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Pre-Feasibility & Feasibility Studies for Road Sections of the Termez - Dushanbe - Sary Tash Road

Inception Report

Report Cover Page

Project Title : Pre-Feasibility and Feasibility Studies for Road Sections of the Dushanbe-Sary-Tash Road

Project Number : 110 - 465

Beneficiary Country : Kyrgyzstan

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SYNOPSIS

Project Title	: Pre-Feasibility and Feasibility Studies for Road Sections of the Termez - Dushanbe - Sary Tash Road
Project Number	: 110-465
Country	: Kyrgyzstan

Project objectives: Improve viability of the missing link of the international corridor linking Afghanistan, South Uzbekistan and Tajikistan on one side and Kyrgyzstan and China on the other side.

Planned outputs:
Pre-Feasibility study with various alternatives
Feasibility study for bankable project
Detailed design
Tender documents for construction
Specific studies (hydrology, structures, environmental impact, social impact, toll/transit fees, financial management)

Project activities:
Regional economic analysis
Traffic surveys
Topographical surveys
Geotechnical surveys
Hydrological studies
Structural studies
Environmental Impact assessment
Social impact assessment
Maintenance studies
Analysis of design options
Toll/Transit fees studies
Financial Management assessment
Detailed design
Tender documents

Project starting date : 14 November 2006

Project duration : 18 months

Analysis of Project

1- General

This Inception Report refers to the project of Feasibility study of the road section Sary Tash to Karamyk and Tajikistan border in The Kyrgyz Republic.
In fact this project, which will extend over 18 months, is comprised of Preliminary Feasibility Study, which will consider the study of various options, Feasibility Study, which will determine the economic return of the Project, and Final Design and Tender Documents, which will be the base of the future tender for construction/rehabilitation of this road section.

2- Situation

This road section from Sary Tash to Karamyk and the Tajikistan border is situated in the most southern area of Kyrgyzstan (see map 1).
Sary Tash (3200 m altitude) is situated on a major road and international axis EM 02 linking Osh to Irkeshtam, which is the entry point to the People's Republic of China. There is an important traffic on this road, particularly freight from China to Osh and Uzbekistan.
Karamyk (2500 m altitude) is close to the Tajikistan border about 140 km West of Sary Tash.
This road section is considered as the International Road EM 03 in Kyrgyzstan.
2 km from Sary Tash on this road is the connection to South with International Road EM 04 to the Gorno-Badakhshan Autonomous Region in Tajikistan through the Kyzyl Art border pass culminating at 4280 m.

3- Local Importance

In Kyrgyzstan this road under study serves the area of the Alay Valley along the Kyzyl-Suu River. It is comprised of the full Chong Alay Rayon and of 3 Villages (Sary Mogol, Sary Tash and Taldy Suu) of the Alay Rayon, all within the Osh Oblast. It is a low populated area of about 30,000 people which represent less than 0.6% of the total Kyrgyzstan population whereas territory is about 3% of the total Kyrgyzstan surface. Major village is Daroot Korgon with about 4,900 people, 90 km west of Sary Tash.
It is to be noted that the Terms of Reference mention a population of this area of 500,000 people, which is a major discrepancy with reality.
The economy of this area is predominantly agriculture mostly for internal consumption. A major market takes place once a week in Sary Mogol, 30 km from Sary Tash.

Of particular importance is the mining potential of this area with mostly coal. Two coal mines are presently operating in the Sary Mogol area. Output is mostly exported to China through Irkeshtam; only a small quantity is exported to Tajikistan through Karamyk due to the very poor condition of the road close to the border.
The tourism potential of the area is also to be noted, especially the mountain range in the South delineating the Tajik border, which is part of Pamir with peaks culminating over 7000 m.

4- International Importance

Of much more importance is the international transit role of this road, as can be seen on map 2. It is by far the major access of Tajikistan to China. The only other road access from Tajikistan to China is West of Murgab in Pamir with a pass over 4000 m following a very long route over high mountains. This latter will never be a suitable transit route from the major part of Tajikistan to China.
The Sary Tash – Karamyk road is also the most direct link from Kyrgyzstan and the major part of Kazakhstan to Dushanbe and the major part of Tajikistan.
It appears also that this road is the unique land access from South Uzbekistan (Termez area) and particularly Afghanistan to China.
Map 3 shows the Regional Transport Corridors (ADB source). The Sary Tash – Karamyk road is part of one of them. It can be seen that it connects Bishkek and the whole Kyrgyz Republic territory to the nearest sea-port of Karachi in Pakistan.

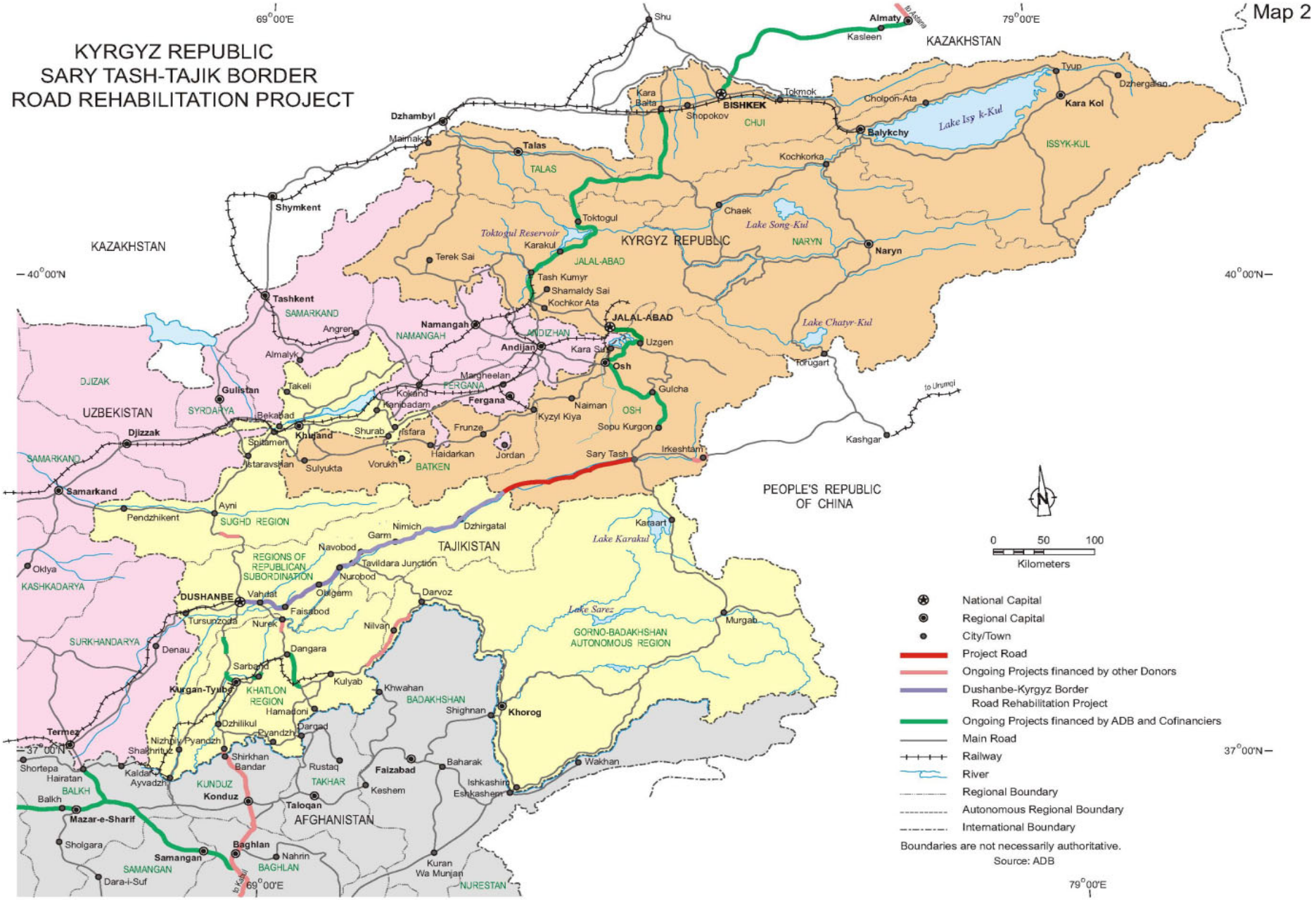
5- Connected Projects

The following other projects connected to the present one are to be considered:
(i) The Dushanbe – Kyrgyz border Road Rehabilitation project in Tajikistan.
Phase I of this project representing the 118km section from Dushanbe to Nurobod is under construction.
The ADB is currently providing a loan to Tajikistan for Phase II including the 12km section adjacent to the Kyrgyz border, which at present represents a bottleneck on the Tajik side to cross-border traffic.
Phase III of this project, which will complete the feasibility study of rehabilitation on the remaining sections of the road, is almost finished and the final report with updated traffic forecasts will be ready around March 2007.
(See in Annex 1: Minutes of Meeting held in Manila with ADB on 29 January 2007)
(ii) The Osh –Sary Tash – Irkeshtam Road Rehabilitation project.
The complete feasibility study has already been completed for some years. Construction of the first section Osh – Gulcha is to start in spring 2007. Next section to Sopu Kurgon is under finalization of tendering. Financing of construction of remaining sections to Irkeshtam is under discussion. It can be anticipated that total construction of this project will be completed end 2010.
(iii) Maintenance of Regional Road Transport Corridors.
This study financed by ADB is underway and is to be completed in spring 2007. The road Sary Tash – Karamyk is included in the project which plans routine and periodic maintenance.

