



**Tacis Regional 2000 Traceca Programme**

**Rehabilitation of Caucasian  
Highways  
Azerbaijan, Georgia and Armenia**

**Final Report No 2- Azerbaijan**

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This Project is  
funded by the  
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A technical  
Support Project  
By Louis  
Berger SA



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## 1.0 PROJECT SYNOPSIS

Project Title	Rehabilitation of Caucasian Highways Azerbaijan, Georgia and Armenia
Project Number	EUROPEAID/113179/C/SV/MULTI
Country	Azerbaijan

<b>Wider Project Objectives</b>	The Wider Project Objectives are to support the Republics to catch up with their serious backlogs in road maintenance, and to cope with growing local, and international transport.
<b>Specific Project Objectives</b>	The Specific Project Objectives are to provide consultancy services for three Beneficiaries. These all being the State Departments of Roads in their respective Countries namely Azerbaijan, Georgia and Armenia.
	In Azerbaijan, <b>Component 1</b> there are four subcomponents of the Project: <ul style="list-style-type: none"> <li>1.1) Review of Designs and Tender Documents;</li> <li>1.2) Supervision of Construction of the WB (IDA) financed road sections under the Azerbaijan Highway Project;</li> <li>1.3) Assistance to the joint Project Implementation Unit (PIU) for the World Bank and EBRD roads Projects;</li> <li>1.4) Technical supervision of the TACIS project: Construction of two bridges/ Gasan Su Chay and Shemkir.</li> </ul>
<b>Planned Outputs</b>	In Azerbaijan, the planned outputs is: <ul style="list-style-type: none"> <li>1.1) Assistance to the PIU such that they become an experienced unit and fully conversant with the procedures of all the International Funding Institutions (IFI);</li> <li>1.2) Supervision of six Contracts such that they are all finished in accordance with the International Standards and within the programmed time and in accordance with the budget.</li> </ul>
<b>Project Activities</b>	The Project is set up in the form of separate Components (3 Components) all of which form the main basis of the proposed project activities. For Azerbaijan Component the project activities are to review of the Design and Contract Documents, Construction Supervision of 5 road sections from Ganja to Gazakh, Technical Assistance to the Project Implementation Unit (PIU) and Technical Supervision of the TACIS project "Reconstruction of 2 bridges Gasan Su and Shemkir".
<b>Project Starting Date</b>	Contract signed on 25 <sup>th</sup> November 2002
<b>Project Duration</b>	24 months for the 3 Components
<b>Revised Project Duration</b>	28 months for the 3 Components

## **2.0 SUMMARY OF PROJECT SINCE THE START OF THE PROJECT**

The Team Leader arrived in Baku on 19<sup>th</sup> January 2003 accompanied by the Project Director. The Project Team Leader has resigned from the Project and LBSA Project Coordinator has replaced him from June 10<sup>th</sup> to mid August 2003. The new Project Team Leader, approved by the EC through the Addendum No 1 to Consultant Services Contract, has been taking activities since 14<sup>th</sup> August 2003.

The Team Leader has performed project site visits to Ganja-Gazakh. Main activities and inputs utilized for the 3 Components are illustrated in the **Form 3.2 Project Completion Report**.

### **2.1 Summary on Component 1, Azerbaijan: Design Reviews, Construction Supervision and Assistance to the Project Implementation Unit (PIU)**

#### **Sub-component 1.1 Reviews of the Design and Contract Documents**

By the time of the start of Consulting Services, 2 out of 6 Contracts for Civil Works have already been tendered and Contracts awarded. Thus, Consultant had no possibility to review Tender Documents before Bid process. Reviews of Contract Documents have been taking place during the execution of the 2 Contracts: Ganja-Shemkir road section and the two Bridges.

Design and Tender Documents for lots 1 to 4 Shemkir to Gazakh road sections (4 ICB Contracts) have been reviewed and submitted in August 2003. Pavement Design Evaluation Report has also been delivered in August 2003 (Please refer to **Annex 7, reports produced**).

#### **Sub-component 1.2 Construction Supervision of Ganja to Gazakh Road**

Civil Works Contracts are financed by the World Bank (WB) / IDA. The Civil Works for Ganja-Shemkir road section have been awarded to Turan Hazinedaroglu-Oztas joint venture.

From the start, serious problems with the original design survey data were found. KOCKS (Designer) Consultant's Managing Director and Transportation Engineer has visited the site in August 26, 2003 and reported on September 8, 2003 confirming the problematic issues with the longitudinal profile. Works are completed.

Civil Works for Shemkir to Gazakh road sections have been awarded to Azerkorpu-Azwirt Consortium (Contracts CW 2003/ 1 and 2) and to MZ Autobahn BAU GMBH (Contracts CW 2003/ 3 and 4). Again serious problems with the original design survey data have been found.

Consultant has point out problems on survey data. KOCKS Senior Highway Engineer has visited the site on 31 May 2004. In order to minimize difficulties occurred on the designs, Consultant has appointed CAD engineer to help the Contractor producing the Working Drawings.

Completion Date is by 23 August 2005; delay is expected.

#### **Sub-component 1.3 Assistance to the PIU**

Consultant has been providing day-to-day assistance to the PIU, including equipping the PIU, providing salaries, providing a training session on implementation of internationally funded projects and training in place and abroad at Louis Berger Paris offices between 12-23 December 2004.

In addition to the above, the assistance to the PIU was focused on: Updating the Procurement Plan of WB and EC projects negotiated with the Government of Azerbaijan; preparation of revised pre-qualification Document, Tender Documents and Example of Tender Evaluation Report for the reconstruction of the GaziMammed to Kyurdamir road section (85 km) financed by the EBRD. For more details, please refer to **section 4** of this Report, **Sub-component 1.3 Assistance to PIU**.

