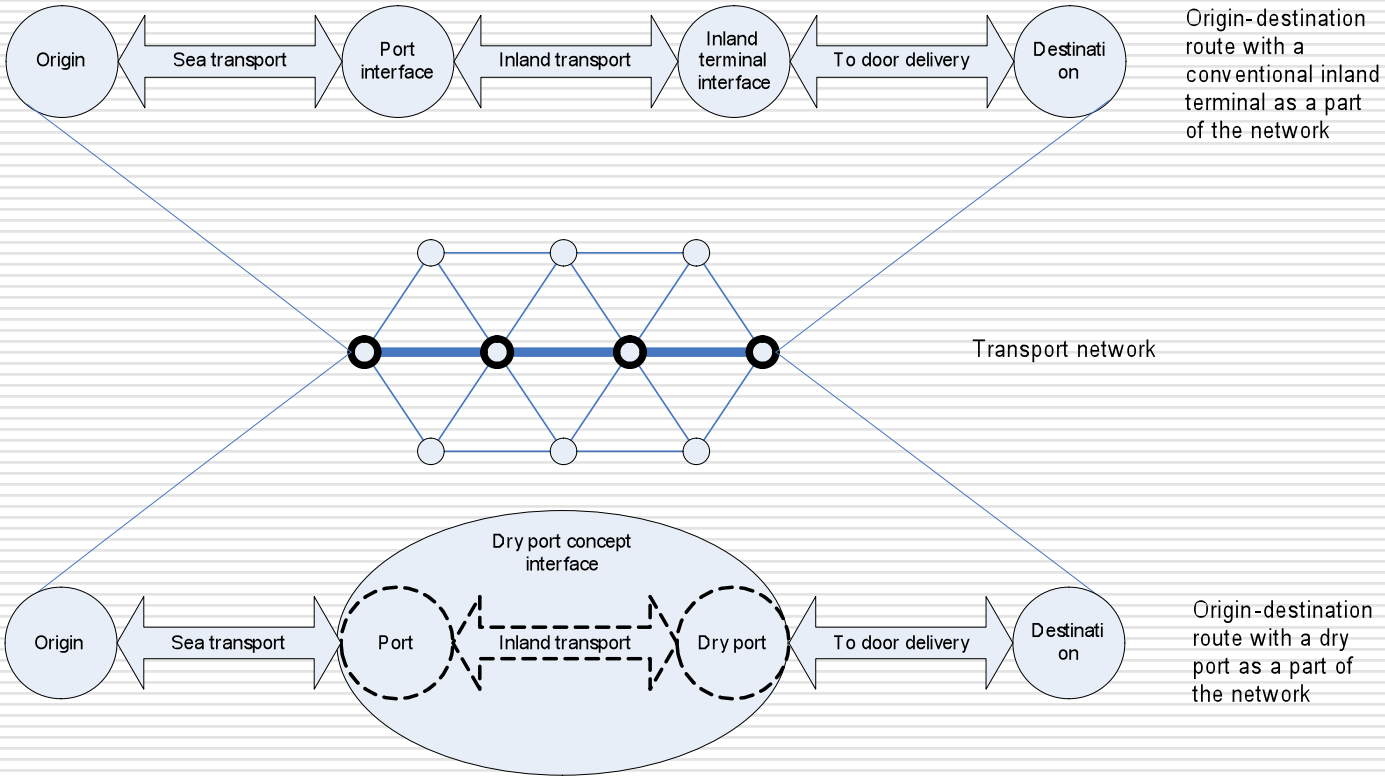
# Potential benefits resulting from dry ports

- Increases seaport capacity
- Increases seaport productivity
- Reduces congestion at seaports and in the seaport cities
- Reduces risk for road accidents
- Lowers environmental impact
- May serve as a depot
- Improves seaport's access to areas outside its traditional hinterland
- Supports regional development

