Development of GIS Database on Euro-Asian Transport Links

2nd session of the Group of Experts on Euro-Asian Transport Links

Geneva, 7 September 2009

Context of the Project

- Phase I of the project (2003 – 2006)
- European infrastructure networks (AGR/AGC/AGTC) already in place
- Asian networks in the process of ratification (AH/TAR)
- Objective was **to identify major routes between Asia and Europe in order to select priority rail/road network linking Europe and Asia**
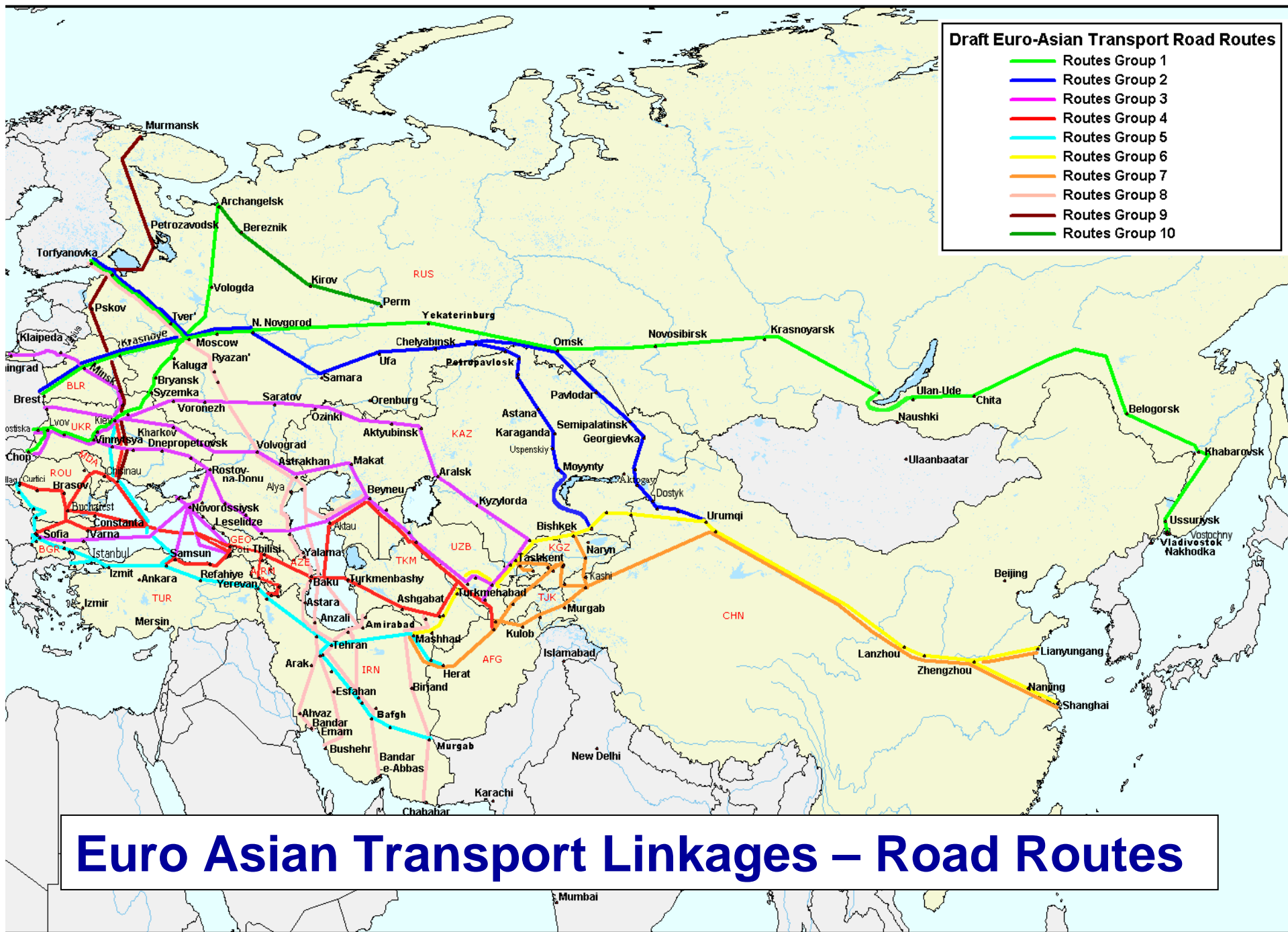
First Steps

