

Application results of the methodology for prioritization of investment projects along selected Euro-Asian routes

1. Introduction

As analytically described in **Document 7. Proposed methodology for prioritization of investment projects along selected Euro-Asian routes**, of the 3rd Expert Group Meeting¹ on Developing Euro-Asian Transport Linkages, all projects to be considered should pass from structured evaluation and prioritisation methodology.

The methodology has three main phases:

PHASE A – Identification



PHASE B – Evaluation



PHASE C – Prioritisation

Identification: the initial screening process that grouped projects in two groups, those with committed funding and those without committed funding.

Evaluation of projects without committed funding with respect to more specific evaluation criteria.

Prioritisation of the projects -based on the screening process and the evaluation results- in order to classify them into four specific Priority Categories (I, II, III, IV).

It has to be noted that projects with no sufficient data/information were not possible to pass the identification phase and were directly placed in to a “Reserve Priority Category”.

The whole exercise was based on the countries’ reports.

2. Methodology and Assumptions

2.1 PHASE A - Project Identification

Within the identification phase, projects were grouped according to whether they have committed funding or not. If a project has already secured necessary funding, there was a scope for collecting some additional data (“project technical specifications”) but there was no need for the evaluation exercise. They were directly prioritised as Priority Category I.

Based on the country reports, the consultants completed TEMPLATE 1², which contained the list of projects proposed in their country reports.

Then the countries were requested to further elaborate this list of projects in case they wished and then for each project listed in TEMPLATE 1 they were requested to complete the respective TEMPLATES 2, in the following manner

¹ 27 – 29 June 2005, Istanbul, Turkey

² All TEMPLATES can be found in ANNEX I

- a) For projects with funding committed, only some additional technical information should be completed (Section 1 of TEMPLATE 2).
- b) For projects without funding committed, additional technical information and evaluation criteria questionnaire should be completed (Section 1 and Section 2, respectively, of TEMPLATE 2).
- c) For newly proposed projects, complete all necessary information in TEMPLATE 2.

2.2 PHASE B - Evaluation

Criteria selection

The still very preliminary level of definition of most of the unfunded projects, the lack of precise information on the present situation, the imperfect knowledge of transport demand perspectives, the large array in types of projects as well as the specific objectives of EATL, mitigate in favour of utilizing a Multi-Criteria Analysis, instead of any other method, to compare and evaluate the identified projects.

Such a method allows available information to be taken into account on projects, even at their very preliminary level of definition, as well as background data.

The specific evaluation criteria were developed in two “dimensions”:

- the horizontal dimension called “Functionality/ Coherence” expresses the role of the project in the functionality and coherence of the Euro-Asian Transport Linkages.
- the vertical dimension called “Socio-economic Efficiency/ Sustainability” expresses the socio-economic return on investment.

Under these two fundamental orientations of the evaluation process, the following criteria have been introduced, which are aimed at covering all of the objectives and specifics relating to the EATL exercise. The criteria were identified during the 2nd Expert Group Meeting.

CLUSTER A - Horizontal Dimension: Functionality/ Coherence Criteria (C_A)

- Serve international connectivity (reaching a border crossing point or provide connection with a link that is border crossing); (C_{A1})
- Promote solutions to the particular transit transport needs of the landlocked developing countries; (C_{A2})
- Connect low income and/or least developed countries to major European and Asian markets; (C_{A3})
- The project crosses natural barriers, removes bottlenecks, raises substandard sections to meet international standards, or fills missing links in the EATL; (C_{A4})

CLUSTER B - Vertical Dimension: Socio-economic Efficiency and Sustainability Criteria (C_B)

- Have high degree of urgency due to importance attributed by the national authorities and/or social interest; (C_{B1})
- Pass economic viability test; (C_{B2})
- Have a high degree of maturity, in order to be carried out quickly (i.e. project stage); (C_{B3})
- Financing feasibility (C_{B4})
- Environmental and social impacts (C_{B5})

Criteria measurement

Criteria were first quantified in a physical scale, for each of the projects under consideration, by direct classification according to measurable characteristics, and by “quality attributes”. The physical scale of criteria measurement was derived by the consultant based on his experience from similar studies. (see example below)

Criterion C_{A1}

Serve international connectivity (reaching a border crossing point or provide connection with a link that is border crossing);

Physical scale/possible answers:

A: Greatly improves connectivity, **B:** Significantly improves connectivity, **C:** Somewhat improves connectivity, **D:** Slightly improves connectivity, **E:** Does not improve connectivity.