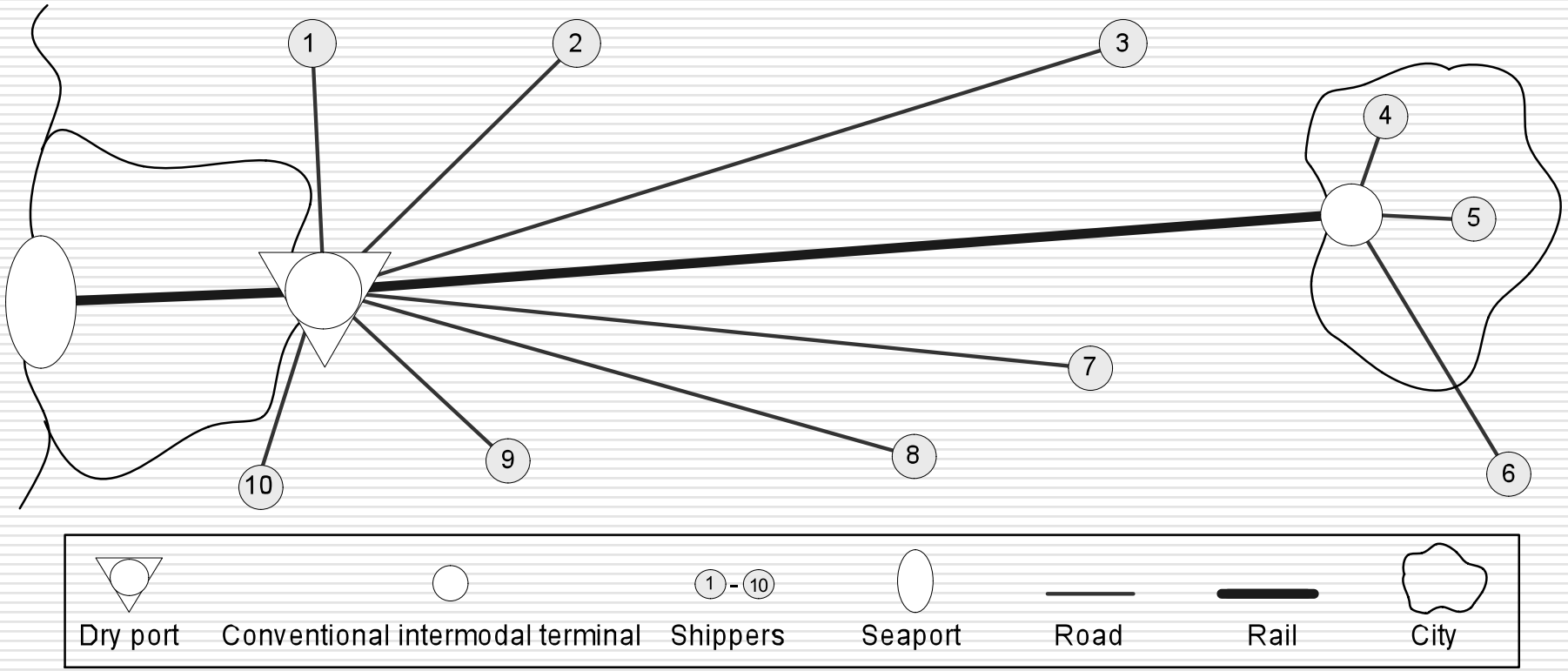
# Potential benefits for the actors of the transport system

| | Distant | Midrange | Close |
|---|---|---|---|
| **Seaports** | +Less congestion<br>+Expanded hinterland<br>+Interface with hinterland | +Less congestion<br>+Dedicated trains<br>+Depot<br>+Interface with hinterland | +Less congestion<br>+Increased capacity<br>+Depot<br>+Direct loading ship-train |
| **Seaport cities** | +Less road congestion<br>+Land use opportunities | +Less road congestion<br>+Land use opportunities | +Less road congestion<br>+Land use opportunities |
| **Shipping lines and forwarders** | +Improved service | +Improved service | +Improved service |
| **Rail and intermodal operators** | +Economies of scale<br>+Gain market share | +Day trains<br>+Gain market share | +Day trains<br>+Gain market share |
| **Road operators** | +Less time in congested roads and terminals | +Less time in congested roads and terminals | +Less time in congested roads and terminals<br>+Avoiding environmental zones |
| **Shippers** | +Improved seaport access<br>+"Environment marketing" | +Improved seaport access | +Improved seaport access |
| **Society** | +Modal shift<br>+Less infrastructure<br>+Lower environmental impact<br>+Job opportunities | +Modal shift<br>+Less infrastructure<br>+Lower environmental impact<br>+Job opportunities | +Lower environmental impact<br>+Job opportunities |