(iiii) Support to the establishment of the Pamir-Alai Transboundary Conservancy Area between Kyrgyzstan and Tajikistan.
This project financed by EC will extend over 2007 and 2008. Limits of the study area are not yet precise, but a project office should be opened in Sary Tash in summer 2007.


Map 1
KAZAKHSTAN
CHINA
TAJIKISTAN
UZBEKISTAN
AFGHANISTAN
CHÜY
TALAS
JALAL-ABAD
NARYN
YSYK-KÖL
OSH
BATKEN
Bishkek
Almaty
Tashkent
Dushanbe
Osh
Ysyk-Köl
Fergana
Kyrgyzstan
International boundary
Province (oblasty) boundary
National capital
Province (oblasty) capital
Railroad
Road
The city of Bishkek (Bishkek Shaary) has status equal to that of an oblasty
0 50 100 Kilometers
0 50 100 Miles
Lambert Conformal Conic Projection, SP 39° 00' N / 43° 30' N
Boundary representation is not necessarily authoritative.
Base 803157AI (G00230) 12-05

Map 2


KYRGYZ REPUBLIC
SARY TASH-TAJIK BORDER
ROAD REHABILITATION PROJECT
KAZAKHSTAN
KYRGYZ REPUBLIC
UZBEKISTAN
TAJIKISTAN
AFGHANISTAN
PEOPLE'S REPUBLIC OF CHINA
Almaty
Kasleen
Shu
BISHKEK
Tokmok
Kara Balta
Shopokov
Cholpon-Ata
Tyup
Dzhergalan
Kara Kol
Balykchy
Lake Isy k-Kul
ISSYK-KUL
CHUI
Kochkorka
Dzhambyl
Maimak
Talas
TALAS
Shymkent
Toktogul
Toktogul Reservoir
Karakul
Chaek
Lake Song-Kul
NARYN
Naryn
Terek Sai
JALAL-ABAD
Tash Kumyr
Shamaldy Sai
Kochkor Ata
Lake Chatyr-Kul
Tashkent
SAMARKAND
Angren
Namangah
NAMANGAH
ANDIJAN
Andijan
Kara Suu
Uzgen
Osh
Torugart
Almalyk
DJIZAK
Gulistan
Takeli
Margheelan
FERGANA
Kokand
Kanibadam
Fergana
Gulcha
SYRDARYA
Bekabad
Naiman
OSH
Kyzyl Kiya
Sopu Kurgon
Djizzak
Khujand
Shurab
Isfara
Frunze
Spitamen
Haidarkan
Jordan
Sary Tash
Irkeshtam
Kashgar
to Urumqi
Istaravshan
Sulyukta
Vorukh
BATKEN
Samarkand
Ayni
Pendzhikent
SUGHD REGION
Nimich
Garm
Dzhirgatal
Karaart
Lake Karakul
Navobod
Tavildara Junction
REGIONS OF REPUBLICAN SUBORDINATION
Nurobod
Oktya
KASHKADARYA
DUSHANBE
Vahdat
Obigarm
Darvoz
Faisabod
Tursunzoda
Nurek
Nilvan
Lake Sarez
Murgab
GORNO-BADAKHSHAN AUTONOMOUS REGION
SURKHANDARYA
Denau
Dangara
Sarband
Kulyab
Khwahan
BADAKHSHAN
Shighnan
Khorog
Kurgan-Tyube
KHATLON REGION
Hamadoni
Dzhilikul
Dargad
Pyandzh
Nizhniy Pyandzh
Termez
Shahritus
Shirkhan Bandar
Rustaq
Faizabad
Baharak
Wakhan
Shortepa
Hairatan
Kaldar
Ayvadzh
KUNDUZ
Konduz
TAKHAR
Keshem
Ishkashim
Eshkashem
BALKH
Balkh
Taloqan
Mazar-e-Sharif
Sholgara
Baghlan
Nahrin
Samangan
SAMANGAN
BAGHLAN
Dara-i-Suf
Kuran Wa Munjan
NURESTAN
to Kabul
37°00'N
40°00'N
69°00'E
79°00'E
0 50 100
Kilometers
National Capital
Regional Capital
City/Town
Project Road
Ongoing Projects financed by other Donors
Dushanbe-Kyrgyz Border Road Rehabilitation Project
Ongoing Projects financed by ADB and Cofinanciers
Main Road
Railway
River
Regional Boundary
Autonomous Regional Boundary
International Boundary
Boundaries are not necessarily authoritative.
Source: ADB


Map 3
REGIONAL TRANSPORT CORRIDORS
60°00'E
72°00'E
45°00'N
27°00'N
KAZAKHSTAN
UZBEKISTAN
TURKMENISTAN
KYRGYZ REPUBLIC
TAJIKISTAN
AFGHANISTAN
IRAN
PAKISTAN
INDIA
PEOPLE'S REPUBLIC OF CHINA
ARABIAN SEA
Aral Sea
Alakol Lake
Balkhash Lake
Lake Sarez
Lake Issyk-Kul
To the Russian Federation
To Urumqi
Kul'sary
Aral
Zhezkazghan
Balkash
Ayakoz
Taldykorgan
Baikonyr
Kyzyl Orda
Shu
Almaty
Tyup
Kara Balta
Balykchy
Dzhergalan
BISHKEK
Malmak
Kochkorka
Chaek
Shymkent
Karakul
Jalal Abad
Uzgen
Osh
Andijan
Namangan
TASHKENT
Gulistan
Sary Tash
Irkeshtam
Kashgar
Kungrad
Muynak
Nukus
Uchkuduk
Urgench
Kyzyl-Kaya
Turkmenbashi
Dzebel
Cheleken
Kum-Das
Daraganata
Navoi
Bukhara
Dilizzak
Solyukta
Baldarkan
Samarkand
Garm
Nurobod
Dzhirgatal
Kizyl-Arvat
Karadepe
Bakharden
Gasan-Kuli
ASHGABAT
Turkmenabad
Karshi
DUSHANBE
Dangara
Babadajhan
Mary
Atamyrat
Mukry
Kurgan-Tyube
Kulyab
Nizhniy Pyandzh
Dushak
Termez
Hairatan
Shirkhan Bandar
Ankhoi
Mazar-e-Sharif
Nahlabad
Pule Khumri
Mashhad
Gushgy
Qaisar
Torghandi
KABUL
Islam Qala
Herat
Jalalabad
Torkham
Ghazni
Delaram
Qalat
Kandahar
Milak
Zaranj
Spin Boldak
Chaman
Quetta
Zahedan
Kalat
Surab
Khash
Bandar-e-Abbas
Nag
Pangjur
Hoshab
Torbak
Chabahar
Gwadar
Karachi
Port Qasim
0 50 100 200 300
Kilometers
National Capital
City/Town
Road and Railway Transport Corridors
Project Road
Other Primary Road
International Boundary
Boundaries are not necessarily authoritative.
Source: ADB
05-asia 5341 RM

6- Traffic

As present road condition, both on Tajik and Kyrgyz sides, is very bad around the border, the present traffic on the Sary Tash – Karamyk road is predominantly local and relatively low. Several counts have been carried out in the last years.
In average traffic would be around 150 vehicles/day between Sary Tash and Daroot Korgon, and around 80 vehicles/day between Daroot Korgon and Karamyk. Traffic observed in winter during our December and January visits is still lower. New counts and origin-destination surveys to be carried out next summer will precise present Average Annual Daily Traffic.
Again the Terms of Reference mention 3,000 vehicles/day, much over the reality.
Increase of this normal traffic in the future years will be related to GDP, with the exception of coal traffic from mines which will depend on extraction capacity and export plans.
The generated traffic, due to the elimination of the bottle neck on the border area, if the road is constructed, would be much more important. It would represent essentially traffic between Tajikistan and China. Based on an analysis of trade patterns in the region it was forecast as follows in Phase II study of the Dushanbe – Kyrgyz border road rehabilitation project financed by ADB:

Year	2010	2015	2020	2025	2029
Generated International Traffic (veh./day)	159	955	1274	1700	2140

Phase III, which is almost completed, will provide revised data for this generated international traffic, which will be exactly the same on the Kyrgyz territory between Sary Tash and Karamyk.