#### **Sub-component 1.4 Technical Supervision of the TACIS project "Reconstruction of two Bridges Gasan Su Chay and Shemkir"**

The Contract Agreement known as Contract No 30468 was signed on 27 December 2002 between the EC acting on behalf of the beneficiary country and JSC Azerkorpu as Contractor. The period of Performance is established by 240 calendar days from the date of notification of contract approval defined as 10 March 2003. Consequently, the Original Completion Date is by 4 November 2003.

The drawings submitted with the Tender Documents were a preliminary design: no calculations were provided, no detailed reinforcement drawings and cross section on approach roads.

On 8 April and 19 June 2003, the Contractor has submitted the first and second version of the redesign. On 24 July 2003, permission was granted by GOSSTROY for construction to begin on the 2 bridges. Revised Construction Performance Date approved by the EC was by May 31, 2004.

Interim Certificate and Minutes of Taking Over for Provisional Acceptance have been issued on 31 May 2004.

### **3.0 PROJECT PROGRESS IN FINAL PROJECT PERIOD**

This Final Report was delivered one month before the end of the project activities, as stated in the "EU Visibility Guidelines " for Contract duration more than 12 months and as required by the ToR for reporting submission (Please refer to **Section 5.1 Planning Performance and Utilisation**).

#### **3.1 Project Progress on Component 1, Azerbaijan: Design Reviews, Construction Supervision and Assistance to the Project Implementation Unit (PIU)**

##### **Sub-component 1.1 Review of the Design and Contract Documents**

Reviews of Contract Documents have been taking place during the execution of the 2 Contracts: Ganja-Shemkir road section and the two Bridges Contract.

Design and Tender Documents and Pavement Design Evaluation Reports for lots 1 to 4 Shemkir to Gazakh road sections (4 ICB Contracts) have been reviewed and submitted in August 2003.

Status of Works: Completed

##### **Sub-component 1.2 Construction Supervision of Ganja to Gazakh Road**

Civil Works for Ganja-Shemkir road section are completed.

Civil Works for Shemkir to Gazakh road sections have been awarded to Azerkorpu-Azwirt Consortium (Contracts CW 2003/ 1 and 2) and to MZ Autobahn BAU GMBH (Contracts CW 2003/ 3 and 4). Serious problems with the original design survey data have been found.

KOCKS Senior Highway Engineer has visited the site on 31 May 2004 and conformed the problematic issues on original survey. Consultant has point out problems on survey data and appointed CAD engineer to help the Contractor producing the Working Drawings. Completion Date is defined by 23 August 2005 (Contracts Duration 18 months); delay is expected.

Consultant will continue Civil Works supervision under the Contract between RTSD and LB financed by the World Bank/IDA.

##### **Sub-component 1.3 Assistance to the PIU**

Consultant has been providing day-to-day assistance to the PIU on EBRD, EC and WB projects, including equipping the PIU and providing salaries.

The Consultant has organized training abroad at Louis Berger Paris offices using available operation funds. (Please refer to **Annex 1** of this Report, **PIU Training Program**).

In addition, Consultant has assisted PIU in preparation of Tender Documents and in the Pre-tender meeting for the reconstruction of the Hajigabul (GaziMammed) to Kyurdamir road section financed by the EBRD. He has submitted an example of Tender Evaluation Report for similar project financed by the EBRD.

Consultant will continue assisting PIU under the Contract between RTSD and LB financed by the World Bank/IDA.

##### **Sub-component 1.4 Technical Supervision of the TACIS Project "Reconstruction of two Bridges Gasan Su and Shemkir"**

Interim Certificate and Minutes of Taking Over for Provisional Acceptance have been issued on 31 May 2004. Consultants have continued to supervise TACIS project including following up administrative topics during Defects Liability Period.

Status of Works: Completed

#### **3.2 Project Progress on Components 2 and 3, Georgia and Armenia**

Draft Final Report and Final Report were submitted and signed on 18 February 2004 and 18 April 2004 respectively.

Output results carried out by Consultant are summarized in **section 4** of this Report.

Project progress for **component 1**, Azerbaijan is presented in the **Form 2.2 Project Progress Report**.

Resources inputs are presented in Forms **2.3.1** and **2.3.2 Resources Utilization Report** for the 3 Components and per Component respectively.

Deviations, reason for deviations and comments are presented in **Form 2.4 Output Performance Report**.

EC's staff approval and side letters issued by the EC are included in the **Annex 2** to this Report. **Table 1** shows the approval dates of International long and short-term experts. **Tables 2, 3** and **4** illustrate Local Staff approval on Components 1, 2 and 3 respectively.

## 4. OVERALL REPORT ON THE TOTAL PROJECT

### 4.1 Overall report on Component 1, Azerbaijan: Design Reviews, Construction Supervision and Assistance to the Project Implementation Unit (PIU)

Inception Report for the **3 Components** was produced in March 2003 and revised one in April 2003. Final Report for Components 2 and 3 (Georgia and Armenia) was submitted on 18 April 2004.

#### Sub-component 1.1 Review of the Design and Contract Documents

By the time of the start of Consulting Services, 2 out of 6 Contracts for Civil Works have already been tendered and Contracts awarded. Thus, Consultant had no possibility to review Tender Documents and Designs before Bid process. Reviews of Contract Documents have been taking place during execution of the 2 Contracts: Ganja-Shemkir road section and the 2 bridges Contract.

Design and Tender Documents for lots 1 to 4 of Shemkir to Gazakh road sections (ICB) have been reviewed and submitted in August 2003. Pavement Design Evaluation Report has been delivered in August 2003.

Status of the Sub-component 1.1: Works are completed

#### Sub-component 1.2 Construction Supervision of Ganja to Gazakh Road

Civil Works Contracts are funded by the World Bank (WB)/IDA.

From the start, serious problems with the original design survey data were found. KOCKS (Designer) Consultant's Managing Director and Transportation Engineer has visited the site in August 26, 2003 and reported on September 8, 2003 confirming the problematic issues with the longitudinal profile.