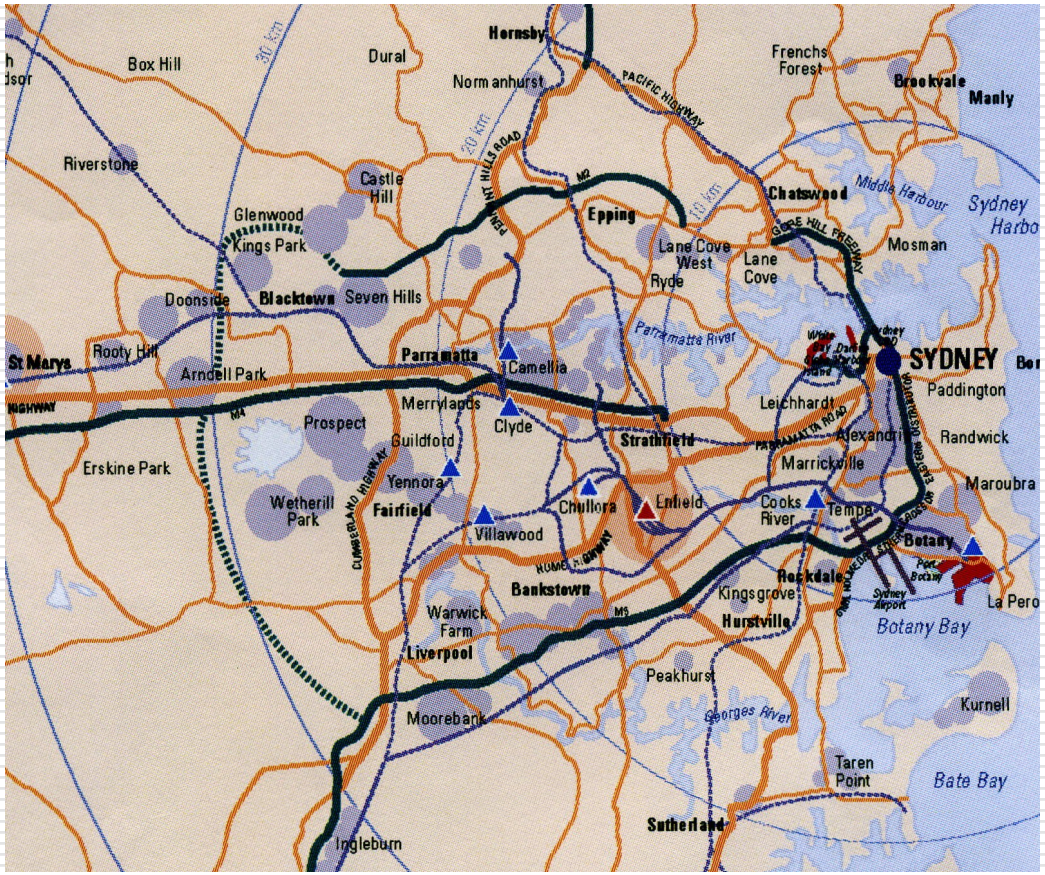
# The Dry Port Concept



# Close Dry Port



# Enfield, Sydney, Australia



# Enfield

- In September 2007 Sydney Ports received planning approval to develop an Intermodal Logistics Centre at Enfield, ten years after the initial plan
- Although the site is located in an industrial and commercial area adjacent to a dedicated freight line to the port within easy access of major roads, various obstacles hindered the realization of the plans.
- The project is initiated because road artery is quite congested and the goal was to minimize the growth of trucks on the roads.
- 85% of containers originate or are bound for a destination within 40km of the port, therefore there is no use of distant terminals