7- General Description of the Road

The road in its present form is reported to have been built in the 1960's but the original track probably dates from much earlier.
Generally it is located in plain terrain and only near the Tajikistan border, after Karamyk, real mountain conditions are met. This latter section from Karamyk to the Tajik border is by far the most difficult with a narrower width permitting generally only one lane.
The road follows the valley of the Kyzyl-Suu River for the most of its length. The river is very active in some places during spring/summer season, snow melt resulting in serious erosion to both banks. Local sources claim that erosion of the alluvial banks up to 50m-100m per season is not unusual. Very serious erosion problems exist especially in the zones km 114+000 – km 116+000 and km 122+000 – km 125+000. In-depth hydrological studies will have to be carried-out as soon as weather conditions permit, before other studies.
There are 12 bridges, 2 of which over the main Kyzyl-Suu River, the other ones over its tributaries.
Approximately 25 km of the road have a bituminous surface, and the remaining 118 km are gravel. The dominant type of soil sub grade is light clay with variable gravel presence. No high vegetation is available. The only exceptions are a few woods in some villages.

8- Feeder Roads

We have considered so far 11 feeder roads and 2 major intersections; the first one in Sary Tash at the beginning of the project; the second one 2 km further with the so-called Pamir highway or EM 04.

ROAD INTERSECTIONS			
N	PK	Type	Intersected road
1	0+000	At grade	International road Osh – Sary Tash - Irkeshtam
2	2+000	At grade	Pamir highway
3	33+000	At grade	Feeder road to coal mine
4	34+000	At grade	Feeder road to coal mine
5	45+000	At grade	Feeder road
6	51+000	At grade	Feeder road
7	56+000	At grade	Feeder road
8	68+000	At grade	Feeder road
9	71+000	At grade	Feeder road
10	86+000	At grade	Feeder road
11	101+000	At grade	Feeder road
12	120+000	At grade	Feeder road
13	135+000	At grade	Feeder road

For the feeder roads, we envisage to study them on a length of 200 m from the intersection.

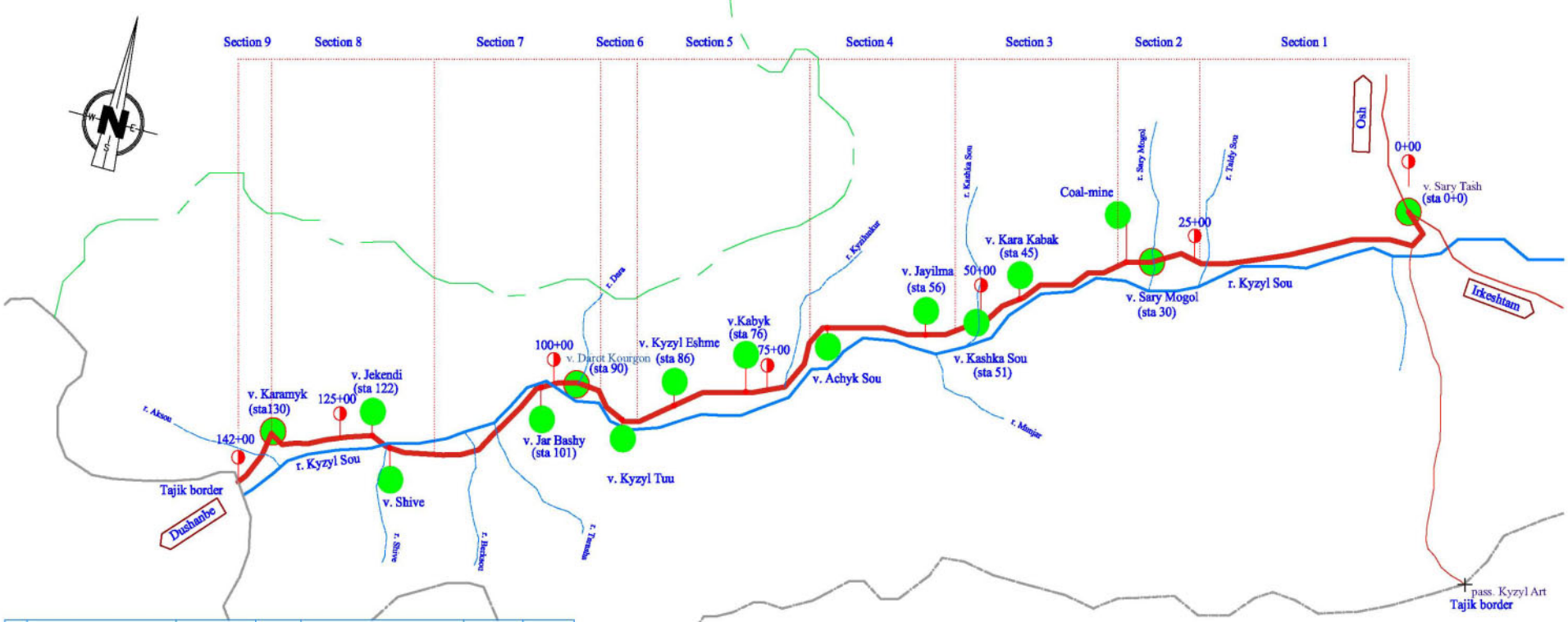
9- Homogeneous Sections

We have selected for the moment 9 homogeneous sections of the road as appears in the following table and in map 4:

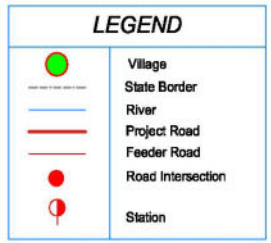
	Section	*Limits*		*Length (km)*	*Cross section*			*Type terrain*	*Road drainage conditions*
		Origin	*End*		*Pavement width*	*Pavement type*	*Number lanes*		
1	Sary Tash – PK 24+400	0.0	20.0	20.0	7.0	asph.	2	Plain	poor
		20.0	24.4	4.4		gravel			
2	PK 24+400 – Sary Mogol	24.4	34.0	9.6	9.5	gravel	2	Plain	poor
3	Sary Mogol – Kashka Suu	34.0	53.0	19.0	9.5	gravel	2	Plain	poor
4	Kashka Suu –PK 70+000	53.0	70.0	17.0	9.5	gravel	2	Plain	poor
5	PK 70+000 – Daroot Korgon	70.0	90.2	20.2	9.5	gravel	2	Plain	poor
6	Daroot Korgon Village	90.2	94.5	4.3	7.0	asph.	2	Plain	poor
7	Daroot Korgon - Kyzyl-Suu bridge	94.5	115.0	19.5	9.0	gravel	2	Plain	poor
8	Kyzyl-Suu bridge - Karamyk	115.0	134.0	19.0	8.5	gravel	2	Plain	poor
9	Karamyk – Tajikistan border	134.0	142.0	8.0	5-5.5	ground	1	Mountain	Very poor

Map 4

SARY TASH-TAJIK BORDER
ROAD REHABILITATION PROJECT



N	Section	Limits		Length	Cross section			Type terrain	Road drainage conditions
		Origin	End	(km)	Pavement width	Pavement type	Number lanes		
1	Sary Tash– PK 24+400	0.0	20.0	20	7.0	Asph.	2	Plain	poor
		20.0	24.4	4.4	7.0	gravel	2	Plain	poor
2	PK 24+400 – Sary Mogol	24.4	34.0	9.6	9.5	gravel	2	Plain	poor
3	Sary Mogol – Kashka Sou	34.0	53.0	19.0	9.5	gravel	2	Plain	poor
4	Kashka Sou –PK 70+000	53.0	70.0	17.0	9.5	gravel	2	Plain	poor
5	PK 70+000 – Darot Kourgon	70.0	90.2	20.2	9.5	gravel	2	Plain	poor
6	Village of Darot Kourgon	90.2	94.5	4.3	7.0	Asph.	2	Plain	poor
7	Darot Kourgon - bridge Kyzyl Sou	94.5	115.0	19.5	9.0	gravel	2	Plain	poor
8	Bridge Kyzyl Sou - Karamyk	115.0	134.0	19.0	8.5	gravel	2	Plain	poor
9	Karamyk – Tajikistan border	134.0	142.0	8.0	5-5.5	ground	1	Mountain	poor



