Introduction to UNESCAP
Time/Cost-Distance Methodology

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What is the Time/Cost – Distance Methodology?

- The “UNESCAP Time/Cost – Distance Methodology” is the graphical representation of cost and time data associated with transport processes. The purpose of the model is to identify inefficiencies and isolate bottlenecks along a particular route by looking at the cost and time characteristics of every section along a route.

- The “UNESCAP Time/Cost – Distance Methodology” enables policy makers to:
  
  - compare over a period of time - the changes of cost and/or time required for transportation on a certain route;
  - compare and evaluate competing modes of transport operating on the same route;
  - compare alternative transport routes.
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
Benefits:

- Can be utilised to measure and assess the performance of any transport corridor (unimodal or intermodal).

- Includes both transport (road, rail, inland waterway, maritime) and intermodal transfer (ports, rail-freight terminals, inland clearance depots) as cost and time components.
Other benefits –
Comparison of Border Crossings by Cost or Time

**Cost per TEU**

- Lao PDR-Thai: $131
- Lao PDR-Viet Nam: $100
- Mongolia-China: $293
- Mongolia-Russian Fed.: $155
- Nepal-India: $124
- Kazakhstan-Russian Fed.: $200
- Uzbekistan-Turkmenistan: $650

*Estimated from cost of standard European 12 meter semi trailer.*
Training Workshop on TTFMM, Nepal, 15-17 April 2014

The model

Transport to border
Wait at border
crossing/change
transport mode

Transport to sea port
Wait at sea port

Point of Origin

Destination

Cost

Day 4
$400

Day 3
$300

Day 2
$200

Day 1
$100

Distance

500 km
1000 km
1500 km
2000 km

Time

Day 4

Day 3

Day 2

Day 1

Sea transport

500 km
1000 km
2000 km

Transport to sea port

Wait at border
crossing/change
transport mode

Sea transport
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.
Minimum Information Required:

- **Route** from origin to destination, including border crossings
- **Mode** of transport for each leg
  (e.g. Road/Rail/Sea/Air)
- **Distance** for each leg/mode
- **Time** for each leg/mode
- **Cost** for each leg/mode
Example of TCD application: Tianjin-Ulaanbaatar Railway link
Example of TCD application: Tianjin-Ulaanbaatar Railway link

- **Transshipment:** 3 hrs. 20 min. (3.5 min. per box)
- **Shunting + train formation:** 3 hrs. 35 min.
- **Customs:** China, 3 hrs. 00 min.; Mongolia, 4 hrs. 50 min.

**Day 1**
- Tianjin, 0 km
- Erenhot, 983 km
- Shunting + train formation: 3 hrs. 35 min.
- 29 hrs 12 min.
- 05.59 a.m.

**Day 2**
- Erenhot, 983 km
- Zamyn Uud, 1000 km
- 27.5 km/h
- 02.30 a.m.

**Day 3**
- Zamyn Uud, 1000 km
- 75 hrs 31 min.
- 04.18 a.m.

**Day 4**
- Ulaanbaatar, 1700 km
- Average speed 22.4 km/h
- 20 hrs 31 min.
TCD pilot application by clusters

- UNCTAD has developed a cluster methodology to use a collaborative structure called cluster to bring stakeholders involved in cross-border and transit transport in landlocked and transit developing countries together to discuss the issues of transit transport and coordinate their facilitation measures.

- UNESCAP has developed the Time /Cost- Distance methodology to find time and costs spent for each segment of transport process, through which to help identify, quantify and isolate bottlenecks to be addressed in transport process.

- The two methodologies have been integrated into a single transport facilitation toolkit.
- Two pilot project sites in East Africa and Central Asia.
- Participating countries in Asia:
  - Kazakhstan, Kyrgyzstan and Tajikistan
- Participating countries in Africa:
  - Burundi, Rwanda and Tanzania
Kazakhstan, Kyrgyzstan and Tajikistan

The pilot corridor: Almaty – Bishkek – Dushanbe
Examples of TCD application:
ADB CAREC CPMM

CAREC Corridor Performance Measurement and Monitoring

- Efficient corridors to reduce time and cost
- Detailed measurement and monitoring
- Identify bottlenecks
- Develop response
Example of TCD application: ADB CAREC CPMM

Time-Cost Distance Method

Topa (PRC) - Bishkek (Kyrgyz Rep) - Corridor 1c

- Border control, customs, health and weigh inspection at Torugart BCP
- Depart from Topa to Torugart
- Border waiting time of 4 hours
- Refuelling at Naryn
- Waiting time of 19 hours at Custom going to At-Bashi
- From Naryn to Bystrovka, police payments ranged from $1.25 to $2.5
- Custom check at Bishkek for 10.5 hours and $50 payment
Good practices and lessons learnt:

- TCD is a versatile tool and its application can be custom-tailored to the needs of a particular country or transport corridor
- TCD can be applied for different purposes
- TCD can be applied for measurement of transport corridor performance under various integrated projects
- The most resource-consuming aspect of TCD’s practical application is the collection of data
- Scope of application of TCD may largely vary subject to availability of data and capacity for its regular collection
Proposed TCD application for selected SASEC transport corridor(s)

- Use of TCD to measure the performance of SASEC transport corridors as the part of BPA+, as part of the establishment of TTFMM

- TCD can also be applied to compare the efficiency of road and rail corridors or routes
Thank you!