Criteria scores

The direct classification was performed by the countries’ (the national representatives in the EATL project) by completing the evaluation criteria questionnaire (Section 2 of TEMPLATE 2). *The form of the evaluation questionnaire and the measurement for the above criteria can be seen in ANNEX I.*

Then -according to the completed evaluation questionnaires- the transformation of criterion scores to the artificial scale took place. According to the quantification of criteria the A value is 5 (the highest) in terms of score and respectively for value E, is 1 (the lowest).

Therefore:

$$C_{ji} \in [1,5]$$

Where:

J = A or B and

i = 1, ..., 5

It has to be noted here, that the good communication between the externals and the country experts is necessary in order to quantify as good as possible all the criteria. Nonetheless, for unfunded projects that no answers were provided in the evaluation questionnaire, the lowest scores were assigned.

Weighting/ Hierarchy of Criteria

Having the criteria scores, the evaluation of projects is complete. But in order to proceed with the prioritization of projects criteria weights must be defined.

By using Paired Comparison Method weights were derived (the complete description of the method can be found in ANNEX II). According to “policy” priorities set out from the interviewed experts (the consultants, UNECE and UNESCAP) pair wise comparisons of all criteria were made

A standard axiom of most of multicriteria methods is that the sum of criteria weights should be 1.

Therefore:

$$W_{Ji} \in [0,1] \text{ and}$$

$$\sum_{J=A}^C \sum_{i=1}^5 W_{Ji} = 1$$

where:

$$J = A \text{ or } B \text{ and}$$

$$i = 1, \dots, 5$$

It has to be noted here, that countries (though national representatives) may provide their own weights, with the proper justification of course.

2.3 PHASE D - Prioritization

Projects' total score

To prioritize the projects, we first had to obtain their final/ total scores. This was purely a responsibility of the Consultant.

To derive the project's **total score in each country** the consultant used linear additive model. The Total Score – for all dimensions together - of each project **in each country** will be the weighted sum of the criteria scores and takes values between 1 (the lowest) and 5 (the highest).

To derive the project's **total score in each country** we use the following relationship:

$$T.S.\text{Project/Country} = \sum_{J=A}^C \sum_{i=1}^5 C_{Ji} * W_{Ji}$$

where:

$$C_{Ji} \in [1,5]$$

$$W_{Ji} \in [0,1]$$

$$J = A \text{ or } B \text{ and}$$

$$i = 1, \dots, 5$$

Therefore:

$$TS_{\text{Project/Country}} \in [1,5]$$

Projects' priorities

The combination of the criterions scores and priorities puts each project in one of the four priority categories or reserve category.

If the project already has committed funding, it belongs to priority category **I**.

If the project scores between 4-5 then it belongs to priority category **II**.

If the project scores 3 -4 then it belongs to priority category **III**.

If the project scores 1 -3 then it belongs to priority category **IV**.

If the project has not pass the pre-selection phase then it belongs to reserve category.

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The classification of priorities is:

- **I:** projects, which have funding secured and are ongoing or planned and are expected to be completed in the near future (up to 2010).
- **II:** projects which may be funded and implemented rapidly (up to 2015).
- **III:** projects requiring some additional investigations for final definition before likely financing (up to 2020).
- **IV:** projects requiring further investigations for final definition and scheduling before possible financing
- **Reserve:** projects to be implemented in the long run, including the projects where insufficient data existed.

3. Results

3.1 Data submitted by the countries

Out of the 18 countries participating in this project, 15 countries have submitted data on the projects under evaluation.

Countries that submitted data:

Armenia, Azerbaijan, Belarus, Bulgaria, China, Georgia, Islamic Republic of Iran, Kazakhstan, Kyrgyzstan, Moldova, Romania, , Tajikistan, Turkey, Ukraine, Uzbekistan.

Countries not submitting data:

Afghanistan, Russian Federation, Turkmenistan

Each project is identified with a unique **Project ID** specifying the country, the transport mode and a specific number.

The following abbreviations were introduced for country identification in Project ID:

Afghanistan (AFT), Armenia (ARM), Azerbaijan (AZT), Belarus (BL), Bulgaria (BG), China (CH), Georgia (GE), Islamic Republic of Iran (IR), Kazakhstan (KZ), Kyrgyzstan (KG), Moldova (MD), Romania (RO), Russian Federation (RU), Tajikistan (TJK), Turkey (TU), Turkmenistan (TM), Ukraine (UKR), Uzbekistan (UZB).

The following abbreviations were introduced for type of infrastructure identification in Project ID:

Road projects (ROD), Railway project (RLW), Maritime projects (MAR), Inland waterway project (INL). Inland/border crossing and other projects (INM).

So a project with an ID such as AZT-RLW-1 is thus railway project number 1 in Azerbaijan.