The Civil Works for Ganja-Shemkir road section have been awarded to Turan Hazinedaroglu-Oztas joint venture. The Contract Start Date is 21 April 2003 and the Original Contract Completion Date is defined by 21 July 2004 (Contract Duration 15 months).

Due to discrepancies on original survey data, 3 months extension of time has been granted to the Contractor via the Variation Order No.1, thus the revised Completion Date is by 21 October 2004. Additional works have been instructed to the Contractor such as provide and place single seal on shoulders, construction of storm water gutters drain for high embankments including asbestos pipes and additional quantities to the BoQ.

The Consultant after due consultation with the Employer has issued appropriate Variation Orders duly signed by the concerned parties.

Status of Works: completed.

Civil Works for Shemkir to Gazakh road sections have been awarded to Azerkorpu-Azwirt Consortium (Contracts CW 2003/ 1 and 2) and to MZ Autobahn BAU GMBH (Contracts CW 2003/ 3 and 4). Again serious problems with the original design survey data have been found. KOCKS Senior Highway Engineer has visited the site on 31 May 2004. Consultant has point out problems on survey data and in order to minimize difficulties occurred on the designs, Consultant has appointed CAD engineer to help the Contractor producing the Working Drawings. Completion Date is defined by 23 August 2005 (Contracts Duration 18 months); delay is expected.

Consultant will continue supervision of Civil Works under the contract between RTSD and LB financed by the World Bank/IDA.

Project Data is briefly presented in **Annex 3** to this Report, **Tables 4.1, 4.2 and 4.3.**

#### Sub-component 1.3 Assistance to the PIU

The "Azeravtoyol State Concern" has been liquidated and replaced by the RoadTransService (RTSD). The Ministry of Transport has issued in 14 August 2003 a letter to TRACECA Coordination Team-Baku appointing the following authorized representatives of the Client:

Mr. Arif N. Asgarov, Head of Finance and Credit Department of the MoT ia assigned as an authorized person on behalf of the Client;

Mr. Javid Gurbanov as Director of the RTSD and is in charge with executing of the project activities.

Consultant has provided day-to-day assistance to the PIU on EBRD, EC and WB projects, including equipping the PIU and providing salaries.

The PIU Staff is composed of:

- a) PIU Director;
- b) Financial Specialist;
- c) Procurement Specialist;
- d) Translator/Secretary.

Assistance to PIU can be summarized as follows:

### **1.3.1 Procurement Plan**

The PIU has provided Procurement Plan of WB and EC projects as requested by Consultant in order to follow up with further assistance. The Procurement Plan (as agreed at negotiations with the GoA) is updated after discussion with WB mission.

### **1.3.2 Example of Contractor Quality Management System**

Consultant has provided PIU an example of Contractor Quality Assurance Plan (QAP) which contains the following: Contractor Organization, Management responsibility, Documentation of the Quality System, Subcontracted Works, Safety and Signing during road works, Quality Assurance for final Acceptance and Test and Records.

### **1.3.3 Laboratory Equipment**

Consultants have assisted on preparing list of laboratory equipment to be included in the Tender Documents for RTSD laboratory financed by the WB.

### **1.3.4 HDM International Shopping**

Consultants have assisted and provided PIU the appropriate WB Invitation To Quote Document for International Shopping (IS) regarding the Contract: Supply to PIU Office Equipment and Software Package for HDM and Financial Management System (FMS) Programs.

### **1.3.5 Tendering and Evaluation of Tender Documents Shemkir to Gazakh**

Consultants have participated to the Pre-Bid and Bid opening meetings and assisted PIU during Bids evaluation of the 4 ICB Contracts (Shemkir to Gazakh road sections).

### **1.3.6 GaziMammed - Kyurdamir road section**

As stated in the Terms of Reference (ToR), one of the tasks for assistance to the PIU is in implementation of EBRD Projects.

The Consultant has assisted PIU in preparing the revised Pre-Qualification Document for the Reconstruction of GaziMammed to Kyurdamir road section (85 km). Revised Pre-qualification Document has been submitted to PIU on 22 March 2004. The Consultant has also assisted PIU in preparing the Revised Tender Documents (Volume I and Volume II) for the above Road Project. Documents have been set up in accordance with the Procurement of Works issued by the European Bank for Reconstruction and Development (EBRD). Revised Tender Documents have been submitted to PIU on 18 May 2004. Volume III of Tender Documents except Specification has been submitted by KOCKS as settled on between EBRD and KOCKS.

Consultant has assisted PIU in the Pre-Tender Meeting held on 22 November 2004 and issued the appropriate Minutes.

In addition, Consultant has submitted to PIU an example of Tender Evaluation Report as per EBRB Format.

### **1.3.7 Training and English Courses**

Consultant has organized English Training courses in Language Service Direct LTD Baku for PIU staff. Courses started in January 2004 for PIU 's director, financial specialist and procurement specialist. PIU Translator has started English courses end of 2003.

Consultant has submitted to PIU the ISO 9003 Model for Quality Assurance as well as the Training Program on Construction Supervision and Quality Control in English and Russian versions.

Consultant has arranged on 23 May 2003 a seminar on the Contract Procedures and highlighted Conditions of Contract as per *FIDIC* new edition of 1999 compared with the previous edition.

Consultant has also organized training abroad for PIU Staff at Louis Berger Paris offices between 12-23 December 2004 using available operational funds.

The PIU training abroad was focused on:

- Construction Supervision, obligations for the Client;



- Filling system;
- Quality Management;
- Environmental impact;
- French highway past and future;
- Procurement procedure;
- How to answer to Contractors' Claims;
- Work and lab site visits;
- Traffic control;
- Video projection on bridge and road projects.

### 1.3.8 PIU Contract with RTSD

Consultant has assisted PIU in preparing the Contract between PIU and RTSD as per WB Format regarding extension of PIU Services for Ganja-Gazakh road sections and other WB projects in Azerbaijan.