# Enfield

| | |
|---|---|
| Distance from the port | 18 km |
| Surface area | 60 ha |
| Traffic | 300,000 TEU |
| Rail frequency | daily shuttle |
| Loading rail tracks | 920 m |
| Lifting equipment | 3 gantry cranes, 3 container forklifts, 2 reach stackers |
| Warehouse | 60,000 $m^2$ |
| Container storage area | yes |
| Customer service | Separate forwarding service |

# Enfield - Factors influencing implementation of a dry port

*Regulations*

- There are no direct subsidies for rail from the government.
- Very strong road lobby that impedes any actions towards increased use of rail

*Environment*

- Fear from increased traffic through the area.
- In 2007 it was approved to build the intermodal terminal with smaller operating capacity, 300,000 instead of 500,000 TEU a year, traffic in and around the terminal is limited by regulations and will be monitored.

# Enfield - Factors influencing implementation of a dry port

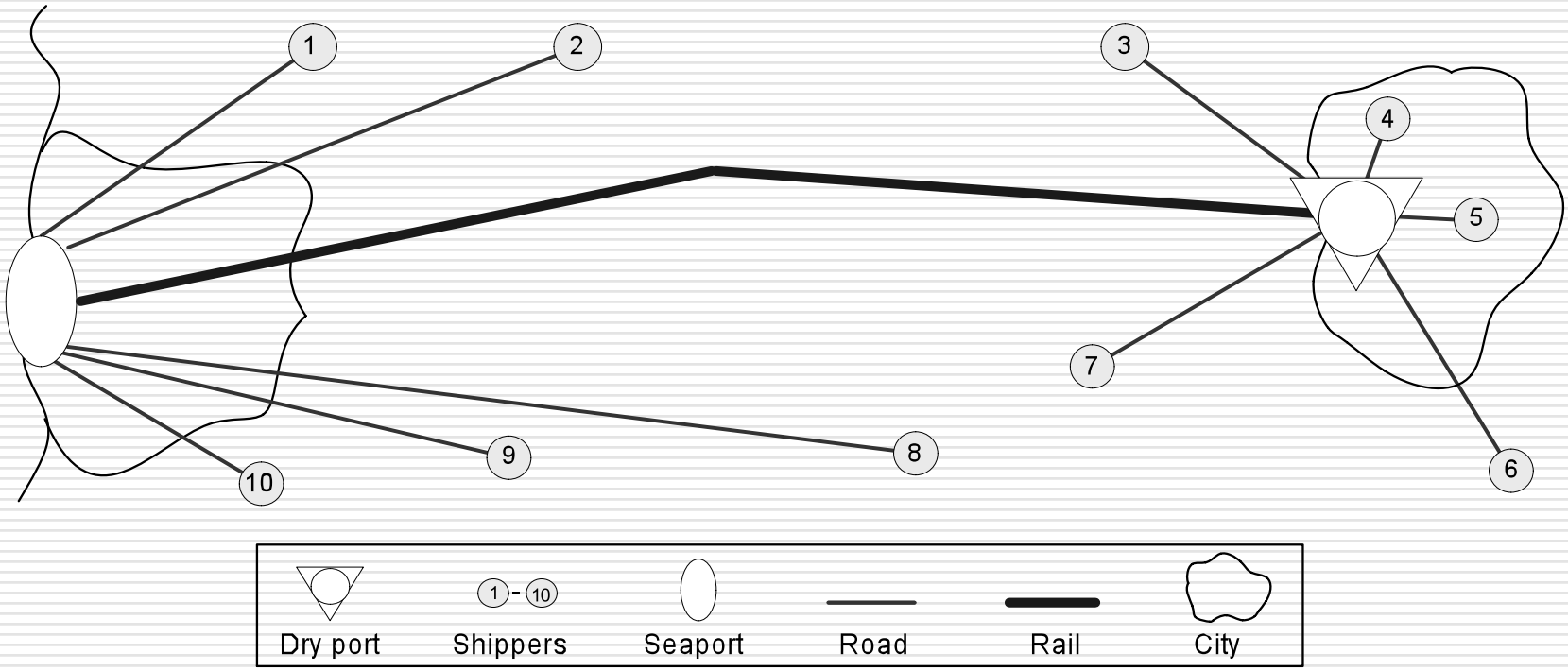
*Land use*

- The closer the potential site for an intermodal terminal is to metropolitan area the higher the price as well as demands regarding the environmental impacts.