In total 230 projects were included in this phase for a total value of \$ 42.02 bill. of which:

- **112 road projects for a total value of \$ 11.9 bill.**
- **68 railway projects for a total value of \$ 22.7 bill.**
- **37 maritime projects for a total value of \$ 5.7 bill.**
- **11 inland waterway projects for a total value of \$ 1.6 bill and**
- **2 inland/border crossing etc. projects for a total value of \$ 0,003 bill.**

The respective numbers per country are shown below in Table 1.

Table 1 Data submitted by countries for all projects and per type of infrastructure (*number of projects and costs in mio. \$*)

Country code	All types of projects		Per type of infrastructure									
			ROD		RLW		MAR		INW		INM	
	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects	No. of projects	Cost of projects
ARM	8	121,7	3	56,4	5	65,3	-	-	-	-	-	-
AZT	10	1.681,5	7	1.079,1	1	600,0	2	2,4	-	-	-	-
BL	4	28,1	3	27,4	1	0,7	-	-	-	-	-	-
BG	24	4.087,4	15	763,2	7	3.179,2	1	145	1	n.a.	-	-
CH	3	4.603,0	1	413,0	-	-	2	4.190,0	-	-	-	-
GE	49	3.312,0	4	108,2	21	2.140,5	24	1.063,3	-	-	-	-
IR	44	8.428,3	34	3.700,3	10	4.728,0	-	-	-	-	-	-
HZ	14	1.902,4	14	1.902,4	-	-	-	-	-	-	-	-
KG	8	1.555,1	5	218,7	3	1.336,4	-	-	-	-	-	-
MD	9	888,9	5	225,5	3	413,4	-	-	1	250,0	-	-
RO	12	721,8	-	-	-	-	7	333,3	5	388,5	-	-
TJK	7	240,2	4	237,0	1	-	-	-	-	-	1	3,1
TU	19	19.728,7	12	3.124,0	7	8.326,0	-	-	-	-	-	-
UKR	7	1.226,2	-	-	2	292,6	1	1,5	4	932,2	-	-
UZB	12	1.774,5	5	100,8	7	1.673,7	-	-	-	-	-	-
Total	230	42.021,10	112	11.956,07	68	22.755,82	37	5.735,45	11	1.570,65	2	3,12

* Table includes only the countries that sent data.

3.2 Prioritization results – including simple cost analysis

The prioritization results can be found in the excel file “**Prioritization exercise_results.xls**”.

More analytically, in this excel file the following analysis has taken place:

- In the respective worksheets with countries’ names, the results (as well as all the calculus process) of prioritization can be found for each country.

In each of these “country name” sheets a note is provided (at the bottom of the page) from the consultant in order to make easier understanding the calculation process.

- In the worksheet “**All priorities**” all projects (regardless their priority) are summarized along with their costs.

In this worksheet, for each country, each project presents:

- (a) a **project ID** column,
- (b) a **description** column, in which the title of the project is presented as given by the relevant countries,
- (c) a **cost** column representing the total cost of the project (in mio \$ and in some cases in mio €)
- (d) a **score** column representing the result of the multicriteria evaluation (results are based on a scale between 1 and 5 where 5 represents the highest possible score and 1 the least possible score), and
- (e) the **category** column where is the project's priority, which results from the score.

- In the worksheets “**Direct Priority I**”, “**Priority II**”, “**Priority III**” and “**Priority IV**”, the projects are summarized per priority category in the same way as in the worksheet “**All priorities**”.
- In the worksheet “**Simple statistics_Summary**”, the “statistical” summary of results of prioritization can be found (% of projects belonging in each priority category for all projects and per type of infrastructure) and
- In the worksheet “**Cost statistics**”, the costs of projects are presented. For all projects and per type of projects as well as for all countries and on a country level, both in raw numbers and in %).

All the above are also presented in short next in this document.

Prioritization results and cost analysis - per country (in raw numbers)

Armenia (ARM)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			8	5			3	
Cost* of projects			121,7	71,7			50	
Per type of infrastructure	ROD	No. of projects	3	3				
		Cost* of projects	56,4	56,4				
	RLW	No. of projects	5	2			3	
		Cost* of projects	65,3	15,3			50	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

Azerbaijan (AZT)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			10	9			1	
Cost* of projects			>1681,5	1681,5			n.a.***	
Per type of infrastructure	ROD	No. of projects	7	7				
		Cost* of projects	1079,1	1079,1				
	RLW	No. of projects	1	1				
		Cost* of projects	600	600				
	MAR	No. of projects	2	1			1	
		Cost* of projects	>2,4	2,4			n.a.***	
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

