THE EURO-ASIAN TRANSPORT LINKAGES PROJECT

PRIORITY INFRASTRUCTURE PROJECTS OF INTERNATIONAL IMPORTANCE

METHODOLOGY AND ASSUMPTIONS

According to the analysis presented in **Document 7 (Proposed methodology for prioritization of investment projects along selected Euro-Asian routes)** of the 3rd Expert Group Meeting on Developing Euro-Asian Transport Linkages,[1] all projects to be considered should be subjected to a structured evaluation based on a strict 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 could not pass the identification phase and were directly placed into a "Reserve Priority Category".

The whole exercise was based on the inputs provided by participating countries.

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. It would be directly placed into the Priority Category I.

Based on the country reports, the consultants completed TEMPLATE 1,[2] 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 asked to complete the respective TEMPLATES 2, in the following manner:

---

[1] 27 – 29 June 2005, Istanbul, Turkey. Document 7 is available at the following website: http://www.unece.org/trans/main/eatl/docs/3rd_EGM_Doc7_e.pdf
[2] All templates can be found in appendix 1.

For projects with funding committed, only some additional technical information should be completed (Section 1 of TEMPLATE 2).

For projects without funding committed, additional technical information and evaluation criteria questionnaire should be completed (Section 1 and Section 2, respectively, of TEMPLATE 2).

For newly proposed projects, complete all necessary information in TEMPLATE 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 previous experience with 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 5.1.*

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 external appraisers and country experts is necessary in order to quantify properly all the criteria. Nonetheless, the lowest scores were assigned to unfunded projects if no answers were provided in the evaluation questionnaire.

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. The weights were derived with the Paired Comparison Method (the complete description of the method can be found in Appendix 2). Pairwise comparisons of all criteria were performed according to the "policy" priorities specified by the interviewed experts (the consultants, UNECE and UNESCAP).

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

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

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

where:

J = A or B and

i = 1,….,5

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

PHASE C - 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 the linear additive model. The Total Score – for all dimensions together - of each project **in each country** is 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:

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

where:

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

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

J = A or B and

i = 1,….,5

Therefore:

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

Projects' priorities

The combination of the criterion 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 passed the pre-selection phase, then it belongs to reserve category.

The classification of priorities is as follows:

I: projects, which have funding secured and are ongoing or planned and are expected to be completed in the near future (up to2010).

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.

RESULTS

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).

For example, a project with the ID AZT-RLW-1 is a railway project number 1 in Azerbaijan.

In total 230 projects were included in this phase with aggregate value of $43.4 billion of which:

- **112 road projects account for $12.7 billion;**
- **68 railway projects account for $23.4 billion;**
- **37 maritime projects account for $5.7 billion;**
- **11 inland waterway projects account for $1.6 billion and**
- **2 inland/border crossing projects for $0.003 billion.**

The respective numbers per country are shown below in Table 5.1.

Table 1 The data submitted by countries for all projects and per type of infrastructure *(number of projects and costs in million $)*

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	5 488.9	15	1 532.8	7	3 816.8	1	115.6	1	23.7	-	-
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	11 450.0	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*	*43 422.56*	*112*	*12 725.68*	*68*	*23 393.42*	*37*	*5 706.02*	*11*	*1 594.32*	*2*	*3.1*

Note: The table includes only the countries that sent data.

Prioritization results, including simple cost analysis

The prioritization results can be found in the excel file "**Prioritization exercise_results.xls**". In this Excel file the following analysis has taken place:

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

In each of these "country name" sheets a note by the consultant (at the bottom of the page) from the consultant explains relevant calculations.

▪ In the worksheet "**All priorities**" all projects (regardless of their priority) are summarized along with their costs.

In this worksheet, for each country, each project is presented by:
(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 million $ and in some cases in million €)
(d) a **score** column representing the result of the multicriterial evaluation (results are based on a scale between 1 and 5 where 5 represents the highest possible score and 1 the lowest possible score), and
(e) the **category** column with the project's priority ranking, which reflects 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 was 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 are presented for all projects and per type of project as well as for all countries and at the country level, both in absolute numbers and percentages.

The prioritization results are summarized below.

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 million $

**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 million $

**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 million $

Bulgaria (BG)

			All	Per Priority Category				
				I	II	III	IV**	Reserve
No. of projects			24	21			3	
Cost* of projects			5488.9	4300.9			1188	
Per type of infrastructure	ROD	No. of projects	15	12			3	
		Cost* of projects	1532.8	344.8			1188	
	RLW	No. of projects	7	7				
		Cost* of projects	316,8	316,8				
	MAR	No. of projects	1	1				
		Cost* of projects	115.6	115.6				
	INW	No. of projects	1	1				
		Cost* of projects	3.67	3.67				
	INM	No. of projects						
		Cost* of projects						

*All costs in million $

**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 million $

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 million $

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

Islamic Republic of Iran (IR)

			All	Per Priority Category				
				I	II	III	IV	Reserve
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 million $

