MultiRELOAD
PORT SOLUTIONS FOR SUSTAINABLE MOBILITY

Cost Calculation Tool Description

1. Objective of the tool

The objective of the cost calculation tool is to provide a relatively quick calculation of the costs of container transport on inland waterways.

2. Structure of the tool

The tool is programmed in excel. The results are presented in the summary worksheet, in a format that can be printed as an A4 sheet. There are the following worksheets:

Introduction
Summary
Assets
Variable elements
Help desk
Calculation
Data Lock+port
Drop down lists.

The **Introduction** sheet contains a description of the worksheets.

Data is entered in cells shaded as follows:

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Results of calculations are shown in **bold**

The **summary** sheet shows the results of the calculations, with the origin, destination and voyage information, the configuration of the ship/barge train and the costs. Port handling costs and transport to/from ports to the origin and destination are not included.

The **Help desk** work sheet has example data that can be used as a first illustration of typical costs as of early 2025. Information about assets is entered in the **Assets** worksheet. Information about the particular cargo and voyage (round trip) is entered in the **Variable elements'** worksheet. Data usually fixed for the ports and locks are in the **Data lock+port** worksheet.

3. Assets

Information about assets: ship (motor cargo vessel MCV), Pusher, barges containers is entered in the assets sheet. Data is required for ships, pushers, container barges and containers. The data comprises, for rental or purchase of the assets, rental costs, purchase costs, remaining useful life, capacities of ships and barges. Costs for repairs, insurance, cost of capital, error margin are entered as % of the summed asset costs and calculated per operating day.

4. Variable elements

Variable costs to be entered are: gasoil price, gasoil consumption under way and when moored, grease consumption.

Further data are:
Required profitability
Port of origin and destination on the Danube are entered from a drop-down menu. Calculations are performed for a return trip
The configuration of the ship or pusher train is entered from drop down menus
Whether the assets are owned or leased is entered from drop down menus
Average operating speed upstream and downstream
Number of loading units (barges and ship)
Number of container barges
Container capacities of ship and barges
Utilisation rates of barges and ship upstream and downstream
Crew operating mode (A1, A2, B)
Crew costs
Time required for Bunkering, bilge cleaning, water replenishment
Time allowance (margin)
Waiting time at a lock
Waiting times to load and discharge at origin and destination ports
Loading and discharging times at origin and destination ports
Terminal handling charges

5. Help desk

This worksheet shows typical values for fuel consumption calculations and loading/draught data.

Crew cost data for different nationalities and crew operating patterns (A1, A2, B) are shown for Hungary, Serbia and Ukraine.

It also contains typical values for terminal handling costs and first and last mile costs.

6. Calculation sheet

This sheet contains the calculations. It uses the port and locks distance data from the Data lock and port worksheet to calculated distances and times, given the origin and destination input in the variable elements worksheet, together with the variable elements and the asset data to calculate the results shown in the summary sheet. Calculations are performed for a round trip.
The calculation sheet is hidden and protected.

7. Data Lock+Port, Drop down lists

The Data Lock+Port worksheet contains the data on distances for ports and locks for the voyage calculation. The drop-down lists worksheet contains the drop-down data for ports, vessel type and whether assets are owned or leased.

These sheets are hidden and protected