

**SOCIALIST REPUBLIC OF VIETNAM
MINISTRY OF TRANSPORT
PROJECT MANAGEMENT UNIT No. 85 (PMU85)**



**CONSULTING SERVICES
FOR
HAI VAN PASS TUNNEL CONSTRUCTION PROJECT
CONTRACT No. 01/HVT/97
(OECF Loan Agreements No. VNIV-5, VNVI-5 and VNIX-4)**

**CLAIM EVALAUTION REPORT
FOR
PACKAGE-1A: NORTH TUNNEL SECTION

REPORT 2: CLAIM QUANTIFICATION**

JULY 2005

**JOINT VENTURE OF
NIPPON KOEI CO., LTD. and LOUIS BERGER INTERNATIONAL INC.
in association with
TRANSPORT ENGINEERING DESIGN INCORPORATION**

HAI VAN PASS TUNNEL PROJECT

Joint Venture of
NIPPON KOEI CO., LTD., JAPAN and
LOUIS BERGER INTERNATIONAL INC., USA
In association with
TRANSPORT ENGINEERING DESIGN
INCORPORATION (TEDI), VIETNAM

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Ref. No. PMU - 113 - 05

Date July 26, 2005

To:

Mr. Nguyen Ngoc Canh, Project Manager, PMU85

Copy to (Cover Only):

Mr. Nguyen Ngoc Tran, General Director, PMU85

(PK1A) Mr. Masashi Kuroda, Project Manager, Hazama - Cienco 6 Joint Venture

0511-643-974

1) File

SUBJECT: Submission of Claim Quantification Report for PK1A

Dear Sir,

We are pleased to submit claim quantification report for PK1A: Tunnel Civil Works: Tunnel North Section as per attached.

As MOT approved 7 items in his letter No. 1499/QD-BGTVT dated 4 May 2005. This quantification was carried out for the following 6 items.

Claim Code No.				Description
CATEGORY 1 - Issues Affecting Whole of Site and Causing Delay to Project Completion				
1	C1	G5	CC.02	Non-Contributing Production Resources Affected by Commencement Delay
CATEGORY 2 - Issues Resulting in Delay to Ventilation Adit				
2	C2	G7	CC.03	Adverse Water Conditions
3		G5	CC.09	Non-Contributing Production Resources Affected by Ventilation Adit Works Delay
CATEGORY 3 - Issues Causing Delay to Main Tunnel and Project Completion				
4	C3	G5	CC.24	Non-Contributing Production Resources Affected by Main Tunnel Works Delay
5		G7	CC.25	Consolidated EOT Request (including Time-Related Costs of Delay)
CATEGORY 5 -Issues Necessary for Acceleration of Project				
6	C5	G4	CC.43	Deployment of 2nd Advance from South End of Tunnel

Thank you for your kind attention. Your timely arrangement for further step be highly appreciated.

Sincerely yours,

Ichizuru Ishimoto
Project Manager
Encl.: As stated above.

CLAIM EVALAUTION REPORT FOR PACKAGE-1A: NOERTH TUNNEL SECTION

Report 2: Claim Quantification

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CLAIM EVALAUTION REPORT FOR PACKAGE-1A: NOERTH TUNNEL SECTION

1 General

1.1 Claim Submitted by the Contractor

The Contractor of Package-1A: North Tunnel Section, J/V of Hazama and Cienco 6, issued the claim letter by his letter No. ENG-04-027 dated 12 February 2004.

1.2 Claim Management Procedure by the Engineer

The Consultant has been carrying out the project management by referencing the following matrix indicated in PMBOK 2000 issued in 2001 by PMI (Project Management Institute).

