Intermodal solutions between Europe and Turkey: Ekol’s Green Logistics via Intermodal Transportation
Company Overview

Our Intermodal Solution
Ekol at a Glance

- **Establishment**: 1990
- **Number of Employees**: ~ 2,000
- **Total Number of Invoiced Customers**: ~ 7,600
- **Turnover in 2008**: 152 million Euro
- **Indoor Storage Area**: over 300,000 m²
- **Number of Vehicles**: ~ 1050
Company Overview

Our Intermodal Solution
## Ekol’s Block Train in Co-Operation with Kombiverkehr

- **Start date**: 17 October 2008
- **Departures**: Round trip twice a week between Ludwigshafen and Trieste
- **Departure and Arrival**: Ludwigshafen, Monday - Trieste, Tuesday
  Trieste, Tuesday - Ludwigshafen, Wednesday
  Ludwigshafen, Friday - Trieste, Saturday
  Trieste, Saturday - Ludwigshafen, Sunday
- **Capacity**: 32 trailers per departure
- **Loading Unit**: Tilt or Box (Hanging garments) Mega Trailer

[Image of a train on tracks with www.ekol.com on the side]
Project Definition  

**Future Plans**

- **Short-term plans**
  
  Increase round trip 3 times a week between Ludwigshafen and Trieste, starting in **first half of 2010**.

- **Mid-term plans**
  
  Round trip 5 times a week (daily departures) starting in **second half of 2010**.
Volumes

- 2008 - 18 Trips/14,000 to. general cargo
- 2009 - 82 Trips/67,000 to. general cargo
- Until 2011 (planned) - 500 Trips/416,000 to. general cargo per year
Project Definition Intermodal

From Heppenheim to Ludwigshafen

From Ludwigshafen to Trieste

From Trieste to Istanbul & Izmir
Transportation Models

Model - 1 Road Transportation

Model - 2 RoRo & Road Transportation

Model - 3 RoRo & Rail Transportation
Transportation Models Road

- **Route**: From Turkey to Europe (via Balkans)
- **Concept**: Direct deliveries to the destination
- **Av. Roundtrip Route Distance**: 7,000 km (by truck)
- **Total Roundtrip Route Duration**: 15 days
Transportation Models RoRo & Road

- **Route**: Turkey – Trieste - Europe
- **Concept**: RoRo (from İstanbul/İzmir to Trieste), Road (from Trieste to Europe)
- **Av. Roundtrip Route Distance**: 4.000 km (by truck)
- **Total Roundtrip Route Duration**: 18 days
Transportation Models RoRo & Rail – Current

- **Route**: Turkey – Trieste – Ludwigshafen – Europe
- **Concept**: RoRo (from İstanbul/İzmir to Trieste), Rail (from Trieste to Ludwigshafen), Road (from Ludwigshafen to Europe)
- **Av. Roundtrip Route Distance**: 2,000 km (by truck)
- **Total Roundtrip Route Duration**: 16 days
Goods are collected from the customers and carried to Ekol warehouse by trucks.
Customers orders are collected in the order pool of the system and consolidated to available trucks. Trucks then take the trailers to the port where they will be loaded to ferry.
The trailers are loaded to ferry.
Ferry departs from Istanbul or Izmir port and the trip lasts three days to Trieste port.
Ferry arrives to Trieste port. Here the trailers are unloaded from ferry and loaded to train.
The train departs from Trieste station on evening time. The trip from Trieste to Ludwigshafen takes 24 hours.
Train arrives to the Ludwigshafen terminal. Trailers are unloaded from the train through the night and binded to German plated Ekol trucks.
From Ludwigshafen, goods are transported via German trucks through the Europe including UK, Spain, Benelux, France, Denmark and Germany

<table>
<thead>
<tr>
<th>24 hours delivery</th>
<th>48 hours delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany, Benelux, North France, South England, Switzerland, Kopenhagen</td>
<td>Ireland, Spain, South France, North England</td>
</tr>
</tbody>
</table>
**Project Definition Advantages**

- **Environmental Impacts**

- **Passing international roads with less transit documentation.**

- **Negative effects of weather conditions are eliminated.**

- **Nonstop driving during weekend**

- **Same lead time for standard service considering other transportation models**
Project Definition Bottlenecks

- Delays because of loco-changing.
- Variable Informationflow, various contact points.
- Lack of efficient follow up process for original shipping documents.
- Damages on trailers during loading / unloading
- Tariffs are uncompetitive with roadfreight due to low fuel prices.
Environmental Impacts Results

- **Savings per trailer for a Roundtrip;**
  - 5000 km motorway
  - Fuel 1600 lt
  - 5.520 kg CO₂
  - 25.86 kg NOₓ
  - 3.98 kg NMHC
  - 0.70 kg Particles
Environmental Impacts

- Intermodal system is one of the important improvement for green logistics
- Ekol prefers intermodal transportation due to the following benefits
  - Climate protection
  - Fewer pollutant emissions
  - Noise reduction
  - Energy conservation
  - Decrease CO₂ footprint
## Environmental Impacts

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Description</th>
<th>Reasons for Inclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC</td>
<td>Primary energy consumption</td>
<td>Main indicator for resource consumption</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon dioxide emissions</td>
<td>Main indicator for greenhouse effect</td>
</tr>
<tr>
<td>NOₓ</td>
<td>Nitrogen oxide emissions</td>
<td>Acidification, eutrophication, eco-toxicity, human toxicity, summer smog</td>
</tr>
<tr>
<td>SO₂</td>
<td>Sulphur dioxide emissions</td>
<td>Acidification, eco-toxicity, human toxicity</td>
</tr>
<tr>
<td>NMHC</td>
<td>Non-methane hydro carbons</td>
<td>Human toxicity, summer smog</td>
</tr>
<tr>
<td>Particles</td>
<td>Exhaust particulate matter from vehicles (mainly diesel combustion), composition: all particle sizes, about 80% PM 2.5, 90% PM 10 (by mass)</td>
<td>Human toxicity, summer smog</td>
</tr>
<tr>
<td>Dust</td>
<td>Total exhaust particles from vehicles and from energy production and provision (mainly power plants, refineries, sea transport of primary energy carriers), composition: all particle sizes, about 80% PM 2.5, 90% PM 10 (by mass)</td>
<td>Human toxicity, summer smog</td>
</tr>
</tbody>
</table>
When 500 Roundtrips per year is achieved, its impact on environment will be;

<table>
<thead>
<tr>
<th>Emission rates</th>
<th>Total Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorway usage Km</td>
<td>80,000,000</td>
</tr>
<tr>
<td>EC Megajoule</td>
<td>1,333,573,102</td>
</tr>
<tr>
<td>CO₂ Tons</td>
<td>88,320</td>
</tr>
<tr>
<td>Fuel lt</td>
<td>25,600,000</td>
</tr>
<tr>
<td>HC Kg</td>
<td>63,550</td>
</tr>
<tr>
<td>NOx Kg</td>
<td>413,784</td>
</tr>
</tbody>
</table>
Ekol, Partner of Cream Consortium

Ekol is a member of Cream (Customer-driven Rail-freight services on an European mega-corridor based on Advanced business and operating Models) Consortium since 01.10.2008. The CREAM project is a research and development project co-financed by the European Commission in the 6th framework programme. Its intention is to develop further the rail freight and intermodal transports on the corridors to/from Turkey. One workpackage is foreseen to further develop the trimodal transport chain Ferry-Rail-Road. The freight flow and transport concept that now became our dedicated Ludwigshafen –Trieste train falls totally in the scope of the works.
Logistics for a better world