INTERMODAL TERMINAL DEVELOPMENT

ÇAĞLAR TABAK
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### Content

- Freight villages and developments of rail freight transport in Turkey
- General important aspects of freight villages
- Specification of the general planning principals for freight villages with the example Hasanbey
- General conclusions for the functional elements drawn from the example
TCDD’s invest contents the construction of freight villages.

Rail cargo interfaces as points of origin are more promising for establishing a successful freight villages than sites, where rail facilities have to be developed.

The already existing railway network can push the development of the freight villages.
Effects of Rail Freight Transport Development on the Implementation of Freight Villages

- The changing industrial structure of Turkey and the increasing foreign trade volume favour the container transport which is the most suitable method for combined transport.

- The rapid increase of demand offers opportunities for the development of freight villages.

- The market sector of container transport, being the priority of the private sector, may create a high competition.

- Apart from the tendency to container transport general cargo and bulk goods will still play an important role in the years to come. Therefore freight villages should provide appropriate facilities.
Functions of Freight Villages

- Integrating different modes of transport (at least rail and road, preferable sea also)
- Providing transfer facilities (convenient cargo handling by shifting containers or goods from one mode to another)
- Serving as interfaces between long-distance freight transport and regional or urban delivery of goods
- Integrating different freight and logistic companies
Characteristics of Freight Villages

- A freight village is served by a multiplicity of transport modes
- Activities relating to transport, logistics, distribution of goods are carried out
- National and international transit
- Various operators for transport, logistics, distribution
- Free access to all facilities needed for transport, logistics, distribution of goods
- Public services for staff
- Establishing a model for operating the freight village
Logistic Centres

• The term ‘logistic centre’ can have different meanings.

• It generally describes a site specially organised for carrying out logistics activities:

  • A logistic centre can be a freight village.

  • Logistic centre can describe a site where general cargo is transhipped and services like weighting and payment of duty are offered.

  • A logistic centre can be a big warehouse from which transhipments to the whole country or even the whole world are carried out.
Advantages of Freight Villages

- Improved conditions to forward long-distance consignments by train or ship
- Potential to increase ratio of freight transport by train
- Potential to increase efficiency of train transports through concentration of transports on one spot
- Potential to push the economic development of the region
- Potential to increase the return of investment through establishment of auxiliary facilities and their efficient utilization
## Operating models for Freight Villages

<table>
<thead>
<tr>
<th>Carrier of Risk</th>
<th>Public Operator</th>
<th>Public Private Partnership</th>
<th>Private Operator</th>
</tr>
</thead>
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<tr>
<td><strong>Realisation of objectives concerning traffic / land use planning</strong></td>
<td>The authorities</td>
<td>Distribution of risk according to agreement</td>
<td>Investor</td>
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<tr>
<td><strong>Influence on the choice of companies to locate in the freight village</strong></td>
<td>Best possible influence</td>
<td>By monitoring</td>
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<td><strong>Monitoring of utilization of subsidies</strong></td>
<td>Distinctive influence</td>
<td>Medium influence</td>
<td>Low influence</td>
</tr>
<tr>
<td></td>
<td>Direct influence</td>
<td>Board of directors, surveillance and audits</td>
<td>Low influence</td>
</tr>
</tbody>
</table>

Source: Internationales Verkehrswesen 06/2007
Advantages for the Government

• Potential to concentrate freight traffic to railways
  • Less external diseconomies caused by pollution
• Potential to exonerate roads from freight traffic
  • Less road maintenance
• Potential to push the economic development of the region
  • Higher tax revenues
• Potential to put land into economic use
  • Revenues from land lease
Advantages for private operators

• Dedicated logistics facilities meeting their requirements
  • Lower costs for logistics processes
  • Increased flexibility
• Powerful Hinterland connection
  • Secures competitive advantages
• Railway access
  • Cheap and reliable transports
Advantages for Investors

- Introduction of container transportation facilities
  - High demand for container logistics
  - Meeting market’s requirements over decades
- Financing of logistics facilities
  - Revenues generated by financial and/or operating leasing
  - Participation in a pilot scheme
- Infrastructure financing
  - Potential for public private partnerships
## Operating models for Freight Villages