### Sub-component 1.4 Technical Supervision of the TACIS project "Reconstruction of two bridges Gasan Su Chay and Shemkir"

The Contract Agreement for Civil Works was signed between the EUROPEAN COMMUNITY represented by the COMMISSION OF THE EUROPEAN COMMUNITIES acting on behalf of the beneficiary country, as Contracting authority and JSC Azerkorpu, as Contractor.

The Construction of two bridges is financed by TACIS. The relevant Contract is EURPEAID/112944/CW/AZ.

The Shemkir Bridge, structure No 32, is on the Contract known as CW2002/1 (Ganja-Shemkir road section). Civil Works Road Contract financed by the WB is awarded to TURAN HAZINEDAROGLU-OZTAS joint venture. The Gasan Su Bridge, structure No 44, is on the Contract Known as CW 2003/3. Civil Works Contract financed by the WB is awarded to AUTHOBahn BAU GMBH.

The Contract Agreement known as Contract No 30468 was signed on 27 December 2002. The Period of Performance is established by 240 calendar days from the date of notification of approval of the Contract defined as 10 March 2003. Consequently, the Original Completion date is by 4 November 2003. Revised Construction Performance Date approved by EC through 2 Addenda was defined by 31 May 2004 (Please refer to **Annex 4** of this Report).

The Designer, KOCKS, initially designed the 2 bridges in July 2001. This was submitted with the Tender Documents as preliminary design: no calculations were provided, no detailed reinforcement drawings and no detailed cross section on approach roads.

After signing the Contract for Civil Works, JSC Azerkorpu commenced redesign of the 2 bridges incorporating major changes to the initial KOCKS design.

On 8 April 2003, the contractor has submitted the first version of the redesign, which has been rejected (design was not conform to Azeri Standards).

Second version submitted by the Contractor on June 19, 2003. Approval by the Azerbaijan state construction committee was given on 24 July 2003.

Azeri road design code stipulates that for category II roads (max speed 120 Km/hr) the max allowed gradient is 4%. In the initial KOCKS design, the gradients were 5.2% and 6% for the Gasan Su Chay Bridge. The road design was subsequently amended and resubmitted in December 2002. No amendments were made for Gasan Su Chay Bridge. An increase in elevation of ~ 3m was necessary to conform to the design standards. In Shemkir Bridge and after approving the redesign of the road section on Contract CW2002/1, alterations were also made to Shemkir bridge design to suit the allowed gradient.

**Table 4.4** shows span length of the 2 bridges compared between preliminary design and redesign.

**Table 4.4**

Bridge	Initially designed span	Redesign span
Shemkir	3*22 m	5*18 m
Gasan Su	12+18+12 m	3*18 m

Consultant's short-term international experts have checked the redesign submitted by JSC Azerkorpu and issued 2 Technical Reports in May and October 2003 (Please refer to **Annex 7, reports produced**).

On 24 July 2003 consent was granted by "GOSSTROY" the Azerbaijan State Construction and Architecture Committee for construction to begin on the two bridges provided that existing piles on Gasan Su Bridge shall be checked.

The Contract anticipated that the existing piles on Gasan Su, installed 15 years ago during an aborted bridge reconstruction contract, would be exposed and used as supports to the current construction.

Upon excavation, a number of problems were discovered with the piles, which has led to concerns about their competence to support the bridge loads. In brief, the problems reported were:

- The installation was not in compliance with SNIP standards in that the pile spacing was insufficient. SNIP 2.02.03-85, Item 7.9 requires pile spacing minimum 1.0m whereas actual installed spacing varies between 57cm and 90cm.
- The protective layer was as little as 15-20mm whereas the SNIP requirement is 50mm.
- The concrete quality appears to be poor, having been made with river aggregates and the best estimates of grade according to some calibrated Schmidt tests is B7,5 to B12,5. Grade B15 or B25 should be the minimum considered for reinforced concrete piles.

On discovering these defects, the contractor "JSC Azerkorpu" convened a technical committee, which concluded in its report dated 20 August 2003, that the existing piles were not acceptable for inclusion into the new bridge.

Consultant's bridge expert has visited the site on 24 September 2003 and noted that:

- The piles were approximately 500mm diameter, not 730mm as stated in the Contract;
- The reinforcement cages were badly positioned within the pile casing;
- Almost all the continuity reinforcement projecting from the piles had been broken off;
- There are further doubts about the supervision of the original pile installation and no credible records of their length.

He concluded that the risk of using the existing piles in the new construction couldn't be justified. Two new 1.2m diameter bored concrete piles at each intermediate support to take the bridge loads were constructed.

Two addenda have been issued by the EC during the progress of works:

**Addendum No 1:** EC Approval of the extension of Construction Performance Date (The Contracting Authority issued this Addendum approving an extension of the Performance Date till 30/03/04).

**Addendum No 2:** EC Approval of the extension of Construction Performance Date (The Contracting Authority issued this Addendum approving an extension of the Performance Date till 31/05/04).

(Please refer to Annex 4 of this Report, Addenda to the 2 Bridges Contract).

The project data is presented in the **Table 4.5** of the **Annex 3** to this Report.

No financial application and or additional cost requested by the Contractor on to the 2 extensions of the period of performance (Please refer to **Annex 8** of this Report, **important correspondences**). Additional cost of 6.7 % of the Original Contract Price was occurred due to construction of additional 2\*2 bored concrete piles diameter 1.2 m at each intermediate support on Gasan Su bridge to take the bridge load and additional quantities on approach roads for the 2 bridges to comply with Azeri road design code as stated above (Please refer to **Annex 8** of this Report, **Important Correspondences**).

Civil Works were completed on 31 May 2004. Certificate of Provisional Acceptance has been issued. Taking Over for Provisional Acceptance performed on 31 May 2004.

Project completion report and output performance resources for **component 3** are presented in **Forms 3.2** and **3.3** respectively.

## 5.0 LESSONS LEARNT AND RECOMMENDATIONS

### 5.1 Planning Performance and Utilisation

The planning inputs and outputs realized for Georgia and Armenia Components were outlined in the Final Report No1 submitted and signed on 18 April 2004.

