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THE EATL MULTI-COUNTRY INVESTMENT PLAN

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Multi-National Infrastructure Investment Programmes

- ⦿ EATL study (and similar ones, i.e TEM/TER) are large multi-national programmes of transport infrastructure projects from many countries with:
 - Varying degree of development and availability of funding sources.
 - Diverse objectives and potentially conflicting priorities.
- ⦿ Assist decision at the strategic level, by relying less on quantitative requirements and more on the integration of different perspectives (technical, societal, political, etc.) at a national, as well as multi-national level.

Need for an innovative and simple approach to investment priorities

- ◎ To successfully link financing on a multi-country investment planning level the following are necessary:
 - A **realistic, “phased” and integrated investment plan/strategy**
 - Adequate information on projects (more than just construction costs and traffic performance), i.e.:
 - long-term and indirect impacts on the mobility of the country/society
 - ability to serve diverse economic and transport needs
 - international connectivity
 - Social, environmental and political consequences

Methodology

- ◎ The goal is to present a consistent and realistic short, medium and long term **investment strategy for prioritizing the identified projects along EATL routes.**
- ◎ It is structured in three phases:
 - **Phase A:** Identification
 - **Phase B:** Analysis
 - **Phase C:** Time Period Classification of projects
- ◎ **Application:**
 - Prioritizes projects likely to be implemented in selected time periods (short term, medium term, long term).
 - Addresses specific objectives of countries and international character of projects.
- ◎ *Same approach employed in TEM and TER Master Plans and has been approved by the international academic community (D. Tsamboulas, “A Tool for prioritizing Multinational Transport Infrastructure Investments”, Transport Policy, Volume 14, Issue 1, January 2007)*

Phase A: Identification

- ◎ Recording of prospective projects based on:
 - their readiness and funding possibilities
 - their common-shared objectives of responsible authorities, national or international
 - the collection of readily available information/ data regarding these projects
- ◎ Data collection employing pre-defined templates
 - Road
 - Rail
 - Inland waterways
 - Ports/inland container depot, intermodal freight terminal, freight village, logistic centre

Example: Template for Road Infrastructure Projects

TEMPLATE 2A – Road and related infrastructure Project Fiche

Project Name:
Project ID:
Network (EATL Route):
Project Description:

Projects Group: *Funded/Unfunded*

Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.

Section 1. Project Technical Characteristics:

1. Location (latitude/longitude or alternatively a map):
2. Start point/node/city
3. End point/node/city
4. Road Class:¹
5. Length (in km):
6. Number of carriageways:
7. Number of lanes:
8. Design Speed (km/h):
9. Annual Average Daily Traffic:²
10. Estimated percentage of freight vehicles:³
11. Annual Average Daily Traffic (passengers):
12. *Annual Average Daily Traffic (tons):*
13. Expected (total) traffic increase (in per cent - *both existing and generated*):
14. Road toll implementation: YES NO

Section 2. Project Information Concerning Criteria of CLUSTER A

15. Is the project serving international connectivity? YES NO

If yes is it expected to:
A: Greatly improve connectivity, B: Significantly improve connectivity, C: Somewhat improve connectivity, D: Slightly improve connectivity, E: Does not improve connectivity.

16. Will the project promote solutions to the particular transit transport needs of the landlocked developing countries? YES NO

If yes is the project providing solutions:
A: Greatly, B: Significantly, C: Somewhat, D: Slightly, E: Does not

17. Will the project connect low income and/or least developed countries to major European and Asian markets? YES NO

If yes is the project providing connection:
A: Greatly, B: Significantly, C: Somewhat, D: Slightly, E: Does not

18. Will the project cross natural barriers, remove bottlenecks, raise substandard sections to meet international standards, or fill missing links in the EATL? YES NO

If yes is the project doing this:
A: Greatly, B: Significantly, C: Somewhat, D: Slightly, E: Does not

19. Will the project have a high degree of urgency due to the importance attributed by the national authorities and/or social interest? YES NO

If yes the projects is:
A: In the national plan and immediately required (for implementation up to 2013), B: In the national plan and very urgent (for implementation up to 2016), C: In the national plan and urgent (for implementation up to 2020), D: In the national plan but may be postponed until after 2020, E: Not in the national plan.

20. Will the project potentially create negative environmental or social impacts (pollution, safety, etc.)? YES NO

If yes the size of the impact is:
A: No impact, B: Slight impact, C: Moderate impact, D: Significant impact, E: Great impact.

Project Information Concerning Criteria of CLUSTER B

21. Project cost (in millions):

22. Expected Starting Date:

23. Expected Completion Date:

24. Internal Rate of Return (IRR):

25. Project's stage: Construction Tendering Study/Design
 Planning Identification

26. Expected Funding Sources (and the percentage of funding for each one):

- a.
- b.
- c.
- d.