*Infrastructure*

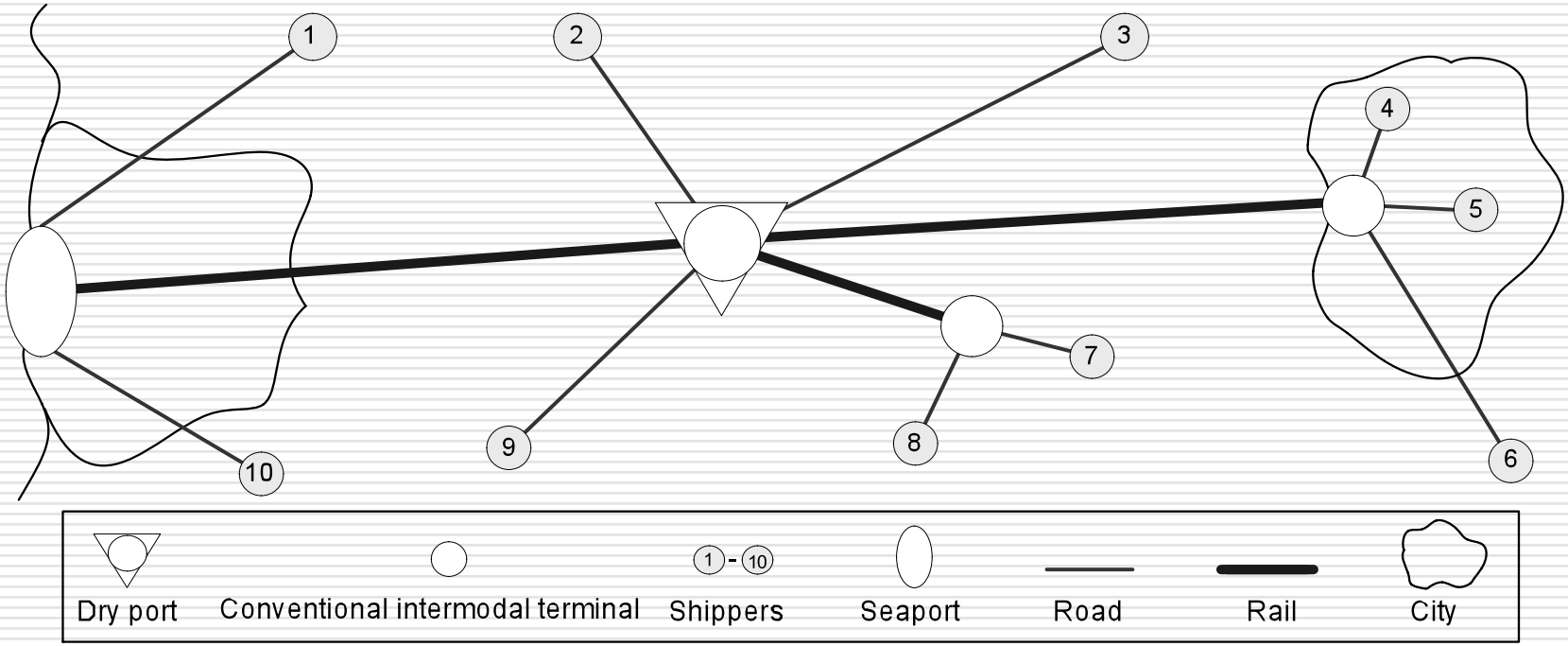
- Existing passenger and freight shared rail network is getting more constrained by passengers, and passenger transport has priority.
- On shared rail, freight is not allowed between 6-9am and 3-7pm, and there are very few free slots for eventual new rail operators.