10- Sary Tash to Daroot Korgon

There is no major problem for Sections 1 to 6.
Section 1 is plain and the existing road construction presents good geometric and visibility characteristics generally satisfying the IV category according to local road standards. The type of existing pavement is hot laid asphalted concrete with expired period of exploitation.
A lot of watercourses traverse the road. They are captured by surface drainage system consisting of roadside ditches and about 18 pipe culverts.
Geometric characteristics of Section 2 are good also but at PK 30+000 there is some excessive grade.
In section 3 there are important irregularities on the active circulation surface and the road needs some levelling.
From PK 50+000 to PK 58+000 are available such materials as rock, clay, conglomerate materials which are located on the north side of the road.
In section 4 the existing longitudinal alignment is not steep but the irregularities and faults of the existing sub grade make impossible to use directly simple overlay. There are only 3 culverts and it seems they aren't enough to provide the correct functioning of the drainage system. There is soil erosion on the left side of the road from PK 58+000 to PK 66+000 caused by the Kyzyl-Suu River.
In section 5 between PK 86+500 – PK 87+000 the longitudinal alignment is up to 70 per 1000 which is very steep and does not meet geometric criteria of local standards.
Section 6 is in Daroot Korgon with important pedestrian movement and some local traffic; the existing pavement is a hot laid asphalted concrete. 200 m from the main road is a new bridge which could be included in a future deviation of the main road. This deviation would be about 5 km long and avoid the old bridge at PK 102+000. But this alternative road would cross a dense area of the village which would be a major obstacle.

11- Daroot Korgon to Tajikistan Border

Sections 7 to 9 from Daroot Korgon to Tajik border raise the major problems with possibly different alternatives.
In section 7 the longitudinal alignment is going up to 40 per 1000. During winter there is an important snow accumulation on the pavement surface on various places. Some protection should be done or changes of the existing vertical alignment.
The biggest problem is the erosion phenomena on the road sides as direct result from the important changes of the bed of the Kyzyl-Suu River. Soil erosion is very advanced on both sides of the road from PK 114+000 to PK 116+000. Some dykes have been built but it seems that a more global study of the problem is necessary.
A lot of problems with snow accumulation are also observed on section 8 during winter. From km 122+000 to km 125+000 there is another very critical erosion zone caused by the intensive changes of the bed of the Kyzyl-Suu River. The carriageway has only one lane which is a serious obstacle for traffic. Hydrological studies will determine the best solution to solve this major problem.
A small temporary bridge with limited capability exists at the exit of Karamyk village. An alternative solution with a deviation before entering Karamyk shall be envisaged; design of this deviation has to be so to minimize the cost of the necessary new bridge.
Section 9 of the existing road traverses a difficult mountain terrain. Practically there are no pavement and drainage facilities. Only one lane exists with very poor geometrical characteristics and visibility.

Nearby Karamyk village there are available gravel quarries.
For the design of the very crucial last kilometres, it is very important to know precisely where the road project connects on the Kyrgyz-Tajik border. The design of the last kilometres on the Tajik territory is not yet clear, particularly if connection at border is at present road location or more downhill. Information shall come from Tajik authorities.

12- Alternatives for Pre-Feasibility Study

The various above mentioned geometric design alternatives will be tested in the Pre-Feasibility Study (see schematic drawings in Appendix). Pavement alternatives have also to be tested.
It appears that the major benefits of the total project will come from reconstruction of Section 9 close to the border, due to the much more important generated international traffic. The different scenarios with the other alternatives will all include this section 9 reconstruction.

Project Planning

1- Relation/Co-ordination with other Projects

The major project connected to the present project is the ADB financed Dushanbe-Kyrgyz border Road Rehabilitation project (see above) which is the continuation of the project on Tajik territory. As it is conducted in Tajikistan no direct contact could be established to follow in particular completion of Phase III. But the meeting held on 29 January 2007 in Manila between our Project Director Matthieu Loussier and ADB officials in charge of this project has cleared up most questions (see Annex 1 : Minutes of Meeting). We should receive shortly Phase III Draft Report.
Two other projects dealing with road maintenance and financed by ADB are underway within Ministry of Transport: the first one "Improving Road Maintenance and Strengthening the Transport Corridor Management Department" with Mr John Bentley (TERA) and the second one "Maintenance of Regional Road Transport Corridors" with Mr David Lupton (Cardno). Regular contact is maintained with them with exchange of information on data already collected on the Sary Tash – Karamyk road.
Contact has also been established with Mr Michael Sims who is advising the Ministry of Transport about strategy.
During their Kick-off meeting contact has also been established with Mr Thorsten Harder, Team Leader of the EC financed environmental project "Support to the establishment of the Pamir-Alai Transboundary Conservancy Area between Kyrgyzstan and Tajikistan" which is adjacent to our road.

2- Project objectives

The overall objective of the project is to improve the viability of the road corridor linking on one side Afghanistan (Kabul), South Uzbekistan (Termez) and Tajikistan (Dushanbe) and on the other side Kyrgyzstan (Sary Tash, then Osh and Bishkek) and China (Irkeshtam pass, then Kashgar and Urumqi).
The more precise goal is to rehabilitate the road missing link between Tajikistan border and Sary Tash.
To that end the project aim is (i) to produce a feasibility study for the road rehabilitation in order to demonstrate the project is bankable, and (ii) to produce final design and tender documents in order to launch construction tender.

3- Project approach

The project approach remains fully compliant with the Terms of Reference and remains identical to the approach described in our Technical Proposal "Organisation & Methodology".
The only deviation with this latter is the organisation of the various surveys on the site.
In our "Organisation & Methodology" we had planned two periods of surveys, one for the Preliminary Feasibility Study and the other for the Final Design.

As it appears that site surveys can be organised only from May to October due to the very severe weather conditions of the area (important presence of snow) and as our project extends from November 2006 to May 2008, only one period of surveys will be organised from May 2007 to September 2007. In particular the programme of topographical and soil surveys in that period will have to include all data needed for the final design.

4- Intended outputs

Principal outputs at the end of the project are Feasibility Study Report and Tender Dossier with Final Design, Construction Quantities and Costs.
As mentioned in the Project approach, a Preliminary Feasibility Study will be first carried out with the objective of testing various options (scenarios on different sections with possible alternatives of design and pavement). The Preliminary Feasibility Study Report will be issued in November 2007 when all specific surveys and studies will be completed.
Meanwhile each specific study, necessitating intervention of specific experts, will be the object of particular reports which will be issued around September 2007 at the end of the surveys period, namely:

- Hydrological studies report
- Slope stability study report
- Preliminary structures study report
- Environment Impact Assessment report
- Social Impact Assessment report

Two other specific reports will be issued a little later in the same time as the Preliminary Feasibility Study report in November 2007:

- Maintenance study report
- Preliminary toll/transit fees study report

The Final Feasibility Study Report will be issued in May 2008. It will be relative to the preferred option and include all revised costs derived from the Final Design. It will also include the final maintenance study and the final toll/transit fees study.
A Financial Management Assessment report will be issued a little earlier in February 2008.

Two one-day seminars will be also organised and considered as outputs:
The first one at the end of March 2007 will be dedicated to road design standards, geometry and pavement. It will be presented by the two key experts, Senior Highway Design Engineer and Senior Geotechnical Engineer assisted by the two local long term Highway Engineer and Geotechnical Engineer.
The second one will be organised in December 2007 after issuance of the Preliminary Feasibility Study report. It will be dedicated to the feasibility study itself: technical-economic study, use of HDM4 model, toll/transit fees study.
In addition day to day training is provided by the 3 key experts to the long term local experts hired for the whole duration of the project: Transport Economist, Highway Design Engineer and Geotechnical Engineer. In particular these latter will have to explain the Preliminary Feasibility report during the second seminar.
Most foreign short term experts will be accompanied also by local counterparts hired for a longer time and accordingly trained.