Process Groups Knowledge Area	Initiating	Planning	Executing	Controlling	Closing
4. Project Integration Management		4.1 Project Plan Development	4.2 Project Plan Execution	4.3 Integrated Change Control	
5. Project Scope Management	5.1 Initiation	5.2 Scope Planning 5.3 Scope Definition		5.4 Scope Verification 5.5 Scope Change Control	
6. Project Time Management		6.1 Activity Definition 6.2 Activity Sequencing 6.3 Activity Duration Estimating 6.4 Schedule Development	6.6 Activity Weights Definition	6.5 Schedule Control 6.7 Progress Curves Development 6.8 Progress Monitoring	
7. Project Cost Management		7.1 Resource Planning 7.2 Cost Estimating 7.3 Cost Budgeting		7.4 Cost Control	
8. Project Quality Management		8.1 Quality Planning	8.2 Quality Assurance	8.3 Quality Control	
9. Project Human Resource Management		9.1 Organizational Planning 9.2 Staff Acquisition	9.3 Team Development		9.3 Project Completion
10. Project Communications Management		10.1 Communications Planning	10.2 Information Distribution	10.3 Performance Reporting	10.4 Administrative Closure
11. Project Risk Management		11.1 Risk Management Planning 11.2 Risk Identification 11.3 Qualitative Risk Analysis 11.4 Quantitative Risk Analysis 11.5 Risk Response Planning		11.6 Risk Monitoring and Control	
12. Project Procurement Management		12.1 Procurement Planning 12.2 Solicitation	12.3 Solicitation 12.4 Source Selection 12.5 Contract Administration		12.6 Contract Closeout
13. Project Safety Management		13.1 Safety Planning	13.2 Safety Plan Execution		13.3 Administration & Reporting
14. Project Environmental Management		14.1 Environmental Planning	14.2 Environmental Assurance	14.3 Environmental Control	
15. Project Financial Management		15.1 Financial Planning		15.2 Financial Control	15.3 Administration & Records
16. Project Claim Management		16.1 Claim Identification 16.2 Claim Quantification		16.3 Claim Prevention	16.3 Claim Resolution

Figure 3–1. Mapping of Project Management Processes and Construction Management Processes to the Process Groups and Knowledge Areas

Figure 1-1 Referenced Job Matrix (PMBOK 2000)

In accordance with Chapter 16 of the above table, the submitted claims have been managed by the following four steps:

- 1) Claim Identification
- 2) Claim Quantification
- 3) Claim Prevention
- 4) Claim Resolution

1.3 Step 1: Claim Identification

The Engineer submitted the claim identification report with his letter No. PMU-180-04 dated 9 August 2004.

Since the submission, Project Claim Evaluation Committee (PCEC), headed by Project Manager of the Employer, was established with member from the Employer and the Engineer, and the claim evaluation had been continued.

On 29 November 2004, PCEC called PK1A Contractor and conclusion of the claim identification was informed during the meeting. The Conclusion was confirmed by the Engineer's letter No. PMU-248-04 dated 30 November 2004.

On 1 December 2004, the first MOT Claim Evaluation Committee (MCEC) was held in Hanoi. During the meeting, the Contractor made brief presentation and PCEC reported his evaluation result.

Conclusion of MCEC was summarized by his letter No. 4462/GD dated 6 December 2004. In his notice, MCEC approved 20 claims among 49 claims are as shown in **Table 1-1**.

Among the 20 claims, CC.37: Price Adjustment of Blasting Materials was separately approved and the payment procedure ongoing. Therefore, Claim Quantification should be carried out for 19 claims.