Kazakhstan (KZ)

			All	Per Priority Category				
				I	II	III	IV	Reserve
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 million $

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 million $

**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 million $

**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	
ROD No. of projects						
ROD Cost* of projects						
RLW No. of projects						
RLW Cost* of projects						
MAR No. of projects	7	3			4	
MAR Cost* of projects	333.3	104.9			228.4	
INW No. of projects	5	3	1		1	
INW Cost* of projects	388.5	158.1	201.6		28.8	
INM No. of projects						
INM Cost* of projects						

Per type of infrastructure

All costs in million $

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	
ROD No. of projects	4				4	
ROD Cost* of projects	237				237	
RLW No. of projects	1				1	
RLW Cost* of projects	n.a.***				n.a.***	
MAR No. of projects						
MAR Cost* of projects						
INW No. of projects						
INW Cost* of projects						
INM No. of projects	2	2				
INM Cost* of projects	3.1	3.1				

Per type of infrastructure

All costs in million $

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

Uzbekistan (UZB)

			All	Per Priority Category				
				I	II	III	IV	Reserve
	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 million $

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

All Countries

			All	Per Priority Category				
				I	II	III	IV**	Reserve
	No. of projects		230	133	16	10	71	-
	Cost* of projects		43422.5	21334.2	13244	2540.3	6303.9	-
Per type of infrastructure	*ROD*	No. of projects	**112**	92	2	6	12	-
		Cost* of projects	**12725.7**	10275.1	640.0	160.0	1650.5	-
	RLW	No. of projects	**68**	26	11	4	27	-
		Cost* of projects	**23393.4**	10218.8	8212.4	2380.3	2581.9	-
	MAR	No. of projects	**37**	6	2	-	29	-
		Cost* of projects	**5706**	224.3	4190	-	1291.7	-
	INW	No. of projects	**11**	7	1	-	3	-
		Cost* of projects	**1594.3**	612.9	201.6	-	779.8	-
	INM	No. of projects	**2**	2	-	-	-	-
		Cost* of projects	**3.12**	-	-	-	3.12	-

*All costs in million $
**Projects received priority categorisation IV, due to lack of data

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

Based on the last table presented above, we can conclude the summary of results as follows.

(a)　　　　　　　　*Statistics concerning projects' type and cost*
- **48.7%** of the Projects are **Road projects**, with **the estimated value of $12 725.7 million,** representing **29.3% of the total investment cost**.

- **29.6%** of the Projects are **Railway projects**, with **the estimated value of $23 393.4 million,** representing **53.9% of the total investment cost**.
- **16.1%** of the Projects are **Maritime projects**, with **the estimated value of $5 706.0 million,** representing **13.1% of the total investment cost**.
- **4.8%** of the Projects are **Inland waterway projects**, with **the estimated value of $1 594.3 million,** representing **3.7% of the total investment cost**.
- **0.9%** of the Projects are **Inland/Cross border (etc.) projects**, with **the estimated value of $3.1 million,** representing **0.01% of the total investment cost**.

(b)   *Statistics concerning projects' priorities and cost*

- **57.8%** of the Projects belong to **Priority Category I**, with **the estimated value of $21 334.3 million,** representing **49.1% of the total investment cost**.
  (These projects have secured funding)
- **7%** of the Projects belong to **Priority Category II**, with **the estimated value of $13 244.0 million,** representing **30.5% of the total investment cost**.
  (For these projects funding was not secured but the national representatives have sent sufficient data/answers for multi-criterial evaluation)
- **4.3%** of the Projects belong to **Priority Category III**, with **the estimated value of $2 540.3 million,** representing **5.9% of the total investment cost**.
  (For these projects funding was not secured but the national representatives have sent sufficient data/answers for multi-criterial evaluation)
- **30.9%** of the Projects belong to **Priority Category IV**, with **the estimated value of $6 303.9 million,** representing **14.5% of the total investment cost**.
  (For these projects funding was not secured and the national representatives have not sent sufficient data/answers for multi-criterial evaluation 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 shown below.

(b₁) Statistics concerning Road Projects' priorities and cost

(a)   **82.1%** of the Road projects belong to **Priority Category I**, with **the estimated value of $10 275.1 million,** representing **80.7% of the total investment cost for Road projects**.

(b)   **1.8%** of the Road projects belong to **Priority Category II**, with **the estimated value of $640 million,** representing **5.0% of the total investment cost for Road projects**.

(c)   **5.4%** of the Road projects belong to **Priority Category III**, with **the estimated value of $160 million,** representing **1.3% of the total investment cost for Road projects**.