- Routes were identified and agreed:
  - Rail
  - Road
  - Inland Water Transport (IWT)
  - Maritime ports
  - Inland Container Depots (ICDs)
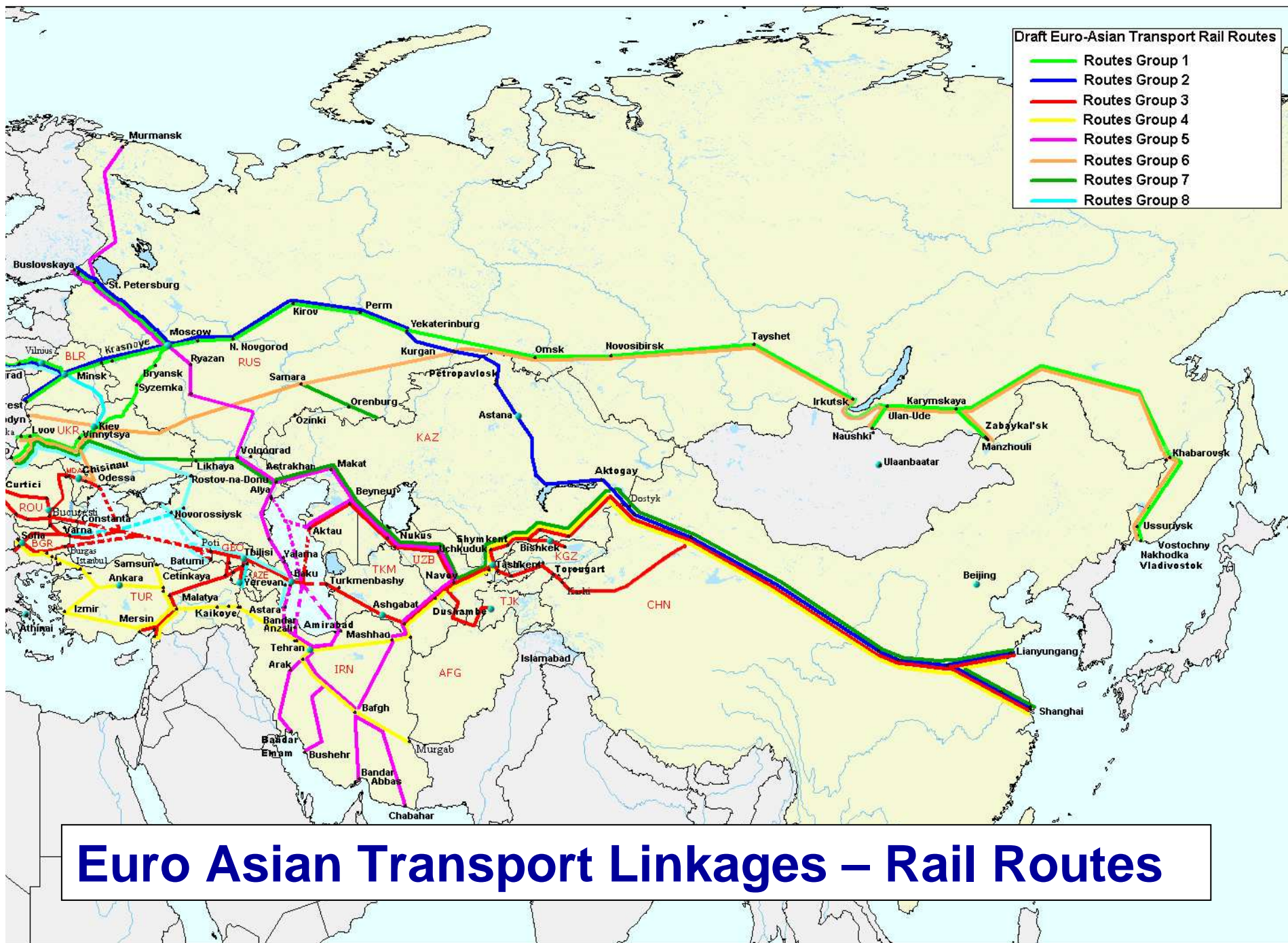
Euro Asian Transport Linkages – Rail Routes

Euro Asian Transport Linkages – Road Routes

First Steps (continued)

- To get a better picture of the status of infrastructure, data was collected from countries through a questionnaire

- GIS consultant consolidated data and put into GIS format

- GIS Database (DB) was finalized and distributed to countries in 2007

However, several limitations…

Limitations of Data

- Incomplete (about 30% missing)

- Inconsistent units of measurements (for example, railway loading gauge "UIC B", 12.2 X 2.44 X 2.66 m, and 3500/5300 mm)

- Some sections have more than one answer (for example, Section A to B has both 2 and 4 lanes).

Limitations with Use of Data

- Project funds insufficient to give all countries MapInfo license, so we provided GIS Database with Mapinfo Proviewer
  - Useful for viewing route maps but very limited functions
- Could not put the GIS DB on the web or make available to wider public.