*** No cost estimate was provided.

Belarus (BL)

			All	Per Priority Category				
				I	II	III	IV	Reserve
No. of projects			4	4				
Cost* of projects			28,1	28,1				
Per type of infrastructure	ROD	No. of projects	3	3				
		Cost* of projects	27,4	27,4				
	RLW	No. of projects	1	1				
		Cost* of projects	0,7	0,7				
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

Bulgaria (BG)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			24	18	0	3	3	
Cost* of projects			4.987,4	3.569,4		518,1	n.a.	
Per type of infrastructure	ROD	No. of projects	15	10		3	2	
		Cost* of projects	763,2	245,2		518,1	n.a.	
	RLW	No. of projects	7	7				
		Cost* of projects	3.179,2	3.179,2				
	MAR	No. of projects	1	1				
		Cost* of projects	145	145				
	INW	No. of projects	1				1	
		Cost* of projects	n.a.				n.a.	
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

China (CH)

			All	Per Priority Category				
				I	II	III	IV	Reserve
No. of projects			3	1	2			
Cost* of projects			4603	413	4190			
Per type of infrastructure	ROD	No. of projects	1	1				
		Cost* of projects	413	413				
	RLW	No. of projects						
		Cost* of projects						
	MAR	No. of projects	2		2			
		Cost* of projects	4190		4190			
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

Georgia (GE)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			49	4			45	
Cost* of projects			3312	108,2			3203,8	
Per type of infrastructure	ROD	No. of projects	4	4				
		Cost* of projects	108,2	108,2				
	RLW	No. of projects	21				21	
		Cost* of projects	2140,5				2140,5	
	MAR	No. of projects	24				24	
		Cost* of projects	1063,3				1063,3	
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

Islamic Republic of Iran (IR)

		All	Per Priority Category				Reserve	
			I	II	III	IV		
No. of projects		44	36	5	3			
Cost* of projects		8428,3	4580,3	2238	1610			
Per type of infrastructure	ROD	No. of projects	34	31	2	1		
		Cost* of projects	3700,3	2900,3	640	160		
	RLW	No. of projects	10	5	3	2		
		Cost* of projects	4728	1680	1598	1450		
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
INM	No. of projects							
	Cost* of projects							

*All costs in mio \$

Kazakhstan (KZ)

		All	Per Priority Category				Reserve	
			I	II	III	IV		
No. of projects		14	14					
Cost* of projects		1902,4	1902,4					
Per type of infrastructure	ROD	No. of projects	14	14				
		Cost* of projects	1902,4	1902,4				
	RLW	No. of projects						
		Cost* of projects						
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
INM	No. of projects							
	Cost* of projects							

*All costs in mio \$

Kyrgyzstan (KG)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			8	5			3	
Cost* of projects			1555,1	218,7			1336,4	
Per type of infrastructure	ROD	No. of projects	5	5				
		Cost* of projects	218,7	218,7				
	RLW	No. of projects	3				3	
		Cost* of projects	1336,4				1336,4	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

Moldova (MD)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			9	2			7	
Cost* of projects			888,9	272			616,9	
Per type of infrastructure	ROD	No. of projects	5				5	
		Cost* of projects	225,5				225,5	
	RLW	No. of projects	3	1			2	
		Cost* of projects	413,4	22			391,4	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects	1	1				
		Cost* of projects	250	250				
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

Romania (RO)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			12	6	1		5	
Cost* of projects			721,8	263	201,6		257,2	
Per type of infrastructure	ROD	No. of projects						
		Cost* of projects						
	RLW	No. of projects						
		Cost* of projects						
	MAR	No. of projects	7	3			4	
		Cost* of projects	333,3	104,9			228,4	
	INW	No. of projects	5	3	1		1	
		Cost* of projects	388,5	158,1	201,6		28,8	
	INM	No. of projects						
		Cost* of projects						

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

Tajikistan (TJK)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			7	2			5	
Cost* of projects			>240,2	3,1			>237	
Per type of infrastructure	ROD	No. of projects	4				4	
		Cost* of projects	237				237	
	RLW	No. of projects	1				1	
		Cost* of projects	n.a.***				n.a.***	
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
	INM	No. of projects	2	2				
		Cost* of projects	3,1	3,1				

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

*** No cost estimate was provided.

Turkey (TU)

			All	Per Priority Category				
				I	II	III	IV	Reserve
No. of projects			19	9	5	5		
Cost* of projects			>11450	6172	5278	n.a.**		
Per type of infrastructure	ROD	No. of projects	12	7		5		
		Cost* of projects	>3124	3124		n.a.***		
	RLW	No. of projects	7	2	5			
		Cost* of projects	8326	3048	5278			
	MAR	No. of projects						
		Cost* of projects						
	INW	No. of projects						
		Cost* of projects						
INM	No. of projects							
	Cost* of projects							