As stated before, there are delays in **Sub-component 1.2** Construction supervision of Ganja to Gazakh road sections. By the letter of 15 September 2004, the EC has advised the Consultant to get back to the WB and enquire about their possibility to find the necessary funds for the extension of Consultant Services Contract, as the Commission does not have the possibility to continue the funding for Supervision Contract. Consultant has forwarded this letter to the MoT and discussed with the WB during their mission to Baku in 12-16 September 2004 about the extension of LB Contract.

The contract between RTSD and LB has been forwarded to the WB/IDA for approval.

The Addendum (No 2) issued by the EC extending 4 months the Original Contract Duration. Thus, the Revised Completion Date is by 25 March 2005. As the provision for the Incidental Expenditure cannot be used for fees for experts, Consultants by means of the Rider No.1 to Consultant Services Contract have adjusted the Original Working Days. With this adjustment and using only the WD, the Supervision Services for the complete team could be secured till ~ end of *January 2005*.

**Table 5.1** shows Working Days (WD) billed until the period 3<sup>1</sup> (from January 2003 to June 2004) on local staff.

**Table 5.1 WD Billed up to period 3 on local staff <sup>2</sup> for 3 Components**

Long Term	AZ	GE	AR	AZ	GE	AR	Total
Senior	754	602	220	754	602	220	<b>1576</b>
Junior	791	147	440	791	147	440	<b>1378</b>
<b>Short Term</b>							
Senior	223	591	456	223	591	456	<b>1270</b>
Junior	291	178	226	291	178	226	<b>695</b>
<b>Total</b>	<b>2059</b>	<b>1518</b>	<b>1342</b>	<b>2059</b>	<b>1518</b>	<b>1342</b>	<b>4919</b>

**Table 5.2** illustrates the adjustment on local staff using the Working Days without additional cost to the original WD amount for local staff.

**Table 5.2 Adjustment on local staff**

Long Term	AZ	GE	AR	AZ	GE	AR	Total
Senior	1101	602	220	1101	602	220	<b>1923</b>
Junior	1669	147	440	1669	147	440	<b>2256</b>
<b>Short Term</b>							
Senior	223	591	456	223	591	456	<b>1270</b>
Junior	378	178	226	378	178	226	<b>782</b>
<b>Total</b>	<b>3371</b>	<b>1518</b>	<b>1342</b>	<b>3371</b>	<b>1518</b>	<b>1342</b>	<b>6231</b>

<sup>1</sup> A period consists of 6 months;

<sup>2</sup> There is no difference in daily rates for local long term and short term; the difference is in senior and junior staff.

**Table 5.3** shows the adjustment on WD for the Consultant's Team (International and local experts). No changes occurred to the total tendered and adjusted Man/Working Days on overall amount for Working Days.

Working Days planned and realized during 2003 and 2004 (till end of December 2004) for Azerbaijan Component and for the 3 Components are shown in **Tables 5.5, 5.6 and 5.7.1 and 5.7.2** respectively. In these tables the planned WD is illustrated as per the Original Contract.

The Rider No.1 to Consultant Services Contract has been issued in December 2004 and approved by EC on 18.12.04, Side letter No 16 (Please refer to Annex 8 of this Report, important correspondences). This Contract Rider has served to take account of the budget modifications of the original budget line amount on Working Days (Please refer to **Annex 5** of this Report).

The Working Days have been adjusted to suit the achievement of the project caused by the problems encountered during the design of the 2 bridges contract and implementation of it. In addition serious problems were found in the original design survey on the road Ganja-Gazakh. Due to the above, modification on Working Days category and grouping was needed. As stated above and in order to secure Supervision by the complete team this adjustment was required.

According to EC rules all modifications are within 15 % of the original budget line amount as mentioned in **Table 5.4 variance percentage**.

**Table 5.3- Adjustment of Working Days without additional cost**

Item	Original Contract	Adjustment
Team leader	440	476
Long-term senior expert	660	608
Short-term Int expert	103	103
Long-term local senior	2192	1923
Long-term local junior	2077	2256
Short-term local senior	1118	1270
Short-term local junior	716	782

**Table 5.4 Variance in percentage of the original budget line**

Item	Original WD	Adjusted WD	Percentage
Team Leader	440	476	8.18
Senior Expert	608	608	-7.88
Short-term Int expert	103	103	0
Long-term local senior	2192	1923	-12.27
Long-term local junior	2077	2256	+8.62
Short-term local senior	1118	1270	+13.6
Short-term local junior	716	782	+9.22

The **Histogram 5.8** exemplifies by percentage the amounts billed in the first six-month (period 1, January-June 2003), the second six month (period 2, July-December 2003) and the third six-month (period 3, January-June 2004). For the period 4 (July till end of the project~ end of January 2005 after adjustment), the estimated percentage is 21% on overall Contract budget. The available for remainder of 7% is related to saving on the Incidental Expenditure.

Rehabilitation of Caucasian Highways Azerbaijan, Georgia and Armenia  
SUMMARY OF WORKING DAY PERFORMED IN 2003 (local staff)