Limitations with Routes

- Routes were **very useful** in:
  - ☐ Helping countries to focus on international linkages
  - ☐ Ensuring all countries/major ports connected
  - ☐ Providing a reference for negotiation and discussion
  - ☐ Cooperation for coordinated development
- However, **less useful** in:
  - ☐ Knowing which routes are actually used by transport operators
  - ☐ Seeing optimum intermodal combinations

Therefore propose:

1. Keep route-based system but <u>narrow down</u> range of data fields to those which are necessary and easy to collect;

2. <u>Update</u> data / <u>Incorporate</u> data from new countries;

3. <u>Migrate</u> GIS DB into a web-based system or make current DB more user friendly;

4. And <u>consult</u> Transport Operators about our routes.

Next steps 1 and 2: Data

- Secretariat will finalize the data forms with current data, together with clearly defined data fields, and send to National Focal Points (by 20/09/2009):

  - ☐ Route infrastructure data

  - ☐ Border crossing point/station and intermodal data

  - ☐ Investment projects

- National Focal Points are asked to update data and email back to the Secretariat (20/09 – 20/10/2009).

Route	Country	From	To	Length_km	Track_gauge	No_tracks	Traction	Load_gauge	Max_Axle_Load	Missing Links	Bridges <4.5	Tunnels <4.5
1	BEL	Brest (border BLR/POL)	Minsk	608	1520	DT	E		24			
1	BEL	Minsk	Orsha (BLR/RUS)									
1	BEL/RUS	Orsha (BLR/RUS)	Krasnoye (Border RUS/BLR)									
1	RUS	Krasnoye (Border RUS/BLR)	Smolensk	74	1520	DT	E		23.5 - 23.0			
1	RUS	Smolensk	Vyazma	175	1520	DT	E		23.5 - 23.0			
1	RUS	Vyazma	Mozhaisk	133	1520	DT	E		23.5 - 23.0			
1	RUS	Mozhaisk	Moskva	47	1520	DT	E		23.5 - 23.0			
1	RUS	Moskva	Petushki	36	1520	DT	E		23.5 - 22.0			
1	RUS	Petushki	Vladimir	66	1520	DT	E		23.5 - 22.0			
1	RUS	Vladimir	Kovrov	68	1520	DT	E		23.5 - 22.0			
1	RUS	Kovrov	Nizhniy Novgorod	180	1520	DT	E		23.5 - 22.0			
1	RUS	Nizhniy Novgorod	Sukhobezvodnoe	109	1520	DT	E		23.5 - 22.0			
1	RUS	Sukhobezvodnoe	Kotelnich	261	1520	DT	E		23.5 - 22.0			
1	RUS	Kotelnich	Cheptsa	341	1520	DT	E		23.5 - 22.0			
1	RUS	Cheptsa	Perm	206	1520	DT	E		23.5 - 22.0			
1	RUS	Perm	Kuzino	298	1520	DT	E		23.5 - 22.0			
1	RUS	Kuzino	Ekaterinburg	88	1520	DT	E		23.5 - 22.0			
1	RUS	Ekaterinburg	Bazhenovo	56	1520	DT	E		23.5 - 22.0			
1	RUS	Bazhenovo	Bogdanovich	44	1520	DT	E		23.5 - 22.0			
1	RUS	Bogdanovich	Tumen	227	1520	DT	E		23.5 - 22.0			
1	RUS	Tumen	Nazyvaevskaya	423	1520	DT	E		23.5 - 22.0			
1	RUS	Nazyvaevskaya	Omsk	159	1520	DT	E		23.5 - 22.0			
1	RUS	Omsk	Barybinsk	316	1520	DT	E		23.5 - 22.0			

Next steps 3 : Develop Web GIS

- Should be able to view the status of different infrastructure on Maps
  - For example for Rail:
    - Double/single track
    - Electrification/non-electrification
    - Loading gauge, etc.
- Point-to-point data summaries
- Can show information about major investment projects and Intermodal connections
- Countries can update through the web – real time

Query   Analysis   About

☑ Country Profile

Region | Network

- Remote Sensing Images
  - Land and Ocean
  - Night Lights
  - Landuse
- Country Data
- Country Group

		NAME	
✓	✗	Asian Highway	/
✓	✗	Trans-Asian Railways	/
✗	✗	Inland Water Transport	/
✗	✗	Capital Cities	⊗
✗	✗	Airports	✈
✗	✗	Ports	⬛
✗	✗	ICD and Dry Ports	⬛
✗	✗	Major Cities	●
✗	✗	AH Nodes	●