*All costs in mio \$

** No cost estimate was provided.

Ukraine (UKR)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			7	5			2	
Cost* of projects			1226,2	475,2			751	
Per type of infrastructure	ROD	No. of projects						
		Cost* of projects						
	RLW	No. of projects	2	2				
		Cost* of projects	22,6	292,6				
	MAR	No. of projects	1	1				
		Cost* of projects	1,5	1,5				
	INW	No. of projects	4	2			2	
		Cost* of projects	932	181,15			751	
INM	No. of projects							
	Cost* of projects							

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

Uzbekistan (UZB)

		All	Per Priority Category				Reserve
			I	II	III	IV	
No. of projects		12	10		2		
Cost* of projects		1774,5	844,2		930,3		
Per type of infrastructure	ROD	No. of projects	5	5			
		Cost* of projects	100,8	100,8			
	RLW	No. of projects	7	5		2	
		Cost* of projects	1673,7	743,4		930,3	
	MAR	No. of projects					
		Cost* of projects					
	INW	No. of projects					
		Cost* of projects					
INM	No. of projects						
	Cost* of projects						

*All costs in mio \$

Prioritization results and cost analysis – for all countries (in raw numbers)

All Countries

		All	Per Priority Category				Reserve	
			I	II	III	IV**		
No. of projects		230	130	16	13	72	-	
Cost* of projects		42.021,	20.602,7	13.244	3.058,3	5.115,9	-	
Per type of infrastructure	ROD	No. of projects	112	90	2	9	12	-
		Cost* of projects	11.956	10.175,4	640	678,05	462,55	-
	RLW	No. of projects	68	26	11	4	27	-
		Cost* of projects	22.755,8	9.581,2	8.212,4	2.380,3	2.581,9	-
	MAR	No. of projects	37	6	2	-	29	-
		Cost* of projects	5.735,45	253,75	4.190	-	1.291,7	-
	INW	No. of projects	11	6	1	-	4	-
		Cost* of projects	1.570,65	589,25	201,60	-	779,80	-
INM	No. of projects	2	2	-	-	-	-	
	Cost* of projects	3,12	3,12	-	-	-	-	

*All costs in mio \$

**Projects received priority categorisation IV, due to lack of data

Prioritization results and cost analysis – for all countries (in statistics)

Based on the latest presented Table (right above), we can support the following:

(a) *Statistics concerning projects' type and cost*

- **48,7%** of the Projects are **Road projects**, for a **total value of 11.956,07 mio\$**, representing **28,45%** of the total investment cost.
- **29,6%** of the Projects are **Railway projects**, for a **total value of 22.755,82 mio\$**, representing **54,15%** of the total investment cost.

- **16,1%** of the Projects are **Maritime projects**, for a **total value of 5.735,45 mio\$**, representing **13,65% of the total investment cost**.
- **4,8%** of the Projects are **Inland waterway projects**, for a **total value of 1.570,65 mio\$**, representing **3,74% of the total investment cost**.
- **0,9%** of the Projects are **Inland/Cross border (etc.) projects**, for a **total value of 3,12 mio\$**, representing **0,01% of the total investment cost**.

(b) Statistics concerning projects' priorities and cost

- **56,5%** of the Projects belong to **Priority Category I**, for a **total value of 20.602,79 mio\$**, representing **49,03% of the total investment cost**.
(These projects have secured funding)
- **7%** of the Projects belong to **Priority Category II**, for a **total value of 13.244,02 mio\$**, representing **31,52% of the total investment cost**.
(For these projects funding was not secured but the national representatives have sent sufficient data/answers on criteria valuation and thus it was possible to perform multi-criteria evaluation method and derive priority)
- **5,7%** of the Projects belong to **Priority Category III**, for a **total value of 3.058,35 mio\$**, representing **7,28% of the total investment cost**.
(For these projects funding was not secured but the national representatives have sent sufficient data/answers on criteria valuation and thus it was possible to perform multi-criteria evaluation method and derive priority)
- **31,3%** of the Projects belong to **Priority Category IV**, for a **total value of 5.115,95 mio\$**, representing **12,17% of the total investment cost**.
(For these projects funding was not secured and the national representatives have not sent sufficient data/answers on criteria valuation and thus the consultant being unauthorized to valuate criteria, assigned directly the lowest score and derived the lowest priority)

The respective percentages per project type are:

(b₁) Statistics concerning Road Projects' priorities and cost

- (a) **80,4%** of the Road projects belong to **Priority Category I**, for a **total value of 10.175,47mio\$**, representing **85,11% of the total investment cost for Road projects**.
- (b) **1,8%** of the Road projects belong to **Priority Category II**, for a **total value of 640 mio\$**, representing **5,35% of the total investment cost for Road projects**.
- (c) **8 %** of the Road projects belong to **Priority Category III**, for a **total value of 678,05 mio\$**, representing **5,66% of the total investment cost for Road projects**.
- (d) **10,7%** of the Road projects belong to **Priority Category IV**, for a **total value of 462,55 mio\$**, representing **3,87% of the total investment cost for Road projects**.

(b₂) Statistics concerning Railway Projects' priorities and cost

- (a) **38,2%** of the Railway projects belong to **Priority Category I**, for a **total value of 9.581,2 mio\$**, representing **42,1% of the total investment cost for Railway projects**.
- (b) **16,2%** of the Railway projects belong to **Priority Category II**, for a **total value of 8.212,42 mio\$**, representing **36,09% of the total investment cost for Railway projects**.
- (c) **5,9%** of the Railway projects belong to **Priority Category III**, for a **total value of 2.380,3 mio\$**, representing **10,46% of the total investment cost for Railway projects**.
- (d) **39,7%** of the Railway projects belong to **Priority Category IV**, for a **total value of 2.581,9 mio\$**, representing **11,35% of the total investment cost for Railway projects**.

(b₃) Statistics concerning Maritime Projects' priorities and cost

- (a) **16,1%** of the Maritime projects belong to **Priority Category I**, for a **total value of 253,75 mio\$**, representing **4,42% of the total investment cost for Maritime projects**.
- (b) **5,4%** of the Maritime projects belong to **Priority Category II**, for a **total value of 4.190 mio\$**, representing **73,05% of the total investment cost for Maritime projects**.
- (c) **78,4%** of the Maritime projects belong to **Priority Category IV**, for a **total value of 1.291,7 mio\$**, representing **22,52% of the total investment cost for Maritime projects**.

(b₄) Statistics concerning Inland waterway Projects' priorities and cost

- (a) **54,5%** of the Inland waterway projects belong to **Priority Category I**, for a **total value of 589,25 mio\$**, representing **37,52% of the total investment cost for Inland waterway projects**.
- (b) **9,1%** of the Inland waterway projects belong to **Priority Category II**, for a **total value of 201,6 mio\$**, representing **12,84% of the total investment cost for Inland waterway projects**.
- (c) **36,4 %** of the Inland waterway projects belong to **Priority Category IV**, for a **total value of 779,8 mio\$**, representing **49,65% of the total investment cost for Inland waterway projects**.

(b₅) Statistics concerning Inland/Border crossing (etc.) Projects' priorities and cost

- (a) **100%** of the Inland/Border crossing (etc.) projects belong to **Priority Category I**, for a **total value of 3,12 mio\$**.

ANNEXES

- Annex I:** Data Templates
- Annex II:** Pair Comparison Weighting Technique

TEMPLATES 2 –Projects Fiches /Section 1

TEMPLATE 2A – Road and related infrastructure Project Fiche	
Project Name:	
Project Code	
Projects Group (please select): <input type="checkbox"/> Funded <input type="checkbox"/> Non-funded	
Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.	
Section 1. Project Technical Characteristics and financial data (<i>Please describe technical design characteristics of <u>existing</u> situation and <u>after</u> project, if changed</i>):	
1. Description of project and expected benefits:	
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude: Longitude: Int'l reference:
3. Road Class ¹ :	
4. Length (in km):	
5. Number of carriageways:	
6. Number of lanes:	
7. Design Speed (km/h):	
8. Road toll implementation:	<input type="checkbox"/> YES <input type="checkbox"/> NO
9. Annual Average Daily Traffic (for year 2000 or latest year, if available):	
10. Estimated % of freight vehicles ² (for year 2000 or latest year, if available):	
11. Expected (total) traffic increase in %:	
12. Project cost (please indicate million \$ or Euros):	
13. Expected Starting Date:	
14. Expected Completion Date:	
15. Internal Rate of Return (IRR):	
16. Project's stage:	<input type="checkbox"/> Construction <input type="checkbox"/> Tendering <input type="checkbox"/> Design/Study <input type="checkbox"/> Planning <input type="checkbox"/> Identification
17. Expected Funding Sources (and the % of funding for each one):	a. b. c.
Notes:	
¹ If AGR (<i>M</i> =Motorway, <i>E</i> =Express road, <i>O</i> =Ordinary road); if AH (<i>P</i> =Primary, <i>I</i> = Class I, <i>II</i> = Class II, <i>III</i> =Class III), or both if applicable.	
² Freight vehicles include any vehicles used to transport freight, such as trucks and trailers.	

