Instructions on Data Collection for the Time/Cost-Distance Methodology

- Basic Template Version -
What is the Time/Cost – Distance Methodology?

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

• The “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 transit routes.
Benefits of the Time/Cost – Distance Methodology

• The “Time/Cost – Distance Methodology” includes a detailed break-down of cost and time spent, for example, associated with border crossings. This may be particularly useful to policy makers focusing their policy approaches on the most critical issues. In addition, the inclusion of data on inventory costs for particular commodities, demurrage charges and other indirect costs may be useful to specific export/import industries in evaluating their logistics performance.

• The use of the “Time/Cost – Distance Methodology” allows national stakeholders to track time and cost issues along transport routes. Thereby it helps to identify bottlenecks and barriers in international transport.

• The information on time and cost involved on certain routes informs general transport facilitation policy decisions (e.g. route prioritization, allocation of funds, allocation of socio-economic development efforts).
Objectives of instructions and technical requirements

- Main objectives of the data collection exercise in cooperation with countries are:
  1. Familiarization of national stakeholders in the transport sector with the “Time/Cost – Distance Methodology”, so that they can apply it on their own
  2. Development of a comprehensive database based on the data collection

- The following instructions explain how to use the “Time/Cost – Distance Methodology” step-by-step using an example for a route from Kampala, Uganda to Shanghai, China. They aim to familiarize national stakeholders in the transport sector with the “Time/Cost – Distance Methodology” and to enable them the use of the methodology.

- Please note: The “Time/Cost – Distance Methodology” requires the installation of Microsoft Excel Software on your workstations.
What kind of data is collected?

• The questionnaire for the application of the “Time/Cost – Distance Methodology” captures qualitative and quantitative information. On the following slides the information required for every line of the questionnaire will be explained.

• Preliminary information required:
  1. Decision on a transport route including place of departure, any kind of stops (e.g. for fuel, border crossings) and destination
  2. Decision on the type of goods transported (e.g. specification if only one kind or multi-packaging of goods) as well as on the quantity and/or value.

• One possibility to obtain the required data would be to directly contact transport operators and/or freight forwarders involved in cargo transport along the specified route. The national freight forwarders association may help to identify relevant transport operators or freight forwarders.
The questionnaire – One MS Excel worksheet, three parts

**Part I**

- **Date of questionnaire completion**: 16/02/2007
- **Transport description**:
- **Goods**: Garment
- **Quantity**: 1 TEU
- **Nationality of driver**: not available
- **Country of vehicle registration**: not available
- **Effective date of transport start**: 19/06/2007
- **Effective delivery date of goods**: 01/07/2007
- **Was the transport performed under an international transit system (e.g. TIR, NCTS)?** not available

**Part II**

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Distance to next stop (km)</th>
<th>Duration of travel (hrs min)</th>
<th>Costs while en route (in USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vientiane (Lao PDR)</td>
<td>0</td>
<td>$0.00</td>
</tr>
<tr>
<td>2</td>
<td>Vientiane (Lao PDR)</td>
<td>25</td>
<td>$140.00</td>
</tr>
<tr>
<td>3</td>
<td>Nongkai (Thailand)</td>
<td>630</td>
<td>$676.00</td>
</tr>
<tr>
<td>4</td>
<td>Bangkok Port (Thailand)</td>
<td>1,540</td>
<td>$2,198.00</td>
</tr>
<tr>
<td>5</td>
<td>Port of Singapore</td>
<td>15,359</td>
<td>$17,557.00</td>
</tr>
<tr>
<td>6</td>
<td>Thanaleng (Lao PDR)</td>
<td>0</td>
<td>$0.00</td>
</tr>
<tr>
<td>7</td>
<td>Part of Singapore (Singapore)</td>
<td>0</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**Part III**

- **Data table**
- **Description of actions taken (e.g. procedures, formalities applicable to the section of the route). Please also provide a breakdown of costs as well as a break-down of time used for individual procedures (e.g. customs, fueling).**

**Graphs**

- **Time to Distance**
- **Cost to Distance**
How to fill out Part I of the questionnaire?