(d)   **10.7%** of the Road projects belong to **Priority Category IV**, with **the estimated value of $1 650.6 million,** representing **13.0% 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**, with **the estimated value of $10 218.8 million,** representing **43.7% of the total investment cost for Railway projects**.
(b)   **16.2%** of the Railway projects belong to **Priority Category II**, with **the estimated value of $8 212.4 million,** representing **35.1% of the total investment cost for Railway projects**.
(c)   **5.9%** of the Railway projects belong to **Priority Category III**, with **the estimated value of $2 380.3 million,** representing **10.2% of the total investment cost for Railway projects**.
(d)   **39.7%** of the Railway projects belong to **Priority Category IV**, with **the estimated value of $2 581.9 million,** representing **11.0% of the total investment cost for Railway projects**.

(b₃) Statistics concerning Maritime Projects' priorities and cost
(a)   **16.2%** of the Maritime projects belong to **Priority Category I**, for a **total value of $224.3 million,** representing **3.9% of the total investment cost for Maritime projects**.
(b)   **5.4%** of the Maritime projects belong to **Priority Category II**, with **the estimated value of $4 190 million,** representing **73.4% of the total investment cost for Maritime projects**.
(c)   **78.4%** of the Maritime projects belong to **Priority Category IV**, with **the estimated value of $1 291.7 million,** representing **22.6 % of the total investment cost for Maritime projects**.

(b₄) Statistics concerning Inland waterway Projects' priorities and cost
(a)   **63.6%** of the Inland waterway projects belong to **Priority Category I**, with **the estimated value of $612.9 million,** representing **38.4% of the total investment cost for Inland waterway projects**.
(b)   **9.1%** of the Inland waterway projects belong to **Priority Category II**, with **the estimated value of $201.6 million,** representing **12.6% of the total investment cost for Inland waterway projects**.
(c)   **27.3%** of the Inland waterway projects belong to **Priority Category IV**, with **the estimated value of $779.8 million,** representing **48.9% 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**, with **the estimated value of $3.1 million**.

Appendix 1

TEMPLATE 1 – Identified Projects

Project ID	Related infrastructure	Project Name	Project cost (MIO)	Security of funds (Y/N)
	Sections	*e.g. Rehabilitation of: Ankara by-pass*	*Please indicate the currency*	

TEMPLATES 2 –Projects Fiches /Section 1

TEMPLATE 2A – Road and related infrastructure Project Fiche	
Project Name:	
Project Code	
Projects Group (please select): ☐ **Funded** ☐ **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. Road Class[1]:	
4. Length (in km):	
5. Number of carriageways:	
6. Number of lanes:	
7. Design Speed (km/h):	
8. Road toll implementation:	☐ YES ☐ 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:	☐ Construction ☐ Tendering ☐ Design/Study ☐ Planning ☐ Identification
17. Expected Funding Sources (and the % of funding for each one):	a. b. c.
Notes: [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] *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): ☐ **Funded** ☐ **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:	☐ Electrified ☐ Non-Electrified
7. Signaling type:	☐ Automatic ☐ 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:	☐ Construction ☐ Tendering ☐ Design/Study ☐ Planning ☐ 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): ☐ **Funded** ☐ **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:	☐ Construction ☐ Tendering ☐ Design/Study ☐ Planning ☐ Identification
15. Expected Funding Sources (and the % of funding for each one):	a. National budget (28%) b. EBRD credit (72%)
Notes: [1] *Low Navigable Water Level* [2] *Highest Navigable Water Level*	

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): ☐ **Funded** ☐ **Non-funded** **Note: If Funded, fill in Section 1 only. If Unfunded, fill in Sections 1 and 2.**
Project Type: ☐ Sea Port ☐ Inland Waterway Port ☐ Inland Container Depot ☐ Intermodal Freight Terminal ☐ 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:	☐ Construction ☐ Tendering ☐ Design/Study ☐ Planning ☐ 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})?

    ☐ A: Greatly
    ☐ B: Significantly
    ☐ C: Somewhat
    ☐ D: Slightly
    ☐ 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})?

    ☐ A: Greatly
    ☐ B: Significantly
    ☐ C: Somewhat
    ☐ D: Slightly
    ☐ E: Does not.

3. Will the project connect low income and/or least developed countries to major European and Asian markets (Criterion C_{A3})?

    ☐ A: Greatly
    ☐ B: Significantly
    ☐ C: Somewhat
    ☐ D: Slightly
    ☐ 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})?

    ☐ A: Greatly
    ☐ B: Significantly
    ☐ C: Somewhat
    ☐ D: Slightly
    ☐ 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...

    ☐ 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.

Appendix 2

THE PAIR COMPARISON WEIGHTING TECHNIQUE

Paired comparison 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. Once 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				

There are many standardisation formulas for the task at hand; however, for this project only one of them is suitable for the desirable transformation of 'raw' scores to scores with a range from 0 to 1 with an additivity constraint.[3] The formula is as follows:

$$\text{Standardised score } w_i = \frac{'raw'\,score\,..\,w_i}{\sum 'raw'\,scores} \qquad \textbf{(A-I)}$$

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 because an application of (A-I) implies that all the weights add up to unity.

---

[3] The sum of final scores should equal 1.