TEMPLATE 2B – Rail and related infrastructure Project Fiche	
Project Name:	
Project Code:	
Projects Group (please select): <input type="checkbox"/> Funded <input type="checkbox"/> Non-funded	
Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.	
Section 1. Project Technical Characteristics and financial data (Please describe technical design characteristics of <u>existing</u> situation and <u>after</u> project, if changed):	
1. Description of project and expected benefits:	
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude: Longitude: Int'l reference:
3. Length (in km):	
4. Track gauge (mm):	
5. No of tracks:	
6. Traction:	<input type="checkbox"/> Electrified <input type="checkbox"/> Non-Electrified
7. Signaling type:	<input type="checkbox"/> Automatic <input type="checkbox"/> Manual
8. Maximum allowed speed - passenger trains:	
9. Maximum allowed speed - freight trains:	
10. Average Daily Train Traffic - Passenger trains (for year 2000 or latest year, if available):	
11. Average Daily Train Traffic - Freight trains: (for year 2000 or latest year, if available):	
12. Expected (total) traffic increase, in % :	
13. Volume of cargo moved -tones and TEUs (for year 2000 or latest year, if available):	
14. Project cost (please indicate million \$ or Euros):	
15. Expected Starting Date:	
16. Expected Completion Date:	
17. Internal Rate of Return (IRR):	
18. Project's stage:	<input type="checkbox"/> Construction <input type="checkbox"/> Tendering <input type="checkbox"/> Design/Study <input type="checkbox"/> Planning <input type="checkbox"/> Identification
19. Expected Funding Sources (and the % of funding for each one):	a. b. c.

TEMPLATE 2C – Inland waterways and related infrastructure Project Fiche	
Project Name:	
Project Code:	
Projects Group (please select): <input type="checkbox"/> Funded <input type="checkbox"/> Non-funded Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.	
Section 1. Project Technical Characteristics and financial data (Please describe technical design characteristics of <u>existing</u> situation and <u>after</u> project, if changed):	
1. Description of project and expected benefits:	
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude: Longitude: Int'l reference:
3. Length (in km):	
4. Maximum admissible LNWL ¹ :	
5. Minimum bridge clearance at HNWL ² :	
6. Lock dimensions:	
7. Permitted operational speed (km/h):	
8. Yearly vessel traffic (for year 2000 or latest year, if available):	
9. Expected (total) traffic increase (in % - both existing and generated):	
10. Project cost (please indicate mil. \$ or Euros):	
11. Expected Starting Date:	
12. Expected Completion Date:	
13. Internal Rate of Return (IRR):	
14. Project's stage:	<input type="checkbox"/> Construction <input type="checkbox"/> Tendering <input type="checkbox"/> Design/Study <input type="checkbox"/> Planning <input type="checkbox"/> Identification
15. Expected Funding Sources (and the % of funding for each one):	a. National budget (28%) b. EBRD credit (72%)
<i>Notes:</i> ¹ <i>Low Navigable Water Level</i> ² <i>Highest Navigable Water Level</i>	

TEMPLATE 2D – Ports (sea and inland waterway), Inland container depot/Intermodal freight terminal/Freight village/Logistic centre and related infrastructure Project Fiche	
Project Name:	
Project Code:	
Projects Group (please select): <input type="checkbox"/> Funded <input type="checkbox"/> Non-funded	
Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.	
Project Type: <input type="checkbox"/> Sea Port <input type="checkbox"/> Inland Waterway Port <input type="checkbox"/> Inland Container Depot	
<input type="checkbox"/> Intermodal Freight Terminal <input type="checkbox"/> Freight Village/Logistic Center	
Section 1. Project Technical Characteristics and financial data (Please describe technical design characteristics of <u>existing</u> situation and <u>after</u> project, if changed):	
1. Description of project and expected benefits:	
2. Location: (latitude/longitude, international reference, or indicate on a map):	Latitude: Longitude: Int'l reference:
3. Maximum draft of vessels served (in m) – PORTS ONLY:	
4. Container handling capacity (TEU/day):	
5. Annual throughput (tonnes and TEUs-for the year 2000 and latest year, if available):	
6. Expected (total) traffic increase (in %-both existing and generated):	
7. Additional, specific technical characteristics of the project:	
8. Project cost (please indicate million \$ or Euros):	
9. Expected Starting Date:	
10. Expected Completion Date:	
11. Internal Rate of Return (IRR):	
12. Project's stage:	<input type="checkbox"/> Construction <input type="checkbox"/> Tendering <input type="checkbox"/> Design/Study <input type="checkbox"/> Planning <input type="checkbox"/> Identification
13. Expected Funding Sources (and the % of funding for each one):	a. Self-financing (please specify how) b. c.