- Please fill out rows a to i with the information required:
  Row a: Please insert the date of questionnaire completion.
  Row b: Please provide a description of the route (e.g. place of departure and destination).
  Row c: Please choose the type of goods and indicate, whether it is only one type or different types of goods.
  Row d: Please indicate the quantity and/or value of the goods transported.
  Row e: [for road only] Please enter the nationality of the driver is important for road transport.
  Row f: [for road only] Please enter country of vehicle registration.
  Row g: Please provide the date when the goods are supposed to leave the place of departure.
  Row h: Please provide the date when the goods are supposed to arrive at their final destination.
  Row i: Please indicate any international transit system which has been used for the chosen transport, if the transport is not an international system then please say so in your response.
How to fill out Part II of the questionnaire? – I/IV

- Please fill out all of the highlighted cells in Part II of the questionnaire.
- Please read each line from left to right. Each line captures one section of the journey (i.e. from one stop to another).
- Please note that the cells circled contain drop-down menus, which you see when clicking on the cell. Please choose your answers from the drop-down menu.
• Step 1: Enter the name and the country that indicate the place of departure. For example: Vientiane (Lao PDR), as above, or Kampala, Uganda.

• Step 2: Enter the total amount of time spent at the place of departure by providing the hours and the minutes. Please enter the total amount of time (For example: 20 minutes for fueling, 15 minutes for customs and 5 minutes at the restroom, then please enter 40 minutes).

• Step 3: Fill in the amount of costs incurred at the place of departure. If you have several payments, please insert the total amount only (For example: "$28.17" or if you paid 50 USD for fuel and 10 USD at customs, then please enter "$60").

• Step 4: Describe any actions (e.g. fueling, rest period) undertaken at the stop and provide details, if applicable, regarding the break-down of the time spent (see step 2) and of the different costs (see step 3).

How to fill out Part II of the questionnaire? – II/IV
Step 5: Choose from the drop-down menu the mode of transport used to get from departure to next stop.

Step 6: Enter the distance in kilometer from departure to next stop.

Step 7: Enter the duration of the journey from departure to next stop by providing the hours and the minutes.

Step 8: Enter the costs of the journey from departure to next stop in USD. Enter name of place and country of next stop.

Step 9: Choose from the drop-down menu the best description of the nature of the stop.

Step 10: Enter the total amount of time spent at the stop (in hours and minutes).

Step 11: Fill in the total amount of costs incurred at the stop.

Step 12: Describe any actions (e.g. fueling, rest period) undertaken at the stop and provide details, if applicable, regarding a break-down of the time spent (see step 7 and 11) and of the different costs (see step 8 and 12).
How to fill out Part II of the questionnaire? – IV/IV

Please repeat the steps of row 2 for as many rows as you have stops before reaching the final destination. (In the example there are rows 3 to 6, see slide XII.)

When reaching the final destination, please fill out the last row (highlighted cells only):

- **Step 14:** Please choose from the drop-down menu the mode of transport used to get from departure to next stop (same as step 5).

- **Step 15:** Please enter the distance in kilometer from departure to next stop, which will be the final destination (similar to step 6).

- **Steps 16 and 17:** Please enter the duration and the costs of the journey from departure to next stop in hours.

- **Steps 18 and 19:** Please enter name and country of the final destination. Choose from the drop-down menu “Final destination”.

- **Steps 20, 21 and 22:** Please enter the total amount of time and costs spent at the final destination for individual activities. Add a detailed description of activities.
Part III: How to plot the graphs?

- The individual charts “Time over Distance” (left) and “Cost over Distance” (right) are plotted automatically as a function of the information you entered into the highlighted cells.
How to interpret the data and the graphs?

- The y-axis represents either the time or the cost incurred, while the x-axis represents the distance from origin to destination. It is also possible to have two y-axes, one for time and one for cost (Please see back-up slide).

- The unit costs and the time allocation of transport may vary between modes as well as over time, and the steepness of the cost/time curves reflect the actual costs (price) and/or time.
  - The steeper the curve, the more time consuming or costly is the transport along the analyzed route.
  - Vertical steps in each curve indicate a sharp increase of time/cost without an increase in distance (i.e. without movement of the transport).
  - Vertical steps typically occur at stops (e.g. border crossings) and they indicate inefficiencies or bottlenecks on a transport route, since the larger the vertical step, the more time/cost are used for activities undergone at a stop.
Back-Up: How are the graphs plotted?

Every questionnaire contains three additional columns based on which the graphs are plotted. These calculate cumulative distance, cumulative time and cumulative costs:

- “Time over Distance” graph refers to cumulative distance (x-axis) and cumulative time (y-axis)
- “Cost over Distance” graph refers to cumulative distance (x-axis) and cumulative cost (y-axis)
- Please note that the cells are automatically calculated and need no additional information from you.