5- Planning for the whole duration of the project

Form 1 shows the overall plan of operations for the whole duration of the project extending from 15 November 2006 to 15 May 2008 with the necessary inputs in terms of Short Term Experts (foreign and local).
Long Term Experts, i.e. foreign Key Experts (Transport Economist, Highway Design Engineer and Geotechnical Engineer) are assigned for the total duration of the project and have not been specified.
As mentioned earlier the timing of the activities is heavily affected by the period when the site surveys are carried out. As they cannot start before May 2007, all activities which are independent of the data collected on the site are to be performed before that date.
For economic studies, in addition to collection of socio-economic data which is already completed, mine production and forecasts will be assessed. Evaluation of various growth rates will be also established for traffic forecasts. Unit operating costs of vehicles, to be entered into economic evaluation model (HDM4), will be also reviewed and updated.
For technical studies, in addition to site reconnaissance and collection of documents and maps which is almost completed, a thorough survey of design standards will be performed; it will be also the purpose of the seminar to be organised end of March 2007. Typical drawings of road cross sections and of drainage structures will be prepared. Particularly important, unit costs of construction will be reviewed from existing studies and updated.
Preparation of the site surveys can also start before May 2007. Contracts have to be established with the entity in charge (probably Kyrgyzdortransproekt) for traffic, topographical and geotechnical surveys.
No Short Term Expert is assigned during this preliminary phase before field surveys.

Hydrological studies are the first specific studies to be performed with short term experts, as their output will govern the other studies. Structural studies will be conducted in continuation for the different bridges or drainage systems.
We have also included the mission of a Slope Stability Expert, due to the difficulty of the last section and also of the erosion problems.
Environmental Impact assessment and Social Impact assessment will be also dealt with during the summer period with relevant experts in accordance with ADB guidelines.
Road maintenance is also included, but with reduced inputs due to existing ADB financed studies which will then be completed.
Particularly specific for this project will be the study of transit fees or toll for the international transit traffic from Tajikistan to China. It will be linked to the customs issue and special facilities will have to be designed. Specific short term experts will be assigned at the end of the Preliminary Feasibility Phase.
The Preliminary Feasibility Study will consider the different design alternatives in various scenarios which will be tested with help of the HDM4 model. A specific expert will assist and train the different experts in charge.

The Final Feasibility Study and the Final Design with Tender Documents will be conducted in parallel in the last 5 months, taking into consideration the selected alternative.
The Financial Management Assessment will be dealt with during this period by the long term Transport Economists.
Specific short term experts (foreign and local) will be assigned for the elaboration of contract documents and procurement specifications.

6- Constraints, Risks and Assumptions

As already mentioned the major constraint is due to climatic conditions in the high altitude site area. We have anticipated that conditions will be favourable from 1 May 2007 to start site surveys. If 2007 winter is longer than usual and presence of snow still too important, there might be some delay in our planning.
We also assume to receive before May 2007 precise information about the Road Project on the Tajikistan side close to the border, in order to know where to connect our Project.
Final report of Phase III of the ADB financed Dushanbe-Kyrgyz border Road Rehabilitation Project is also important for revised data of the international transit traffic. We assume to receive it also before May 2007.

7- Planning for next reporting period

Next reporting period is from 15 February 2007 to 15 May 2007.
As mentioned earlier in 5 it will be mostly devoted to preliminary phase with collection of data and preparation of site surveys which are planned to start on 1 May 2007.
Form 3 shows the necessary inputs in terms of working days of Short term Experts.
We have planned the start of hydrological studies, which are the most crucial, a little in April 2007. Hydrologists and possibly Structure Experts are the only Short Term Experts to be assigned in that period.

Annex

Annex 1

Sari Tash - Karamyk Road Rehabilitation Feasibility Study

Coordination Meeting with the ADB, January 29, 2007

Matthieu Loussier, BCEOM's Project Director, met with ADB officials in Manila on January 29, 2007 to discuss :

(i) the connection between the Sari Tash - Karamyk Road Rehabilitation Feasibility Study in Kyrgyzstan and the ADB-funded Dushanbe - Kyrgyz Border Road Rehabilitation Projects (Phase II and Phase III) in Tajikistan; and

(ii) the possibility of the ADB providing a Loan for the Sari Tash - Karamyk Road Rehabilitation.

The following ADB officials were met:

- Hong Wang, Principal Economist, Infrastructure Division, Central and West Asia Department (Sector Manager for transport projects in Central Asia)
- Rustam Ishenaliev, Transport Specialist, Infrastructure Division, Central and West Asia Department (Project Manager for transport projects in Tajikistan)
- Roka Sanda, Investment Specialist, Infrastructure Division, Central and West Asia Department (Project Manager for transport projects in Kyrgyzstan)

1. Connection between the Sari Tash - Karamyk Road Rehabilitation Feasibility Study in Kyrgyzstan and the ADB-funded Dushanbe - Kyrgyz Border Road Rehabilitation Projects in Tajikistan

Status of the Rehabilitation of the border section in Tajikistan

The ADB is currently providing a loan to Tajikistan for the Dushanbe - Kyrgyz Border Road Rehabilitation Project, Phase II. The project includes the improvement of the 12km section adjacent to the Kyrgyz border, which at present represents a bottleneck to cross-border traffic. This section is in mountainous terrain and prone to recurrent landslides in its midst. It is closed throughout the winter and periodically during the rest of the year. The scope of works funded by the ADB on this section includes (a) a modification of the alignment in its midst around the landslide area with the construction of a small bridge and (b) the construction of a gravel surface on the whole section. The budget for the improvement of this section is estimated at USD 1.6 Million.

No Preliminary Engineering Design is available to date for the rehabilitation of this border section. It is the understanding that considering the amount of civil works at stake, engineering is the responsibility of the Tajik road agency and works will be procured according to national methods. Works are expected to be carried out in the second half of 2007.

The alignment in the last few kilometers to the border (beyond the landslide area) will be kept as is, therefore the road alignment on the Kyrgyz side of the border should also be kept identical to the existing one in the section immediately adjacent to the border.

Results from economic and trade facilitation studies undertaken as part of the ADB Project Preparation TA (PPTA) for Phase III

The ADB is currently providing a technical assistance grant to Tajikistan for the preparation of the Dushanbe - Kyrgyz Border Road Rehabilitation Project, Phase III, which will complete the rehabilitation on the remaining sections of the road. This Project Preparation TA is undertaken by Cardno (Team Leader: Ed Vowles). A draft report was submitted to the ADB. The final TA report should be ready around March 2007.

Of particular interest is that the Tajikistan road rehabilitation PPTA includes (i) an assessment of the trade potential on the Afghanistan - Tajikistan - Kyrgyzstan - China transport corridor constituted by the project roads (ii) updated traffic forecasts on the project road, (iii) recommendations for trade facilitation measures (in terms of bilateral/ multilateral agreements and cross-border tariffs), and (iv) preliminary design of cross-border facilities. The first 3 items above are currently being finalized by Cardno. Item (iv) has not been touched to date and it is not clear whether is still fits within the scope of the PPTA.

As the outputs of this PPTA will be highly relevant to the Sari Tash - Karamyk Road Feasibility Study, ADB's Transport Specialist Rustam Ishenaliev advised that BCEOM liaise directly with Cardno's Team Leader Ed Vowles in order to obtain their latest draft report.

2. Discussion of the possibility of the ADB providing a Loan for the Sari Tash -Karamyk Road Rehabilitation

ADB's Principal Economist Hong Wang indicated that to date the ADB had not committed to provide a loan for the Sari Tash - Karamyk road rehabilitation, and that the question was open for future policy dialogue between the ADB and the Kyrgyz Government. The ADB wishes that a certain degree of coordination be maintained with BCEOM on the status of the Feasibility Study. In particular the ADB will be looking forward to reviewing the results of the Preliminary Feasibility Study in October 2007, which will be first considered before any project investment commitment from the ADB.

The ADB stressed the importance of the economic return criteria in the project appraisal. In particular, it might be that only some sections of the 149km from Sari Tash to Karamyk might justify rehabilitation from an economic standpoint. The low borrowing capacity of the Kyrgyz Government should also be kept in mind when considering the different options during the preliminary feasibility study.

Given the country approach of ADB operations, in the case where a significant part of the economic benefits from the project would accrue to countries other than Kyrgyzstan (e.g., Tajikistan, China) the ADB would not be ready to provide a loan to Kyrgyzstan to finance the totality of the project costs; instead, the other beneficiary countries would be invited to discuss the possibility of shouldering a part of the project investment costs; or a transit fee could be established to finance maintenance. These options would be discussed pending on the results of the preliminary feasibility study.

Annex 2

Pre-Feasibility and Feasibility Studies for Road Sections of the Termez-Dushanbe-Sary Tash Road

Minutes of Steering Committee Meeting held on 6 February 2007

The meeting took place in BCEOM Project office in Bishkek with the following participants:

From Ministry of Transport and Communications:
- Mr Kurmanbek Chimchikov, Head of Project - Implementation Unit
- Mrs Elena Nalobina, Main Expert – Department Foreign Economic Relations

From European Commission:
- Mrs Gulnara Dusupova, Project Manager, Delegation of the European Commission in Kazakhstan, Kyrgyz Republic and Tajikistan

From BCEOM:
- Mr Francois Chatain, Team Leader
- Mr Sevdalin Berberov, Key Expert – Highway Engineer

BCEOM Team Leader, Francois Chatain made a general presentation of the Project, stressing that in spite of official name, the Project encompasses Preliminary Feasibility, which is analysis of various alternatives, Feasibility Study, with the selected option, and also Final Design with all tender documents for construction, all over the 18 months duration.