Table 5.5

No	Name/Month	Title	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Realised 2003	Total Planned	Available for Remainder
<b>1. Local Experts</b>																	
<b>1.1 Azerbaijan</b>																	
1	Sabir Safarov	Foundation Engineer	0	0	0	0	0	0	0	12	16	0	0	14	42	64	22
2	Allahveren Hajiyev	Structural (Bridge) Engineer	0	0	0	0	0	7	27	26	26	27	25	27	165	450	285
3	Kerim Mamedov	ARE Bridge Engineer	0	0	0	0	12	24	27	26	26	27	25	22	189	460	271
4	Jelal Hasanov	Surveyor	0	0	0	0	12	24	27	26	26	27	25	27	194	460	266
5	Tengiz Orujov	Quantity Surveyor	0	0	0	0	0	0	0	12	26	27	25	27	117	440	323
6	Medjnun Valiyev	Material Engineer	0	0	0	0	0	7	27	26	26	27	25	27	165	452	287
7	Gunduz Mehtiyev	Assistant Resident Engineer	0	0	0	0	12	24	27	26	26	27	25	23	190	477	287
8	Telman Pashanov	Second Surveyor	0	0	0	0	0	0	0	0	0	0	0	0	0	440	440
<b>Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>36</b>	<b>86</b>	<b>135</b>	<b>154</b>	<b>172</b>	<b>162</b>	<b>150</b>	<b>167</b>	<b>1062</b>	<b>3243</b>	<b>2181</b>
<b>1.2 Georgia</b>																	
9	Otar Mxeidze	Senior Highway Engineer	0	0	0	0	20	20	20	20	22	20	20	20	162	214	52
10	Tamara Samkharadze	CAD Bridge Engineer	0	0	0	0	20	19	19	14	14	20	20	20	146	146	0
11	Jemal Kartoza	Bridge Engineer	0	0	0	0	20	19	20	11	10	20	20	20	140	140	0
12	Dima Loginov	CAD Bridge Engineer	0	0	0	0	20	19	19	14	12	20	20	20	144	144	0
13	Ramaz Nebieridze	Senior Geotechnical Engineer	0	0	0	0	20	19	19	12	12	20	20	20	142	142	0
14	Dodo Goderdzishvili	CAD Road Engineer	0	0	0	0	20	20	19	14	14	20	20	20	147	147	0
15	Tengiz Butkuzi	Senior Surveyor	0	0	0	0	20	20	20	20	22	20	20	20	162	194	32
16	Shota Utmelidze	Senior Highway Engineer	0	0	0	0	20	20	20	20	22	20	20	20	162	194	32
16-1	Besarion Andrazashvili	CAD Road Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
16-2	Manana Tabaladze	CAD Highway Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
16-3	Lyudmila Krivolapchuk	Cost Estimator	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
16-4	Salakaia Vashja	Surveyor	0	0	0	0	0	0	0	0	0	0	0	0	0	32	32
16-5	Boris Ivashenko	Bridge Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36
<b>Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>160</b>	<b>156</b>	<b>156</b>	<b>125</b>	<b>128</b>	<b>160</b>	<b>160</b>	<b>160</b>	<b>1205</b>	<b>1518</b>	<b>313</b>
<b>1.3 Armenia</b>																	
17	Davit Hovsepyan	Local Team Leader	0	0	0	0	20	22	23	21	22	23	20	20	171	220	49
18	Sevak Afrikyan	CAD Design Engineer	0	0	0	0	20	22	23	21	22	23	20	20	171	220	49
19	Vigen Matnishyan	Tunnel Engineer	0	0	0	0	20	22	23	21	22	23	20	20	171	220	49
20	Hunan Haroyan	Bridge Engineer	0	0	0	0	20	22	0	0	0	0	0	0	42	44	2
21	Artur Avagyan	Engineer Surveyor	0	0	0	0	20	22	23	21	22	23	0	0	131	132	1
22	Valeri Hairapetyan	Drainage Engineer	0	0	0	0	20	22	0	0	0	0	0	0	42	44	2
23	Stepan Hakopyan	Pavement Engineer	0	0	0	0	20	22	23	21	0	0	0	0	86	88	2
24	Pavel Makinyan	Geotechnical Engineer	0	0	0	0	20	22	23	21	22	23	0	0	131	132	1
25	Miasnik Ghazaryan	Traffic Engineer	0	0	0	0	0	22	23	0	0	23	0	0	68	66	-2
26	Anania Safaryan	Cost Estimator	0	0	0	0	0	0	0	0	0	0	20	11	31	66	35
27	Sonan Badalyan	Environmental Engineer	0	0	0	0	0	0	0	0	0	0	0	20	20	44	24
28	Karine Gasparyan	Contract Specialist	0	0	0	0	0	0	0	0	0	23	20	0	43	66	23
<b>Total</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>160</b>	<b>198</b>	<b>161</b>	<b>126</b>	<b>110</b>	<b>161</b>	<b>100</b>	<b>60</b>	<b>1107</b>	<b>1342</b>	<b>235</b>
<b>Grand Total Local experts</b>															<b>3374</b>	<b>6103</b>	<b>2729</b>

Rehabilitation of Caucasian Highways Azerbaijan, Georgia and Armenia  
SUMMARY OF WORKING DAY IN 2004 (end of December 2004) for local staff