# Distant Dry Port



# Isaka Dry Port, Tanzania

# Midrange Dry Port



# Virginia Inland Port, Virginia, USA

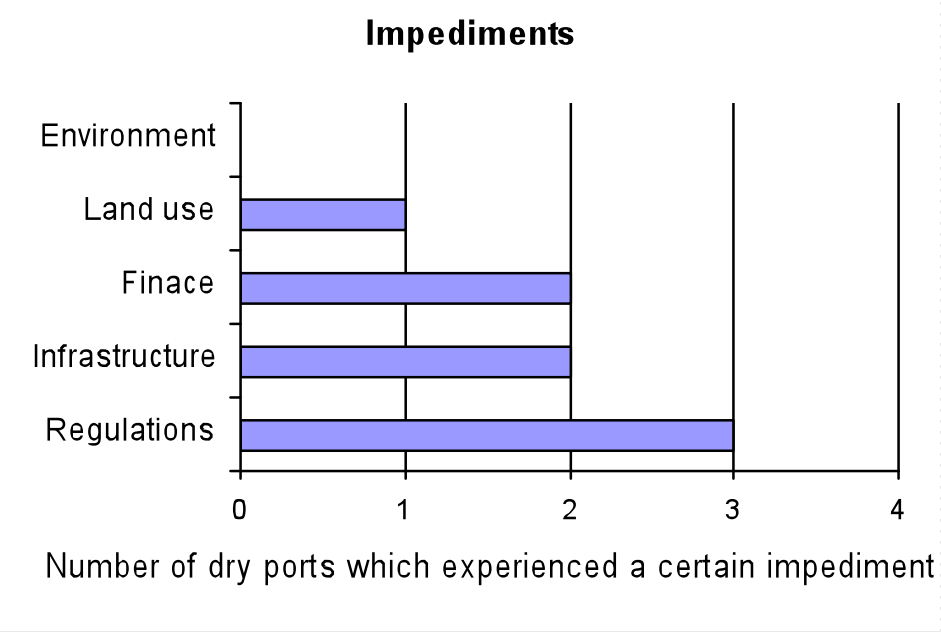
# Survey of dry ports

- The data collection was conducted by means of interviews or by questionnaires sent by email to the dry port managers.
- The findings are analyzed with the intention of clarifying the concept by showing the similarities and differences between reviewed dry ports and existing definitions/explanations of the same.

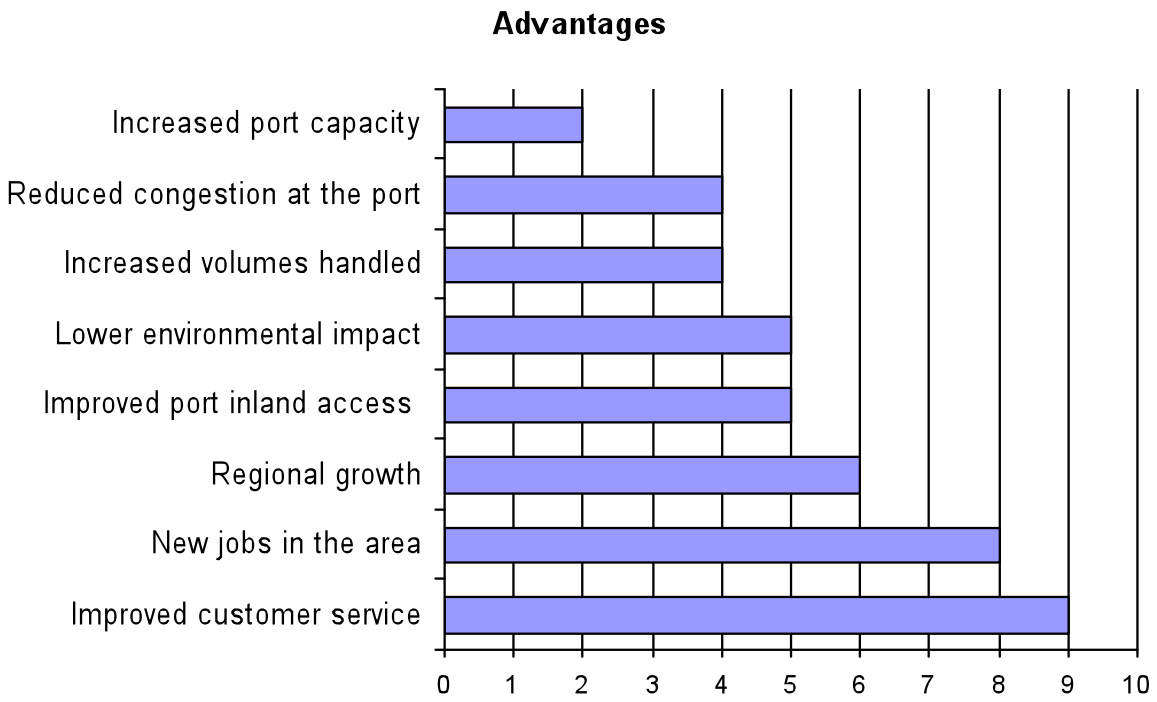
# Survey of dry ports
## Impediments and advantages