Maps of Project Road within Kyrgyzstan and Central Asia, to be included in the Inception Report, were distributed to participants.
The Project Road serves a low populated area (30000 people), with many less inhabitants than mentioned in the Terms of Reference. Except agriculture coal mine is the main activity.
The international transit role of the Project Road was stressed as major land access of Tajikistan and Afghanistan to China. It is also on the corridor linking Kyrgyzstan to the nearest sea-port in Pakistan.
Due to the very bad condition of the road around the border, both on Tajik and Kyrgyz sides, international traffic is presently very low and total traffic on the Project Road is much lower than mentioned in the Terms of Reference (less than 200 vehicles/day against 3000).
Connection with the ADB financed project of Dushanbe-Kyrgyz border is very important. The report on the meeting held on 29.01.2007 between BCEOM Project Director and officials in charge of this project with ADB in Manila was given to participants.
Particularly important to know is the Road Project design on Tajik territory near the border. The Ministry of Transport of Kyrgyz Republic is taking contact with its homolog in Tajikistan to collect the necessary information.
Important connected project is also the Osh-Irkeshtam road rehabilitation project. It was agreed that full construction/rehabilitation of this road will be completed before rehabilitation of the Project Road.
Permanent contact has been maintained with the other ADB financed road maintenance projects carried out with the Ministry of Transport. As these projects will be completed mid-2007 their conclusions and recommendations will be included in our Project for the specific Project Road.

Highway Engineer, Sevdalin Berberov presented the Project Road with relevant map to be included in the Inception report.
The first sections from Sary Tash to Daroot Korgon present very few problems. From Daroot Korgon to Karamyk several sections are under threat of erosion from the adjacent river. The importance of Hydrological studies has been stressed; they will have to be carried out as soon as possible when climate conditions permit.
Several preliminary drawings were presented for the crucial sections where alternative designs will be studied.
The last section from Karamyk to the Tajik border is the most difficult as it is presently only one lane with no pavement in hilly terrain, but probably with the best economic return, as it should permit freely international transit when rehabilitated. It includes construction of a new bridge near Karamyk; its localization has to be optimised.

The Overall Plan of Operations to be included in the Inception Report was presented. Timing is very dependent of the period of surveys which can only be from May to October 2007. Surveys for the detailed design shall also be carried out in that period.
All activities independent from field surveys will be performed before.
The overall Output Performance Plan was also presented. Major outputs will be Preliminary Feasibility Study in November 2007, and Final Feasibility Study, Detailed Design and Tender Dossier in May 2008. Intermediate studies with specific Experts will produce also specific reports.

Two one–day seminars have been forecasted. The first one in March 2007 will be dedicated to technical highway engineering. BCEOM proposed design standards. Subjects will be finalised after agreement between Ministry of transport and BCEOM. The second seminar will be held in December 2007 and will be dedicated to feasibility itself and economic/financial techniques.

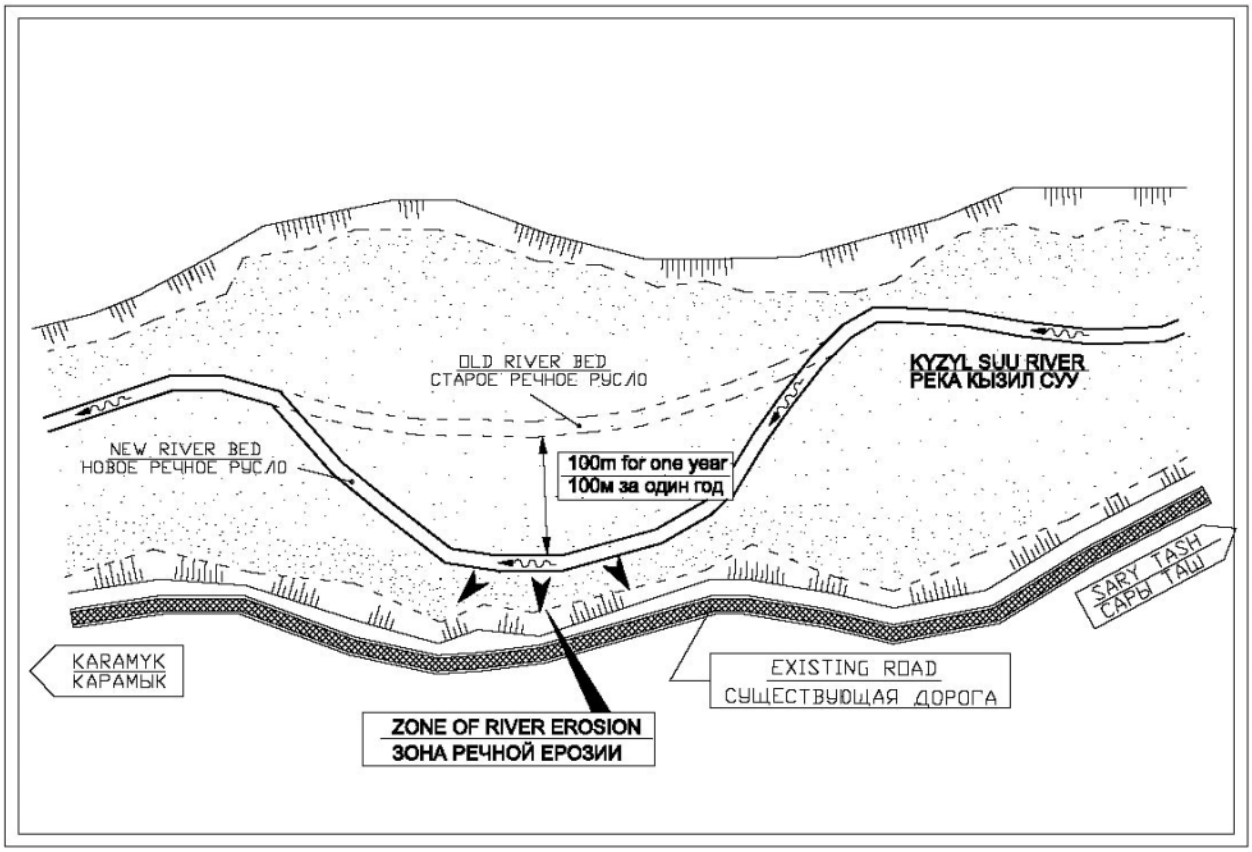
For training, BCEOM declared that they are organising day to day training with their local staff in Bishkek office and on site when possible. All key experts and most foreign experts will have local staff working together with them.

A kick-off meeting relative to the present project, with large audience and press coverage, will be organised in April 2007 in EC Delegation in Bishkek.