<table>
<thead>
<tr>
<th>Service</th>
<th>Infrastructure</th>
<th>Owner</th>
<th>Operator</th>
<th>Financier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provision of rail access</td>
<td>Rail Tracks</td>
<td>TCDD Infrastructure</td>
<td>Infrastructure Manager</td>
<td>Government</td>
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<tr>
<td>Provision of transhipment</td>
<td>Transhipment Terminal</td>
<td>TCDD Infrastructure</td>
<td>Terminal Manager</td>
<td>Government</td>
</tr>
<tr>
<td>General logistics services</td>
<td>Freight Village General Area</td>
<td>Freight Village Manager</td>
<td>Freight Village Manager</td>
<td>Government/Investor</td>
</tr>
<tr>
<td>Freight forwarding</td>
<td>Freight Village Forwarding Area</td>
<td>Freight Forwarder</td>
<td>Freight Forwarder</td>
<td>Freight Forwarder/Investor</td>
</tr>
<tr>
<td>Warehousing</td>
<td>Warehouses</td>
<td>Warehousing Company</td>
<td>Warehousing Company</td>
<td>Warehousing Comp./Investor</td>
</tr>
<tr>
<td>Board and lodging</td>
<td>Hotel/Restaurant</td>
<td>Franchising Companies</td>
<td>Franchisee</td>
<td>Franchisee/Investor</td>
</tr>
<tr>
<td>Administration</td>
<td>Administrative &amp; Social Facilities</td>
<td>Freight Village Manager</td>
<td>Freight Village Manager</td>
<td>Government</td>
</tr>
<tr>
<td>Representation</td>
<td>Client’s offices</td>
<td>Freight Village Manager</td>
<td>Clients</td>
<td>Government/Investor</td>
</tr>
</tbody>
</table>
Example: Financial and Organisation Concept: Kassel

City of Kassel / Lohfelden
Owner of freight village incl. rail infrastructure within freight village

Operations contract

Fr. Village Project Comp.

Operations contract

Terminal operation
Pays service fee

Intermodal operator
Pays charge

Clients of intermodal services

Operations contract

Rail operation (shunting)
Pays service fee

Operations contract

Operation of general logistics services
Pays service fee

Forwarders/Logistics Comp.
Pays charge

Clients of forwarding/logistics services

Marketing area/facilities (Freight forwarders, warehouses, lodging etc.)
Pays rent/lease

Service provider (Hotel etc.)
Pays charge

External parties, guests

Operations contract

Own activity

Pays rent/lease
Results of the Financial Construction

• Free and non-discriminatory access to the Terminal
• Costs for Installations, Infrastructure and Operations are covered
• Charges and salaries depend on the transhipped volume
• Fair competition between all parties is possible
• State subsidies for construction and planning is possible
Strategic Location of Freight Villages – Local

• Close to industrial activities with significant volume of goods to be transported over long distances and suitable for transport by railway

• Enough space for transhipments and logistics activities under consideration of the freight village’s future development in stages

• Remote from settlements to ensure a low conflict potential (e.g. residents)
Strategic Location of Freight Villages – Regional / National / International

• Location along important traffic flows from or to regional / national / international destinations

• Situated at major railway connections

• Close to the main road-network

• Connections to harbours with the help of the railway / road network

• Sufficient capacity on all modes of transport
Criteria for the Layout of a Freight Village

- The container area serves for loading and storing of containers and is a core element of the freight village. The quick and safe movement of containers is a main aspect when developing freight villages.

- An essential element of freight villages are flexible areas allowing third parties to establish cargo movement facilities according to market needs such as forwarding facilities.

- General services facilities allow for lean operations and higher efficiency and can stimulate the overall development of a freight village.
Criteria for the Layout of a Freight Village

• All facilities serving for transport, logistics or distribution of goods should possibly dispose of an independent access for all relevant modes of transport.

• Transport infrastructure layout enabling uninterrupted traffic flows and minimal shunting movements.

• Sufficient space for parking for waiting trucks and for employees’ cars are to be provided at all freight village facilities.
Criteria for the Layout of a Freight Village

• Protection of goods and processes handled in the freight village can be ensured by establishing a controlled area.