Table 5.6

No	Name/Month	Title	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Realised 2004	Total Realised 2003	Total Planned	Available for Remainder
<b>1. Local Experts</b>																		
<b>1.1 Azerbaijan</b>																		
1	Sabir Safarov	Foundation Engineer	0	0	0	0	0	0	0	0	0	0	0	15	15	42	54	-3
1-1	Amongaldi Rakhimov	CAD Engineer	0	0	10	0	0	14	0	0	0	0	0	0	24	0	10	-14
2	Allahveren Hajiyev	Structural (Bridge) Engineer	25	24	27	23	21	22	22	22	21	22	23	274	165	450	11	
3	Kerim Mamedov	ARE Bridge Engineer	22	20	23	22	21	22	17	22	24	21	22	22	258	189	460	13
4	Jelal Hasanov (S. Hasanov)	Surveyor	20	19	21	22	20	21	22	22	22	21	22	24	256	194	460	10
5	Tengiz Orujov	Quantity Surveyor	26	24	27	26	26	26	27	26	26	26	26	26	312	117	440	11
6	Medjnun Valiyev	Material Engineer	25	24	27	25	21	22	22	22	22	21	22	22	275	165	452	12
7	Gunduz Mehtiyev (N.Nabiyev)	Assistant Resident Engineer	22	20	23	22	21	22	22	22	26	26	26	23	275	190	477	12
8	Telman Pashanov	Second Surveyor	8	24	27	26	26	26	27	26	26	21	26	24	28	0	440	153
8-8	Nazir Mirzayev	Materials Engineer	0	0	0	0	0	12	22	22	22	21	22	22	143	0	0	-143
	<b>Total</b>		<b>148</b>	<b>155</b>	<b>185</b>	<b>166</b>	<b>156</b>	<b>187</b>	<b>181</b>	<b>184</b>	<b>190</b>	<b>178</b>	<b>188</b>	<b>201</b>	<b>2119</b>	<b>1062</b>	<b>3243</b>	<b>62</b>
<b>1.2 Georgia</b>																		
9	Otar Mxeidze	Senior Highway Engineer	18	14	20	0	0	0	0	0	0	0	0	0	52	162	214	0
10	Tamara Samkharadze	CAD Bridge Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	146	146	0
11	Jemal Kartoza	Bridge Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	140	140	0
12	Dima Loginov	CAD Bridge Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	144	144	0
13	Ramaz Nebieridze	Senior Geotechnical Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142	0
14	Dodo Goderdzishvili	CAD Road Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	147	147	0
15	Tengiz Butkuzi	Senior Surveyor	18	14	0	0	0	0	0	0	0	0	0	0	32	162	194	0
16	Shota Utmelidze	Senior Highway Engineer	18	14	0	0	0	0	0	0	0	0	0	0	32	162	194	0
16-1	Besarion Andrazashvili	CAD Road Engineer	18	14	11	0	0	0	0	0	0	0	0	0	43	0	43	0
16-2	Manana Tabaladze	CAD Highway Engineer	18	14	11	0	0	0	0	0	0	0	0	0	43	0	43	0
16-3	Lyudmila Krivolapchuk	Cost Estimator	18	14	11	0	0	0	0	0	0	0	0	0	43	0	43	0
16-4	Salakaia Vashja	Surveyor	18	14	0	0	0	0	0	0	0	0	0	0	32	0	32	0
16-5	Boris Ivashenko	Bridge Engineer	18	14	4	0	0	0	0	0	0	0	0	0	36	0	36	0
	<b>Total</b>		<b>144</b>	<b>112</b>	<b>57</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>313</b>	<b>1205</b>	<b>1518</b>	<b>0</b>
<b>1.3 Armenia</b>																		
17	Davit Hovsepyan	Local Team Leader	18	20	11	0	0	0	0	0	0	0	0	0	49	171	220	0
18	Sevak Afrikyan	CAD Design Engineer	18	20	11	0	0	0	0	0	0	0	0	0	49	171	220	0
19	Vigen Matnishyan	Tunnel Engineer	18	20	11	0	0	0	0	0	0	0	0	0	49	171	220	0
20	Hunan Haroyan	Bridge Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	42	44	2
21	Artur Avagyan	Engineer Surveyor	0	0	0	0	0	0	0	0	0	0	0	0	0	131	132	1
22	Valeri Hairapetyan	Drainage Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	42	44	2
23	Stepan Hakopyan	Pavement Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	86	88	2
24	Pavel Makinyan	Geotechnical Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	131	132	1
25	Miasnik Ghazaryan	Traffic Engineer	0	0	0	0	0	0	0	0	0	0	0	0	0	68	66	-2
26	Anania Safaryan	Cost Estimator	18	17	0	0	0	0	0	0	0	0	0	0	35	31	66	0
27	Sonan Badalyan	Environmental Engineer	18	15	0	0	0	0	0	0	0	0	0	0	33	20	44	-9
28	Karine Gasparyan	Contract Specialist	0	20	0	0	0	0	0	0	0	0	0	0	20	43	66	3
	<b>Total</b>		<b>90</b>	<b>112</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>235</b>	<b>1107</b>	<b>1342</b>	<b>0</b>
<b>Grand Total Local experts</b>															<b>2667</b>	<b>3374</b>	<b>6103</b>	<b>62</b>

Rehabilitation of Caucasian Highways Azerbaijan, Georgia and Armenia  
SUMMARY OF WORKING DAYS IN 2003/International

Table 5.7.1

No	Name/Month	Title	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Realised 2003	Planned	Realized 2004	Available for Remainder
<b>Long-term International</b>																		
1	G. Tremlett	Team Leader	14	21	21	23	21	10	0	0	0	0	0	0	110		0	
2	K.Zukhurov	Acting TL	0	0	0	0	0	10	25	4	0	0	0	0	39		0	
3	Razek Degheim	Team Leader; 3 Components	0	0	0	0	0	0	0	16	22	18	18	17	91		0	
<b>Total Team Leader</b>															<b>240</b>	<b>440</b>	<b>0</b>	<b>200</b>
4	Svetlozar Dotchev	Resident Engineer; Azerbaijan	0	9	19	22	20	21	23	21	22	18	17	19	211	440	0	229
5	Piotr Pecenic	Highway Engineer; Georgia & Armenia	0	0	0	0	0	11	23	21	10	21	20	16	122	220	0	98
<b>Total Long-term</b>															<b>573</b>	<b>1100</b>	<b>0</b>	<b>527</b>
<b>Short-term International</b>																		
6	K.Zukhurov	Training Specialist; Azerbaijan	0	0	0	0	0	4	0	0	0	0	0	0	4	10	0	6
7	Ian Trumbell	Tunnel Expert; Armenia	0	0	0	0	14	0	0	5	0	0	0	0	19	15	0	-4
8	Eleni Kritikou	Bridge Expert; Azerbaijan	0	0	0	1	12	2	0	0	0	0	0	0	15		0	
9	John Rigby	Bridge Expert; Azerbaijan	0	0	0	0	0	0	0	0	7	1	0	0	8	10	0	-13
10	Irvin Cohen	Transport Economist; Georgia	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	36
11	Laurie Gardiner	Environmental Engineer; Georgia	0	0	0	0	0	0	0	0	0	7	0	0	7		0	
12	Alexander Arobelidze	Environmental Engineer; Georgia	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	15
13	Mike Heelis	Pavement Engineer; Azerbaijan	0	0	0	0	0	0	1	8	0	0	0	0	9	10	0	1
<b>Total Short-term</b>															<b>62</b>	<b>103</b>	<b>0</b>	<b>41</b>