¹ If AGR (M=Motorway, E=Express road, O=Ordinary road); if AH (P=Primary, I=Class I, II=Class II, III=Class III), or both if applicable.

² For 2008 and latest year, if available.

³ Freight vehicles include any vehicles used to transport freight, such as trucks and trailers.

Phase B: Analysis

- The objective is to derive scores (degree of performance) for the unfunded –or partly funded- project's for use in the prioritization exercise.
- Application of the well-established Multi-Criteria Analysis approaches, such as the direct analysis of criteria performance, Pair Comparison Matrix and Multi Attribute Utility Theory (MAUT)
- Definition of Criteria
 - CLUSTER A: *Horizontal Dimension: Functionality/ Coherence/Economic Criteria (C_A)- 4 criteria*
 - CLUSTER B: *Vertical Dimension: Socio-environmental efficiency and Maturity Criteria (C_B) 2 criteria*
- Measurement of Criteria - Scores
- Weighting/ Hierarchy of Criteria – Delphi/Pair-wise Comparison (provided by countries' national experts).
- Total score per project (total Performance of Project) $\in [1-5]$.

Criteria

◎ Cluster A:

- Serving international connectivity (reaching a border-crossing point or providing connection to a link that is a border crossing)
- Promoting solutions to the particular transit transport needs of the landlocked developing countries
- Connecting low income and/or least developed countries to major European and Asian markets
- Crossing natural barriers, removing bottlenecks, raising substandard sections to meet international standards, or filling missing links in the network

◎ Cluster B:

- Having a high degree of maturity, in order to be carried out quickly (i.e. project stage)
- Environmental and social impacts

Phase C: Time Period Classification

- **Category I (committed funding-score 5)**
 - projects which have funding secured and are on-going and expected to be completed in the near future (up to 2013)
- **Category II (score 4-5)**
 - projects which may be funded or their plans are approved and are expected to be implemented rapidly (up to 2016)
- **Category III (score 3-4)**
 - projects requiring some additional investigation for final definition before likely financing and implemented (up to 2020)
- **Category IV (score 1-3)**
 - projects requiring further investigation for final definition and scheduling before possible financing, (most likely to be implemented after 2020)
 - projects for which insufficient data existed
- ***Reserve Category: projects of national importance***

Prioritization Results Summary: Russian Federation

		Per Priority Category						
		All	I	II	III	IV	Completed	Reserve
No. of projects		70	13	25		13		19
Cost* of projects		>148.498	18.268	74.757		>19.267		>36.205
Per type of infrastructure	<i>ROD</i>	No. of projects	21	2	15		1	3
		Cost* of projects	89.913	0.243	71.264		0.494	17.911
	<i>RLW</i>	No. of projects	39	6	10		7	16
		Cost* of projects	41.345	0.785	3.493		>18.773	>18.294
	<i>MAR</i>	No. of projects	5				5	
		Cost* of projects	-**				-**	
	<i>INW</i>	No. of projects						
		Cost* of projects						
	<i>INM</i>	No. of projects	5	5				
		Cost* of projects	17.24	17.24				

* in billion US\$

** no cost estimate provided

EATL Phase II Application

- ⦿ The methodology was applied to a total of **311 projects** proposed by the participating countries of total cost **\$215 billion**:
 - 3 were completed (1% of total projects)
 - 188 were Category I projects (60% of total projects to be completed by 2013)
 - 63 were Category II projects (20% of total projects to be completed by 2016)
 - 5 were Category III projects (2% of total projects to be completed by 2020)
 - 52 were Category IV projects (17% of total projects with unknown completion date)
- ⦿ **Prioritisation carried out at:**
 - Country level
 - EATL Road and Rail Route Level
- ⦿ **36% of the funding has been secured.**