| Dry Ports | | | | Impediments | | | | | Advantages resulting from dry port implementation | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Land use | Regulations | Infrastructure | Environment | Other | Increased port capacity | Increased volumes handled | Improved port inland access | Reduced congestion at the port | Lower environmental impact | Improved customer service | New jobs in the area | Other |
| | Europe | Spain | Azuqueca de H | - | yes | yes | - | - | yes | yes | yes | - | yes | yes | yes | - |
| | | | Madrid Coslada | - | yes | yes | - | - | - | yes | yes | yes | yes | yes | yes | - |
| | | | Santander Ebro | na | na | na | na | na | - | - | - | - | - | - | yes | Regional growth |
| | | Sweden | Eskilstuna | yes | - | - | - | - | - | - | yes | yes | yes | yes | yes | Regional growth |
| | | | Hallsberg | - | - | - | - | - | yes | yes | yes | yes | yes | yes | yes | Regional growth |
| | | B[1] | Muizen | - | - | - | - | - | - | - | - | - | yes | - | - | - |
| | Africa | T[2] | Isaka | - | - | - | - | - | - | - | yes | yes | - | yes | - | - |
| | | S[3] | Matsapha | - | - | - | - | finance | - | yes | - | - | - | yes | yes | Regional growth |
| | Asia | S[4] | Riyadh | - | - | - | - | - | - | - | - | - | - | yes | - | - |
| | | N[5] | Birgunj | - | yes | - | - | - | - | - | - | - | - | yes | yes | Regional growth |
| | | P[6] | Faisalabad | - | - | - | - | finance | - | - | - | - | - | yes | yes | Regional growth |

# Survey of dry ports
## Impediments identified by the dry ports



# Survey of dry ports
## Advantages identified by dry ports



# Survey of dry ports
## Conclusion

- The dry port concept, when defined as an inland intermodal terminal directly connected to seaport(s) by rail, where customers can leave/pick up their units as if directly to a seaport, ideally represents the dry ports reviewed in this study.
- Even the extra services offered at the studied dry ports, such as customs clearance and storage, correspond to those previously identified by various researchers. Other services, such as the maintenance of containers or forwarding, were not available at all the dry ports; therefore, they do not have to be considered as essential for the dry ports' viability.

# Conclusion

- All of the reviewed dry ports brought at least two advantages for the actors of the system. Improved customer service and creation of new jobs in the area, advantages both closely related to regional growth, were the most recognized advantages, and in particular for landlocked countries.
- Closely related to all the advantages are the impediments, or the lack of the same; the reviewed dry ports have not experienced significant impediments, and some faced no impediments at all.

# Conclusion

A dry port must fit into a complex system where the necessary supporting infrastructure (roads, railways) is in place, maintenance is assured, and the regulatory and institutional systems are properly designed to optimize the involvement of both the public and the private sector.

Vandervoort and Morgan (1999)