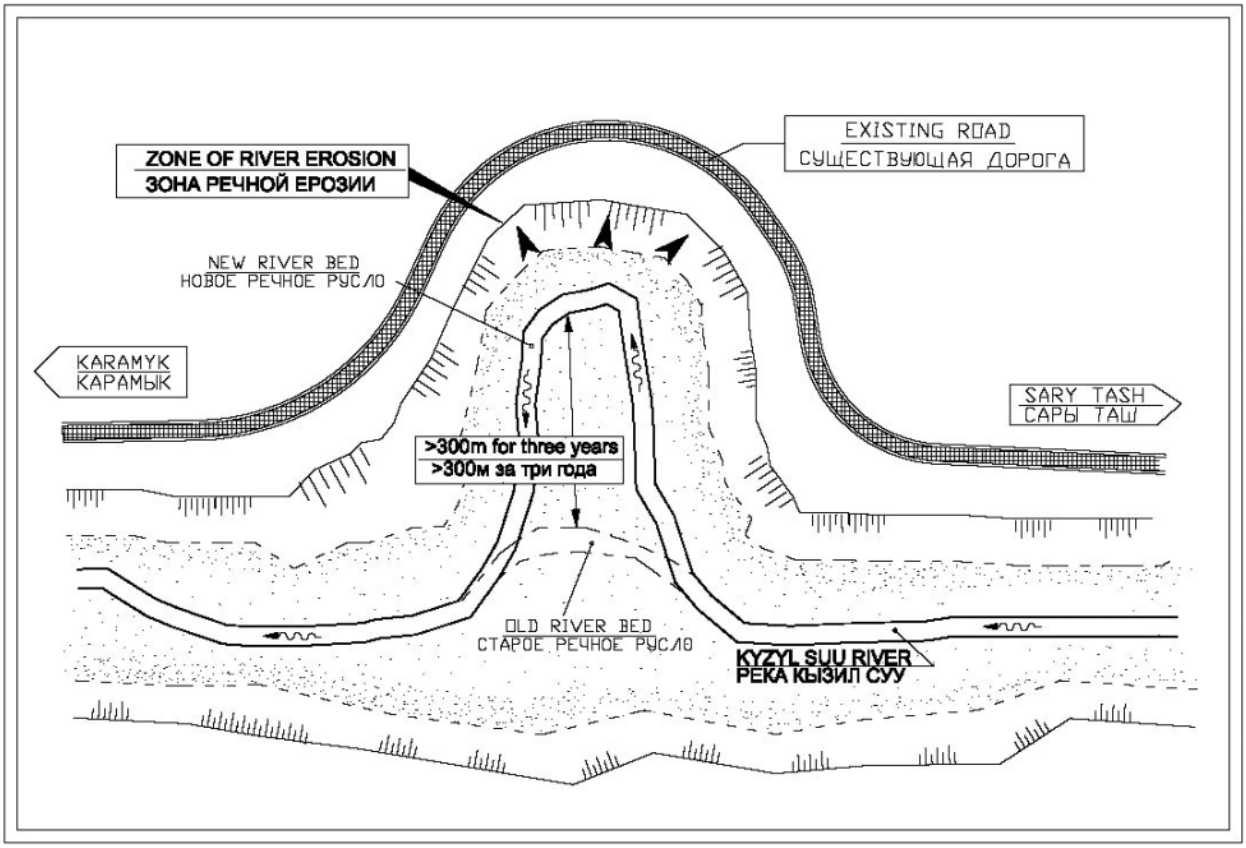
Annex 3

Critical sections of the Road

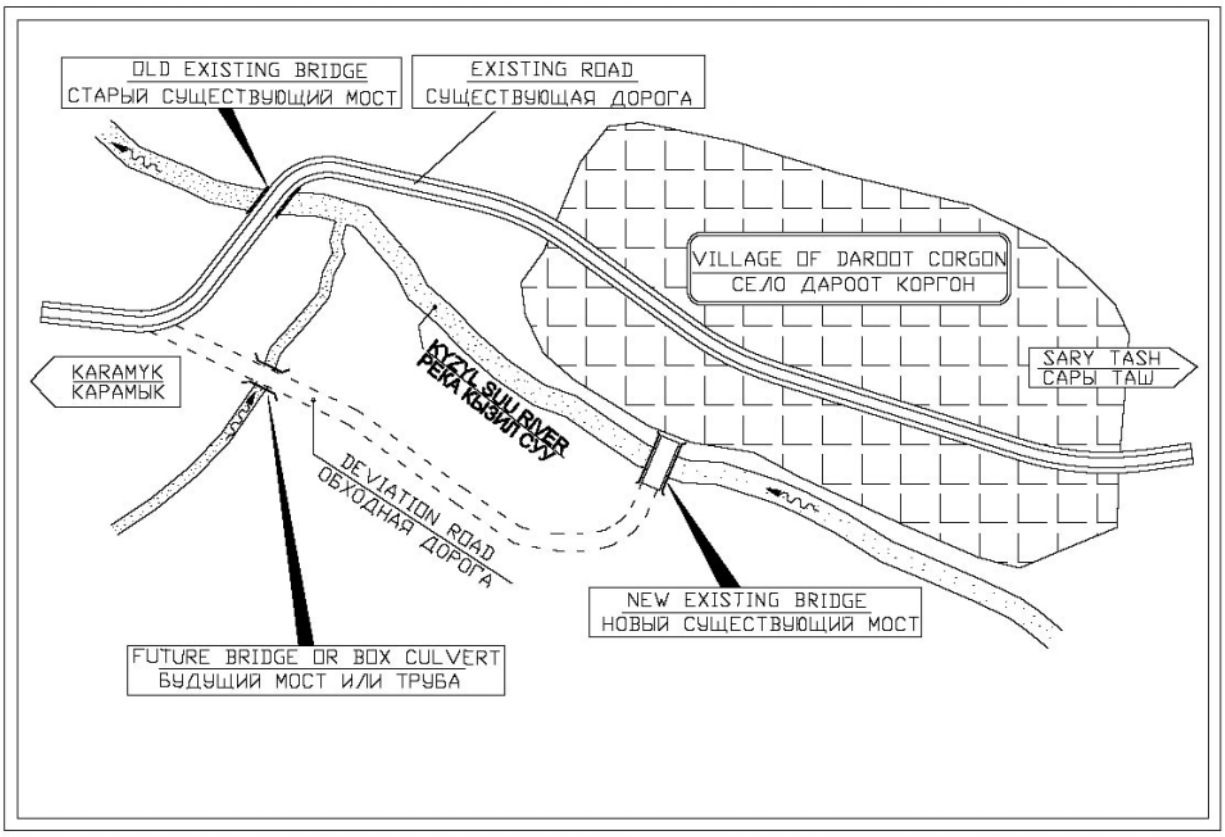
RIVER EROSION PROBLEMS - SECTION km 114+000 - km 116+000
ПРОБЛЕМЫ РЕЧНОЙ ЕРОЗИИ ОТ КМ 114+000 ДО 116+000



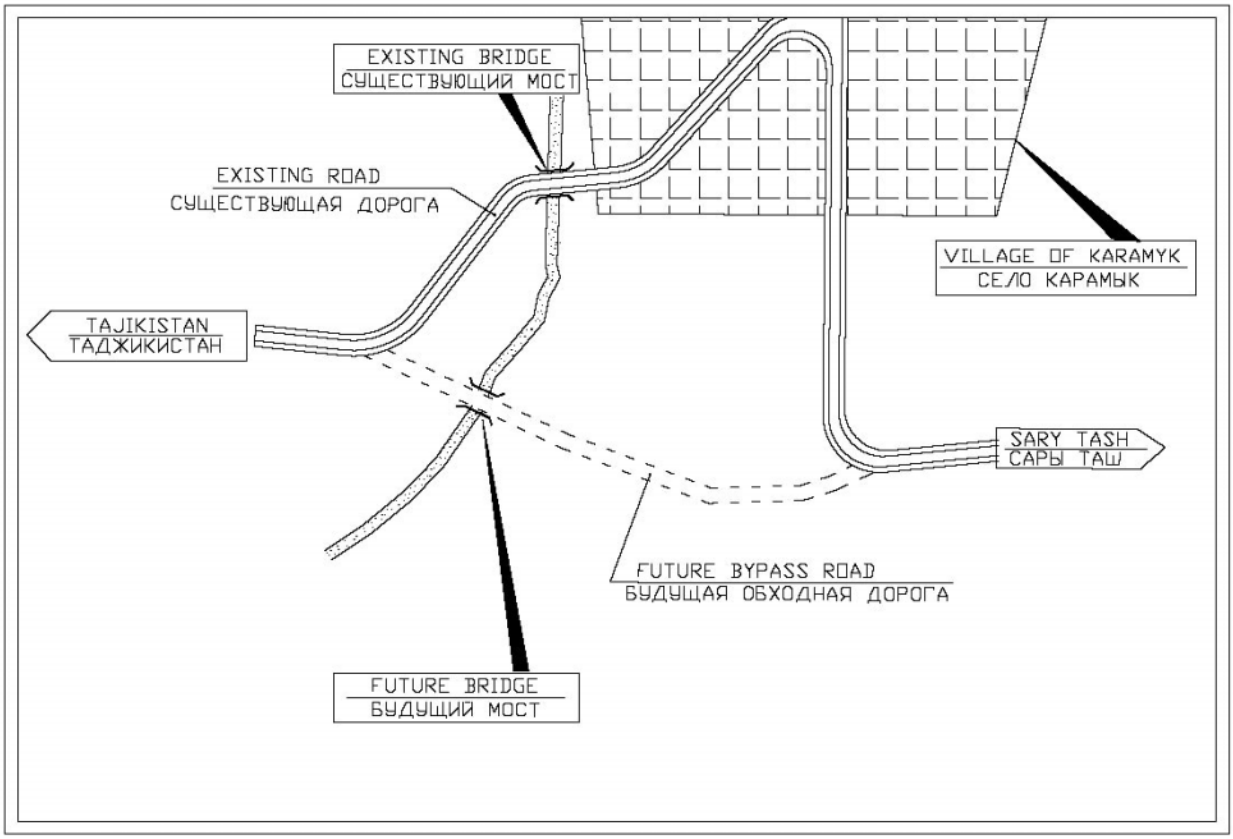
RIVER EROSION PROBLEMS - SECTION km 122+000 - km 125+000
ПРОБЛЕМЫ РЕЧНОЙ ЕРОЗИИ ОТ КМ 122+000 ДО 125+000



DEVIATION ROAD NEAR VILLAGE OF DAROOT CORGON
ОБХОДНАЯ ДОРОГА ВБЛИЗИ СЕЛА ДАРООТ КОРГОН



BYPASS ROAD NEAR VILLAGE OF KARAMYK
ОБХОДНАЯ ДОРОГА ВБЛИЗИ СЕЛА КАРАМЫК



FORM 1: OVERALL PLAN OF OPERATIONS

Project title : Pre-Feasibility and Feasibility Studies for Road Sections of the Termez-Dushanbe-Sary Tash Road	Project number : 110-465	Country : Kyrgyzstan	Page : 1
Planning period : 15/11/2006 – 15/05/2008	Prepared on : 5/02/2007	EC Consultant : BCEOM	

Project objectives: Improve viability of the missing link in Kyrgyzstan of the international corridor linking Afghanistan, South Uzbekistan and Tajikistan on one side and Kyrgyzstan and China on the other side.
Produce feasibility study for road rehabilitation/construction and tender documents for a bankable project.