Table 1-1 Accepted Claims by MOT on 1st December 2004

Claim Code No.		Description		Extra Work Only (Type A)	EOTOnly (Type B)	Both (Type C)	Ground	Judge
CATEGORY 1 - Issues Affecting Whole of Site and Causing Delay to Project Completion								
1	C1	G7	CC.01	Deferred Commencement of Project and Related Matters		X	44.1	OK
2		G5	CC.02	Non-Contributing Production Resources Affected by Commencement Delay	X		12.2	OK
CATEGORY 2 - Issues Resulting in Delay to Ventilation Adit								
3	C2	G7	CC.03	Adverse Water Conditions		X	12.2	OK
			144m-Extension to Adit				51.1	OK
4		G1	CC.04	Time for Additional Excavation		X		
5			CC.05	Time for Additional Concrete Lining		X		
6			CC.06	Time for Relocation of Junction Works		X		
7		G5	CC.09	Non-Contributing Production Resources Affected by Ventilation Adit Works Delay	X		51.1	OK
CATEGORY 3 - Issues Causing Delay to Main Tunnel and Project Completion								
8			CC.19	Remedial Works for Excess Geological Deformation		X	44.1	OK
9			CC.20	Impact of Adit Delay on Main Tunnel Progress		X	44.1	OK
			Provision of Temporary Cross Passages				51.1	OK
10		G3	CC.21	Temporary Cross Passage (TCP2) from MT to ET	X			
11			CC.22	Temporary Connection Tunnel from VA to MT	X			
12		G5	CC.24	Non-Contributing Production Resources Affected by Main Tunnel Works Delay	X		51.1	OK
13	G7	CC.25	Consolidated EOT Request (including Time-Related Costs of Delay)	X		51.1	OK	
CATEGORY 4 - Variation Issues not Relevant to Other Issue Category								
14	C4	G6	CC.28	Ventilation System at EP Tunnels 1 and 2	X		51.1	OK
15			CC.29	Lighting System at EP Tunnels 1 and 2	X			
16		G3	CC.35	Provision of Temporary Cross Passage (TCP1)	X		51.1	OK
		G7	CC.37	Price Adjustment of Blasting Materials	X		70.8	OK
17			CC.38	Temporary Gravel Bedding at Portal Plaza and Tunnel Road Maintenance	X		51.1	OK
CATEGORY 5 -Issues Necessary for Acceleration of Project								
18	C5	G4	CC.43	Deployment of 2nd Advance from South End of Tunnel	X		51.1	OK
19			CC.48	Provision of Temporary Cross Passages (TCP3 & TCP4)	X			

1.4 MOT Approval

Early May 2005, MOT approved seven (7) items shown in **Table 1-2** in his letter No. 1499/QD-BGTVT dated 4 May 2005.

Table 1-2 Seven Claims Approved by MOT (by 1499/QD-BGTVT on 4 May 2005)

Claim Code No.		Contractor's Claim (A)			MOT Approved (B)	Balance (C) = (A) - (B)
		JPY	VND	Total in VND	VND	VND
Main Tunnel						
	CC.21	1,676,986	73,398,377	291,406,557	287,861,589	3,544,968
	CC.22	2,556,316	179,879,801	512,200,881	508,655,913	3,544,968
Other Places						
C4	CC.28	1,631,436	191,810,616	403,897,296	403,897,296	0
	CC.29	460,092	44,650,176	104,462,136	104,462,136	0
	CC.35	1,686,440	74,015,910	293,253,110	289,708,142	3,544,968
	CC.38	0	1,000,311,000	1,000,311,000	399,473,252	600,837,748
Acceleration of Works						
	CC.48	3,287,483	145,356,502	572,729,292	565,639,356	7,089,936
		11,298,753	1,709,422,382	3,178,260,272	2,559,697,684	618,562,588

2 Step 2: Claim Quantification

2.1 Purpose of Claim Quantification

In order to support reaching agreement between the Employer and the Contractor, the Engineer carried out the Claim Quantification, in accordance with the Contract requirements and the claim documents submitted by the Contractor.

2.2 Contractor's Documents to be Evaluated

The Contractor had submitted the following documents as their claim documents. Document No.2 is simply extracted from Document No.1 for the items approved by MOT on 1st December 2004. Description itself was not updated at all.