EATL Phase II Investment Plan at Country Level

Country	Projects	EATL Projects Implementation Progress					Project Funding
		Completed	Up to 2013	2013-2016	2016-2020	2020-unknown	% Secured
AFG	6	0%	17%	0%	0%	83%	1%
ARM	10	0%	50%	20%	0%	30%	17%
AZE	6	0%	100%	0%	0%	0%	100%
BLR							
BGR	11	9%	73%	9%	0%	9%	93%
CHN	18	0%	44%	50%	6%	0%	57%
FIN							
GEO	16	0%	50%	6%	0%	44%	71%
DEU	5	20%	0%	0%	20%	60%	
GRC	4	0%	100%	0%	0%	0%	100%
IRN	6	0%	83%	17%	0%	0%	65%
KAZ	10	0%	100%	0%	0%	0%	100%
KGZ	7	0%	43%	14%	0%	43%	20%
LVA	16	0%	69%	0%	0%	31%	25%
LTU	48	0%	100%	0%	0%	0%	100%
LUX							
MNG							
PAK	24	4%	42%	42%	4%	8%	56%
MDA	4	0%	50%	0%	25%	25%	49%
ROU	6	0%	67%	17%	0%	17%	42%
RUS	51	0%	25%	49%	0%	25%	16%
TJK	13	0%	54%	0%	0%	46%	55%
FYROM	10	0%	60%	40%	0%	0%	58%
TUR	24	0%	67%	21%	4%	8%	52%
TKM							
UKR	4	0%	75%	25%	0%	0%	71%
UZB	12	0%	83%	17%	0%	0%	69%
EATL NETWORK	Projects	EATL Projects Implementation Progress					% Funding Secured
		Completed	Up to 2013	2013-2016	2016-2020	2020-unknown	
	311	1%	60%	20%	2%	17%	36%

Prioritization of Investment Per EATL Road Route

Road Route Number	Countries	Number of Projects	Project Total Cost (Billion \$)	Non-EU	EU	Priority I Non-EU (Billion \$)	Priority I EU (Billion \$)
1	Germany, Latvia, Lithuania, Russian Federation, Ukraine	28	4,31*	3,343*	0,967*	-*	0,365*
2	China, Germany, Kazakhstan, Lithuania, Russian Federation, Uzbekistan	32	41,935	41,136	0,799	4,690	0,447
3	Bulgaria, China, Germany, Kazakhstan, Lithuania, Russian Fed, Ukraine, Uzbekistan	29	38,539*	38,217*	0,323*	4,750*	0,873*
4	Armenia, Azerbaijan, China, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Uzbekistan	39	2,853*	2,853*	-*	2,761*	-*
5	Afghanistan, Bulgaria, China, FYROM, Greece, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkey	71	24,897*	23,859*	1,037*	13,340*	0,705*
6	Azerbaijan, Kazakhstan, Russian Federation	5	1,434*	1,434*	-*	0,829*	-*
7	Russian Federation	1	0,088	0,088	-	-	-
8	-	-	-	-	-	-	-
9	Russian Federation	1	0,156	0,156	-	0,156	-
		Total Cost	114,212		Priority I Total Cost	15,846	13,068

* Part of total cost

Prioritization of Investment Per EATL Rail Route

Rail Route Number	Countries	Number of Projects	Project Total Cost (Billion \$)	Non-EU	EU	Priority I Non-EU (Billion \$)	Priority I EU (Billion \$)	
1	Germany, Latvia, Lithuania, Russian Federation, Ukraine	50	23,638	21,357	2,282	0,208	1,404	
2	Germany, Kazakhstan, Lithuania, Russian Federation	38	-*	-*	-*	-*	-*	
3	Armenia, Azerbaijan, Bulgaria, the former Yugoslav Republic of Macedonia, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkey, Uzbekistan	35	7,579*	7,579*	-*	1,574*	-*	
4	Bulgaria, FYROM, Greece, Iran, Kazakhstan, Pakistan, Turkey, Uzbekistan	27	32,739*	25,873*	6,866*	15,235*	6,866*	
5	Iran, Russian Federation, Uzbekistan	17	4,510*	4,510*	-	2,314*	-	
6	Germany, Russian Federation, Ukraine	3	0,013*	0,013*	-*	0,013*	-	
7	Kazakhstan, Ukraine, Uzbekistan	7	-*	-*	-	-*	-	
8	Armenia, Azerbaijan, Georgia, Latvia, Lithuania, Russian Federation, Ukraine	29	2,084*	0,089*	1,995*	0,041*	-	
9	Russian Federation, Tajikistan, Uzbekistan	19	0,638*	0,638*	-	0,415*	-	
			Total Cost	71,202		Priority I Total Cost	19,801	8,270

* Part of total cost

Conclusions

- ⦿ Useful tool for **decision making at strategic level** and for prioritizing multi-national investments.
- ⦿ Multi-dimensional ex-ante evaluation framework for transport infrastructure investment programmes, employing criteria addressing different aspects of all transport projects/countries.
- ⦿ Appropriate for multi-national infrastructure investment projects:
 - Develops an integrated time plan for the realization of such large investments in different countries.
 - cross-evaluation of the projects between the participating countries, avoiding the necessity of a rigorous feasibility study for each individual project.
 - Takes into account the different countries' objectives and priorities, as well as the available resources.
 - Aims at the realisation of a coherent multi-national network.
- ⦿ Cost and time effective, carried out in a short time period and with limited data.
- ⦿ Allows for possible funding scenarios/other strategies to be developed for those projects for which there is no secured financial coverage.

**Thank you for your
attention!**