Analyzing Transport Efficiency

UNESCAP
Time/Cost - Distance Methodology

An introduction

United Nations Economic and Social Commission for Asia and the Pacific
Benefits:

– Simple to use
– Provides a ‘snap-shot’ of the present situation
– Can track changes over time
– Possibility of comparing alternative routes
– Can be understood by all
– Powerful instrument for international cooperation
United Nations Economic and Social Commission for Asia and the Pacific

Objective to straighten the transport line and decrease the time/cost angle

These straight vertical lines illustrate periods where the goods are inactive in the transport chain and where there is an increase in time and/or cost.
Example: Tianjin-Ulaanbaatar Railway link
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- **Tianjin, 0 km**
- **Erenhot, 983 km**
- **Ulaanbaatar, 1700 km**

**Average speed** 22.4 km/h

- **Distance between locations**: 1,691 km
- **Average speed**: 33.7 km/h
- **Travel time**: 27.5 km/h

**Day 1**
- **04.18 a.m.** Erenhot, 983 km
- **02.30 a.m.** 02.30 a.m.
- **05.59 a.m.** 05.59 a.m.

**Day 2**
- **29 hrs 12 min.**

**Day 3**
- **20 hrs 31 min.**

**Day 4**
- **75 hrs 31 min.**

**Time**
- **00.00 a.m.**
- **12.00 a.m.**
- **24.00 a.m.**

**Distance**
- **500 km**
- **1000 km**
- **1500 km**
- **2000 km**

**Transshipment**:
- Shunting + train formation: 3 hrs. 35 min.
- 3 hrs. 20 min. (3.5 min. per box)

**Customs**:
- China: 3 hrs. 00 min.
- Mongolia: 4 hrs. 50 min.
Other benefits – Comparison of Border Crossings by Cost or Time

Cost per TEU

<table>
<thead>
<tr>
<th>Country Pair</th>
<th>Cost per TEU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lao PDR-Thai</td>
<td>$131</td>
</tr>
<tr>
<td>Lao PDR-Viet Nam</td>
<td>$100</td>
</tr>
<tr>
<td>Mongolia-China</td>
<td>$293</td>
</tr>
<tr>
<td>Mongolia-Russian Fed.</td>
<td>$155</td>
</tr>
<tr>
<td>Nepal-India</td>
<td>$124</td>
</tr>
<tr>
<td>Kazakhstan-Russian Fed.</td>
<td>$200</td>
</tr>
<tr>
<td><em>Uzbekistan-Turkmenistan</em></td>
<td>$650</td>
</tr>
</tbody>
</table>

* Estimated from cost of standard European 12 meter semi trailer.

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Minimum Information Required:

- **Route** from origin to destination, including border crossings
  - (e.g. Tianjin to Ulaanbaatar via Erenhot and Zamyn Uud border)

- **Mode** of transport for each leg
  - (e.g. Road/Rail/Sea/Air)

- **Distance** for each leg/mode
  - (e.g. Tianjin to Erenhot = 983Km)

- **Time** for each leg/mode
  - (e.g. Tianjin to Erenhot = 29hrs 12min)

- **Cost** for each leg/mode
  - (e.g. Tianjin to Erenhot = $xxx)
Collection of data

• This can be done by brief telephone interview with either
  – A freight forwarder
  – A transport operator
For further information

For comments and/or suggestions please contact us at:

www.unescap.org/our-work/transport

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