Rehabilitation of Caucasian Highways Azerbaijan, Georgia and Armenia  
SUMMARY OF WORKING DAYS IN 2004/International (end of December 2004)

Table 5.7.2

No	Name/Month	Title	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Realised 2004	Planned	Total Realized 2003	Available for Remainder
<b>Long-term International</b>																		
1	G. Tremlett	Team Leader	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	K.Zukhurov	Acting TL	0	0	0	0	0	0	0	0	0	0	0	0	0			
3	Razek Degheim	Team Leader; 3 Components	14	21	22	17	20	20	22	20	9	19	16	19	219			
<b>Total Team Leader</b>															<b>219</b>	<b>440</b>	<b>240</b>	<b>-19</b>
4	Svetlozar Dotchev	Resident Engineer; Azerbaijan	15	19	21	22	20	21	17	22	17	16	20	21	231	440	211	-2
5	Piotr Pecenic	Highway Engineer; Georgia & Armenia	11	17	0	0	0	0	0	0	0	0			28	220	122	70
<b>Total Long-term</b>															<b>478</b>	<b>1100</b>	<b>573</b>	<b>49</b>
<b>Short-term International</b>																		
6	K.Zukhurov	Training Specialist; Azerbaijan	0	0	0	0	0	0	0	0	0	0			0	10	4	6
7	Ian Trumbell	Tunnel Expert; Armenia	0	0	0	0	0	0	0	0	0	0			0	15	19	-4
8	Eleni Kritikou	Bridge Expert; Azerbaijan	0	0	0	0	0	0	0	0	0	0			0		15	-15
9	John Rigby	Bridge Expert; Azerbaijan	0	0	0	0	0	0	0	0	0	0			0	10	8	2
10	Irvin Cohen	Transport Economist; Georgia	17	5	0	0	0	0	0	0	0	0			22	36	0	14
11	Laurie Gardiner	Environmental Engineer; Georgia	0	0	0	0	0	0	0	0	0	0			0		7	-7
12	Alexander Arobelidze	Environmental Engineer; Georgia	12	6	0	1	0	0	0	0	0	0			19	22	0	3
13	Mike Heelis	Pavement Engineer; Azerbaijan	0	0	0	0	0	0	0	0	0	0			0	10	9	1
<b>Total Short-term</b>															<b>41</b>	<b>103</b>	<b>62</b>	<b>0</b>

## 5.2 Addenda Issued by the EC for Consultant Services Contract

The following Addenda to Consultant Services Contract have been issued by the EC:

**Addendum No 1:** EC Approval of the Team Leader

(The EC issued this Addendum on 07 August 2003 approving the replacement of the Team Leader).

**Addendum No 2:** EC Approval of 28 months Project Duration

(The EC issued this Addendum on 22 October 2004 giving 4 months an extension of Project Duration)

(Please refer to **Annex 6** of this Report).

## 5.3 Reports Produced and Correspondences

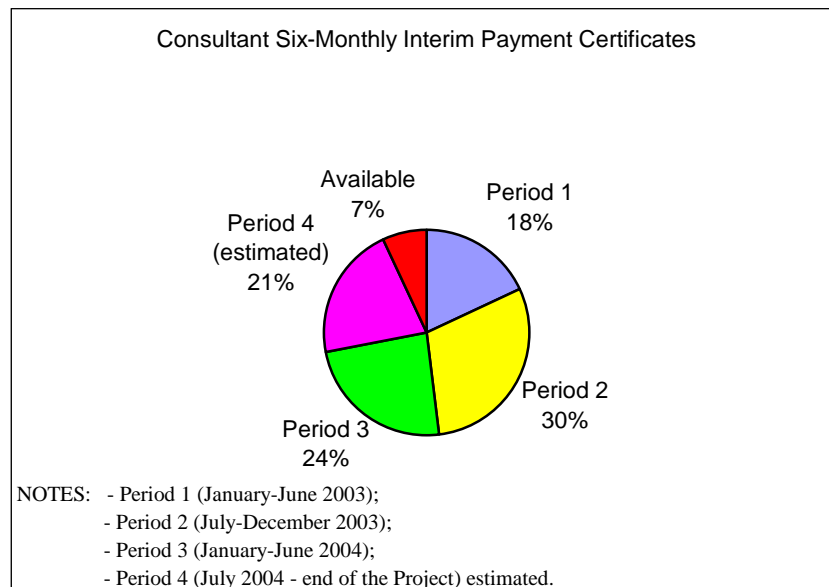
Reports produced on this project including this Final Report are detailed in **Annex 7** of this Report. The summary illustrates reports produced on each component (tables 1, 2 and 3) as well as general reports for the 3 Components (table 4).

In addition to the above Reports, Consultant has produced the following reports:

- Report for the EC Task Manager dated October 15, 2003 during site visit;
- Report for the WB mission dated November 5, 2003 during site visit;
- Report for the WB mission dated March 9, 2004 during site visit;
- Report delivered to the participants of the meeting held in "RoadTransService" Department on 26 April 2004 detailing the actual situation on road sections from Shemkir to Gazakh (CW 2003/1 to 4).

The total number of Reports produced under the project is **47** Reports. Important correspondences are attached in **Annex 8** to this Report.

## 5.8 Histogram % Consultant Certificates





## 5.4 Lesson Learnt

Consultant would like to express thanks to Local Authorities, National Coordinating Unit (NCU), EC and all Project's Partner for their specific actions to overcome of problems arisen during the project implementation.

Being the project objectives are implemented for 3 countries with no contact between 2 of them has affected delay in reports delivery and difficulty in communication.

Consultant recommends that Mot and RTSD, to solve Land acquisition issues before tendering and to submit detailed working drawings with Tender (s) in order to avoid potential extension of time and additional costs related to the Civil Works Contracts.





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