Navigator | Legend | Options

---select group---

Show Table

Time Series

Powered By JTMaps

JT - Asian Highway Information System
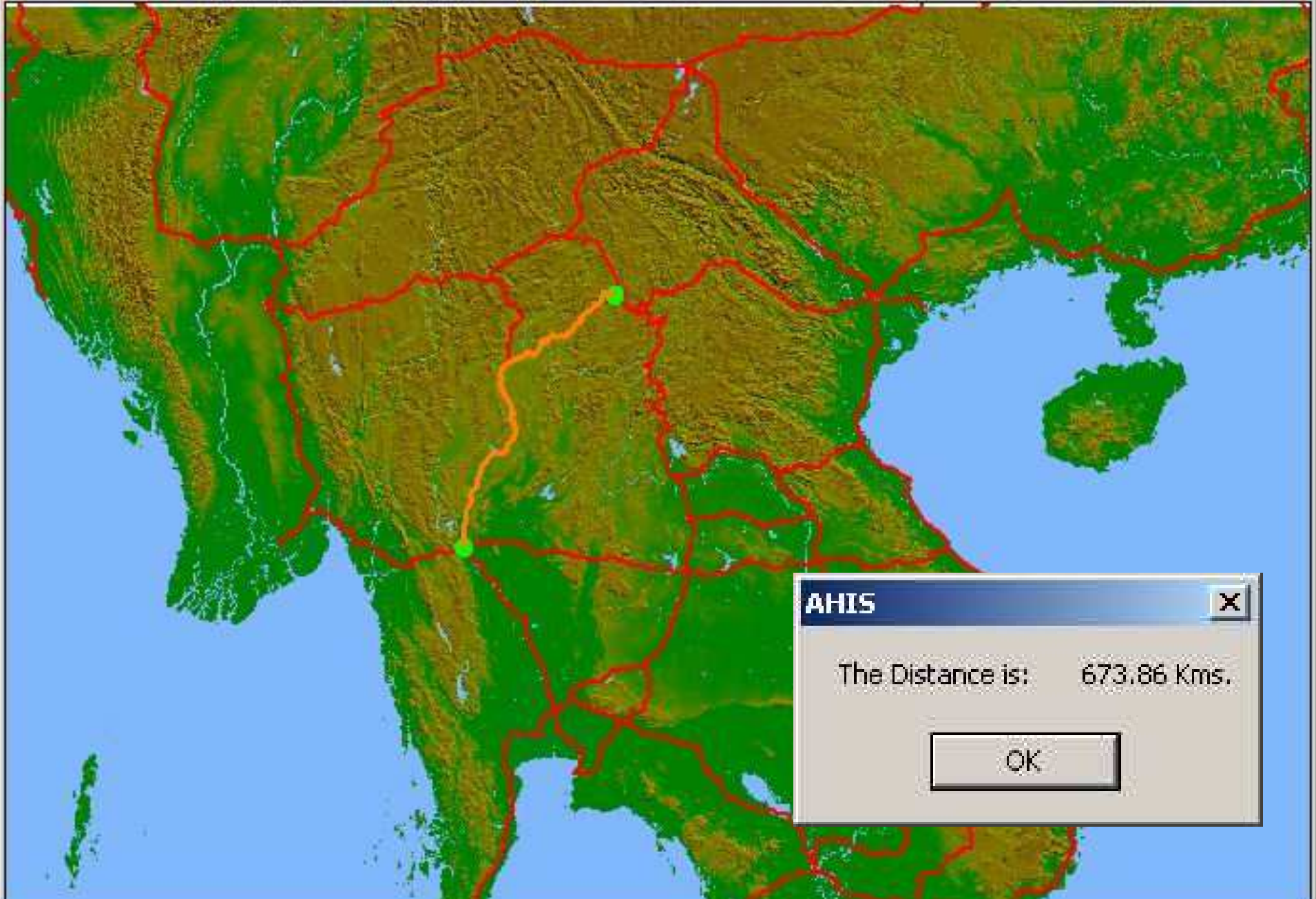
AHIS

The Distance is: 673.86 Kms.

OK

Next steps 4 : Feedback

- We need feedback from representatives of the transport industry about the EATL routes:

  - ☐ For all modes: what are top 5 origins and destinations, and which routes are used?

  - ☐ For rail: what are the scheduled services?

  - ☐ Intermodal aspects: what combinations of modes are used?

  - ☐ Facilitation issues: what are major obstacles and what solutions are proposed? (linked to study on non-physical obstacles under the EATL project)

We must show results:

- GIS Database can show the world what is possible on the Euro-Asian Transport networks
- Participation from Transport Industry will ensure our efforts are in line with theirs
- Expert Group must play a leading role in continuing dialogue and sharing information
- Secretariat can facilitate the process.