No	MAIN ACTIVITIES	TIME FRAME							INPUTS					
		2006	2007				2008		PERSONNEL (Working Days)					OTHER
		4	1	2	3	4	1	2	Long Term		Short Term Foreign		Short Term Local	
1	Mobilisation – Site reconnaissance - Data collection - Analysis of existing situation	xx	xxx						+					
2	Regional analysis – Economic forecasts		xxx	xx					+					
3	Design options and standards		xxx	xxx	x				+					
4	Seminar		x						+					
5	Unit costs		x	xxx					+					
6	Traffic counts and origin-destination surveys			xx	xx				+			43	Senior Traffic expert	Traffic surveys
7	Topographical surveys			x	xxx				+					Topographical surveys
8	Hydrological studies			xxx	x				+	20	Hydrologist Engineer	86	Senior Hydrologist Engineer	
												43	*Junior Hydrologist.*	
9	Soils and materials investigation			xx	xxx				+	10	Slope Stability Engineer			Soil surveys/ Laboratory testing
10	Preliminary Structural studies			xx	x				+	20	Structural/Bridge Engineer	76	Structural/Bridge expert	
11	Environmental Impact Assessment			x	xx				+	10	Environment Expert	64.5	S. Environment expert	
12	Social Impact Assessment			x	xx				+	10	Sociologist	64.5	Senior Sociologist	
13	Maintenance Cost Estimates				x	x			+	5	Road Maintenance Spec.	32	S. Road Mainten. Specialist	
14	Preliminary design and quantity estimates			x	xxx	x			+			*129*	*Junior Design Technician.*	
15	Preliminary Economic Analysis of options				x	x			+	15	HDM4 Specialist	21.5	S. Cost/Quantity Eng	

FORM 1: OVERALL PLAN OF OPERATIONS

Project title : Pre-Feasibility and Feasibility Studies for Road Sections of the Termez-Dushanbe-Sary Tash Road	Project number : 110-465	Country : Kyrgyzstan	Page : 2
Planning period : 15/11/2006 – 15/05/2008	Prepared on : 5/02/2007	EC Consultant : BCEOM	

Project objectives: Improve viability of the missing link in Kyrgyzstan of the international corridor linking Afghanistan, South Uzbekistan and Tajikistan on one side and Kyrgyzstan and China on the other side.
Produce feasibility study for road rehabilitation/construction and tender documents for a bankable project.

No	MAIN ACTIVITIES	TIME FRAME							INPUTS					
		2006	2007				2008		PERSONNEL (Working Days)					OTHER
		4	1	2	3	4	1	2	Long Term	Short Term Foreign		Short Term Local		
16	Preliminary Toll/Transit fees recommendations				x	x			+	15	Customs/Toll Expert	43 32	Senior Customs Expert S. Custom. Facilities expert	
17	Preparation of Preliminary Feasibility Study Report					xx			+					
18	Seminar					x			+					
19	Financial Management assessment						xx		+					
20	Selected option Cost estimate / Final Economic analysis						xx		+					
21	Final Toll/Transit fees recommendations						x	x	+					
22	Final Feasibility report							x	+					
23	Detailed design and engineering plans					x	xxx		+	10 10	Structural/Bridge Engineer Hydrologist Engineer	54 21 *322.5*	S. Structural/Bridge Eng. S. Hydrologist Eng. *Junior Design Technician*	
24	Customs facilities design						xx		+					
25	Tender documents						xxx	x	+	15	Contract/Procur. Spec.	86 21.5	S. Contr./Procur. Spec. S. Cost/Quantity Eng.	
26	Detailed design report						xxx	x	+					
27	Final report							xx	+					
							TOTAL (Working Days)		900 Foreign 1075 Local	140	Senior Foreign Experts	645 *494.5*	Senior Local experts *Junior Local experts*	

FORM 2: OVERALL OUTPUT PERFORMANCE PLAN

Project title : Pre-Feasibility and Feasibility Studies for Road Sections of the Termez- Dushanbe-Sary Tash Road	Project number : 110-465	Country : Kyrgyzstan	Page : 1
Planning period : 15/11/2006 – 15/05/2008	Prepared on : 5/02/2007	EC Consultant : BCEOM	
Outputs (to be described and target dates indicated)	Agreed Objective Verifiable Indicators	Constrains and Assumptions C/A	
- Seminar after inception phase; design standards : March 2007 - Hydrological Study : September 2007 - Slope Stability Study : September 2007 - Preliminary Structures Study : September 2007 - Environment Impact Assessment : September 2007 - Social Impact Assessment : September 2007 - Maintenance Study : November 2007 - Preliminary Toll/Transit Fees Study : November 2007 - Preliminary Feasibility report with Technical studies of different options and Economic studies : November 2007 - Seminar about Feasibility Study : December 2007 - Financial Management Assessment : February 2008			

FORM 2: OVERALL OUTPUT PERFORMANCE PLAN

Project title : Pre-Feasibility and Feasibility Studies for Road Sections of the Termez- Dushanbe-Sary Tash Road	Project number : 110-465	Country : Kyrgyzstan	Page : 2
Planning period : 15/11/2006 – 15/05/2008	Prepared on : 5/02/2007	EC Consultant : BCEOM	
Outputs (to be described and target dates indicated)	Agreed Objective Verifiable Indicators	Constrains and Assumptions C/A	
- Final Feasibility Study with all Technical, Economic and Financial Evaluations : May 2008 - Detailed Design of selected option with Technical Specifications, Construction Quantities and Costs : May 2008 - Tender dossier : May 2008			

Form 3: PLAN OF OPERATIONS FOR THE NEXT PERIOD (Work programme)

Project title : Pre-Feasibility and Feasibility Studies for Road Sections of the Termez-Dushanbe-Sary Tash Road	Project number : 110-465	Country : Kyrgyzstan	Page : 1
Planning period : 15/02/2007 – 15/05/2007	Prepared on : 5/02/2007	EC Consultant : BCEOM	

Project objectives: Improve viability of the missing link in Kyrgyzstan of the international corridor linking Afghanistan, South Uzbekistan and Tajikistan on one side and Kyrgyzstan and China on the other side.
Produce feasibility study for road rehabilitation/construction and tender documents for a bankable project.

		TIME FRAME								INPUTS					
		2007								PERSONNEL (working days)					OTHER
		FEBRUARY		MARCH		APRIL		MAY		Long Term	Short Term Foreign		Short Term Local		
No	ACTIVITIES														
1	Data Collection – Analysis of existing situation		xx	xx	xx					+					
2	Regional analysis-Economic forecasts		xx	xx	xx	xx	xx	xx		+					
3	Design options and standards			xx	xx	xx	xx	xx		+					
4	Seminar				x					+					
5	Unit costs			xx	xx	xx	xx	xx		+					
6	Traffic counts and origin-destination surveys						xx	xx		+					Traffic surveys
7	Topographical surveys						x	xx		+					Topographical surveys
8	Hydrological studies					xx	xx	xx		+	11	Hydrologist Engineer	32	Senior Hydrologist Eng.	
9	Soils and materials investigation						x	xx		+					Soil surveys/Laboratory testing
10	Preliminary Structural studies							xx		+	6	Structural/Bridge Engineer	11	S. Structural/Bridge Eng.	
								TOTAL (working days)		158 Foreign 189 Local	17	Senior Foreign Experts	43	Senior Local Experts	