TEMPLATES 2 –Projects Fiches /Section 2

To be completed only for NON-FUNDED projects on the Euro-Asian Transport Linkages. Please fill in one form for each project, clearly indicating project name and code.

Project Name:
Project Code:
Section 2 To be completed only for non-funded projects
Section 2.A. Project Information Concerning Criteria of CLUSTER A
1. To what extent does the project improve international connectivity (for example, by reaching a border-crossing point or providing connection with a link that is border crossing; (Criterion C _{A1})? <input type="checkbox"/> A: Greatly <input type="checkbox"/> B: Significantly <input type="checkbox"/> C: Somewhat <input type="checkbox"/> D: Slightly <input type="checkbox"/> E: Does not improve connectivity.
2. To what extent will the project promote solutions to the particular transit transport needs of the landlocked developing countries (Criterion C _{A2})? <input type="checkbox"/> A: Greatly <input type="checkbox"/> B: Significantly <input type="checkbox"/> C: Somewhat <input type="checkbox"/> D: Slightly <input type="checkbox"/> E: Does not.
3. Will the project connect low income and/or least developed countries to major European and Asian markets (Criterion C _{A3})? <input type="checkbox"/> A: Greatly <input type="checkbox"/> B: Significantly <input type="checkbox"/> C: Somewhat <input type="checkbox"/> D: Slightly <input type="checkbox"/> E: Does not.
4. Will the project cross a natural barrier, alleviate bottlenecks, complete a missing link or raise substandard sections to meet international standards along a Euro-Asian Transport route (Criterion C _{A4})? <input type="checkbox"/> A: Greatly <input type="checkbox"/> B: Significantly <input type="checkbox"/> C: Somewhat <input type="checkbox"/> D: Slightly <input type="checkbox"/> E: Does not.
Section 2B Project Information Concerning Criteria of CLUSTER B
5. Does the project have a high degree of urgency due to importance attributed by the national authorities and/or social interest (Criterion C _{B1})? The project is... <input type="checkbox"/> A: In the national plan and immediately required (for implementation up to 2008)

- B: In the national plan and very urgent (for implementation up to 2010)
- C: In the national plan and urgent (for implementation up to 2015)
- D: In the national plan but may be postponed until after 2015
- E: Not in the national plan.

6. To what extent is the project expected to increase traffic (Criterion C_{B2})?

- A: By more than 15%
- B: 10-15%
- C: 5- 10%
- D: less than 5%
- E: Will not affect traffic.

7. At what stage is the project (Criterion C_{B3})?

- A: Tendering
- B: Feasibility study
- C: Pre-feasibility study
- D: Planning
- E: Identification.

8. What is the financing feasibility of the project (Criterion C_{B4})?

- A: Excellent
- B: Very Good
- C: Good
- D: Medium
- E: Low

9. To what extent does the project have potentially negative environmental or social impacts (pollution, safety, etc) (Criterion C_{B5})?

- A: No expected impact
- B: Slight impact
- C: Moderate impact
- D: Significant impact
- E: Great impact.

ANNEX II
PAIR COMPARISON WEIGHTING TECHNIQUE

Paired comparison approach is a scaling approach. In simple terms using this approach in order to derive criteria weights the only question to be answered is “is this criterion more important than the other?”. This means that the paired comparison matrix (see Table A-I next) can be filled with zeros and ones, where one represents “is more important”. By adding these values over the column, a measure is obtained for the degree to which a criterion is important compared to all other criteria, if finally these measures are standardised, a set of criteria weights is created.

Table A-I: An example of Paired Comparison matrix

	W ₁	W ₂	...	W _N
W ₁				
W ₂				
...				
W _N				

Standardisation formulas for this task are many, but for this project there is only one that suits us:

Standardisation formula: a transformation of ‘raw’ scores to scores with a range from 0 to 1 with an additivity constraint³. The formula is as follows:

$$\text{Standardised score } w_i = \frac{\text{'raw' score} \cdot w_i}{\sum \text{'raw' scores}} \quad (\text{A-I})$$

Basically each ‘raw’ score is divided by the sum of all ‘raw’ scores. This kind of transformation is especially appropriate in standardising various sets of different criterion weights; since an application of (A-I) implies that all those weights will then add up to unity.

³ Final scores added should equal 1