• The location of facilities in the freight village should be chosen in accordance with the need for public access.

• Step-by-step development according to demand.

• Sufficient space must be calculated for to allow future development of facilities.

• Separation of utilizations with conflict potential, e.g. bulk goods emitting dust.
Typical Planning Process

- **Strategic planning for a country**
  - Definition of locations of freight villages within a country or region

- **Strategic planning within a limited area**
  - Finding the most appropriate location within a predefined local area
  - Definition of areas (e.g. transhipment, logistics area, etc.)

- **Feasibility, conceptual Design (“rough planning”)**
  - Finding the most appropriate location within a predefined local area

- **Detailed planning**
  - Exact planning of all infrastructure (e.g. railway infrastructure, road, etc.)

- **Planning of operations and services**
  - Exact planning of all services (e.g. opening hours, etc.)

The general criteria for freight villages are the basis for the conceptual planning.
Strategic Location of Hasanbey – Local
Strategic Location of Hasanbey – Local

✓ Situated at existing rail corridor

✓ Short distance to main road network

✓ Large industrial area in close proximity with expansion potentials

✓ Main city nearby, but situated outside of build up area

✓ Site offers necessary capacity development possibilities

 Excellent local access conditions, local transport volume potentials and growth possibilities
Strategic Location of Hasanbey – Regional / National / International

Main Transport Corridors
(Transport Master Plan Strategy – Istanbul Technical University)

Regional Catchment Area of Hasanbey Freight Village

Eskisehir
Strategic Location of Hasanbey – Regional / National / International

- Substantial regional catchment area

- Central location on main east-west rail corridor between Istanbul and Ankara

- Advantageous location for connecting major national and international (rail) freight volume flows

  ➡️ High-rate potentials for developing a trend-setting freight village with significant freight volumes
Conceptual Design of Hasanbey
Conceptual Design of Hasanbey – Proposals for Optimisation
Conceptual Design of Hasanbey – Proposals for Optimisation

Length of Extension Tracks / Connection of Loading Tracks to Shunting Area
Conceptual Design – Proposals for Process Optimisation
Priority: Extension Track With Train Length for Terminal Entry
Conceptual Design – Proposals for Process Optimisation

Further Measures: Connection of Loading Tracks to Shunting Area

Option 1:
Classic solution: Connection via terminal extension track

Option 2:
Direct connection to shunting area
Disadvantage of crossing with terminal tracks
Conceptual Design – Proposals for Layout Optimisation

Example for Improved Link-up of Container Area and Unloading Area

Advantages:
- Shunting can be done by main line locomotives
- Same capacity in the terminal requires fewer tracks
- Modular expansion possible
- Reduced crossing of road and rail
Functional Design – Feasible Layout A for Hasanbey

Optimised Operating Conditions through Improved Link-up of Container Area and Unloading Area

Relocation necessary to enable links to the main railway line on both sides of the container terminal: HIGH LAND USE
Functional Design – Feasible Layout B for Hasanbey

Good Operating Conditions through Extension Tracks and Optimisation of Land Use
Functional Elements – Container Terminal Suggested Layout (long term high capacity)
Functional Elements – Dangerous / Special Goods Area

- Forwarding facilities with direct rail access
- Forwarding facilities may include truck-docking-points and indoor administrative facilities, storage and handling areas
- Facilities generally operated by railway operator or specialised forwarding agent
- Development in accordance with market requirements
Functional Elements – Administrative / Social Facilities

- Main access point
- Freight village administration, clients offices
- Additional upgrading services like customs services, trade areas, reception, …
- Facilities operated by TCDD / freight village development company
- Temporary facilities during initial stage of development advisable
Functional Elements – General Service Facilities

• Additional facilities for road feeder like petrol station, truck wash, truck repair

• Services like hotel, restaurant, sanitary facilities for truck drivers, employees, …

• Public access advisable in order to achieve added benefits

• Facilities run by a specialised operator

• Realisation in accordance with traffic volumes and / or strategic objectives
THANK YOU FOR YOUR ATTENDANCE