Table 2-1 Contractor's Submitted Documents to be Evaluated

No.	Letter No.	Date Submitted	Cover Letter's Subject
1	ENG-04-027	12 Feb 2004	Submission of Requests for Extension of Time and Additional Compensation for the Whole of PK1A Civil Works
2	EMP-04-030	30 Dec 2004	Approved Item's (20 Proposals) Cost Calculation for Request Compensation of Package 1A's Contract
3	EMP-05-003	28 Jan 2005	Request for Issuance of Variation Order for the 20 Items Accepted by the Employer

As described in Section 3.5 of Report 1: Claim Identification Report, Document No.1 above can be deemed as the contemporary records required by Sub-Clause 53.2 or substantiation documents required by Sub-Clause 53.3 subject to the Employer's consent.

Document No.3 was submitted including some supplemental supportive documents with modifications from Document No.1 for the 20 times approved by MOT on 1st December 2004. It was agreed by the Employer to accept this report was one of the official substantiation documents required by Sub-Clause 53.3.

2.3 Claims to be Quantified

Among remaining 12 claims, this Claim Quantification evaluates 6 claims listed in **Table 1-3**, excluding "EOT Only" claim which is evaluated separately.

Table 1-3 Claims to be Quantified

Claim Code No.				Description
CATEGORY 1 - Issues Affecting Whole of Site and Causing Delay to Project Completion				
1	C1	G5	CC.02	Non-Contributing Production Resources Affected by Commencement Delay
CATEGORY 2 - Issues Resulting in Delay to Ventilation Adit				
2	C2	G7	CC.03	Adverse Water Conditions
3		G5	CC.09	Non-Contributing Production Resources Affected by Ventilation Adit Works Delay
CATEGORY 3 - Issues Causing Delay to Main Tunnel and Project Completion				
4	C3	G5	CC.24	Non-Contributing Production Resources Affected by Main Tunnel Works Delay
5		G7	CC.25	Consolidated EOT Request (including Time-Related Costs of Delay)
CATEGORY 5 -Issues Necessary for Acceleration of Project				
6	C5	G4	CC.43	Deployment of 2nd Advance from South End of Tunnel

2.4 Method of Quantification

2.4.1 General

Claim Quantification should be carried out by proper and logical ways of determining the cost of the extra activity or damages both in terms of money and time.

The full effect includes indirect effect. Sometimes the claimed activity has an indirect effect on other aspects of the construction project and making other work more costly, changing sequences, and delaying other activities, they are properly part of the total cost of the claim.

2.4.2 Quantification Steps

Claim Quantification for PK1A's claim has carried out by the following steps for the Documents No.1 and/or No.3 in **Table 2-1** above.

- 1) Confirmation of Claim Types
- 2) Verification and Justification of Quantity Measurement
- 3) Verification and Justification of Cost Estimate

2.4.3 Claim to be Quantified in Each Step

Further to the type of the claims in **Table 1-3**, 6 claims should be quantified in the following manner as shown in **Table 2-2**.

Table 2-2 Confirmation of Claim for Each Step

No.	Step (See 2.3.2 above)	Claim Code
1	2(a): Quantity Measurement for Direct Work	CC03, CC43
2	2(b): Quantity Measurement for Works Affected	CC02, CC09, CC24, CC25
3	3:Cost Estimate	CC02, CC03, CC09, CC24, CC25, CC43

2.5 Result of Claim Quantification

2.5.1 Summary

Summary of the claim quantification is as shown in **Table 2-3** and detailed claim quantification is summarized in **Appendix-E**.

Table 2-3 Summary of Claim Quantification

Claim Code No.	Contractor's Claim (A)		Engineer's Justification (B)		Balance (C) = (A) - (B)		
	JPY	VND	JPY	VND	JPY	VND	
Delay of Commencement							
	CC.02	905,927	1,567,962,157	905,927	986,173,936	0	581,788,221
Ventilation Adit							
C2	CC.03	19,036,854	499,814,092	11,271,255	193,253,440	7,765,599	306,560,652
	CC.09	502,534	5,006,556,891	7,728,764	832,301,237	-7,226,230	4,174,255,655
Main Tunnel							
	CC.24	2,549,948	6,232,119,140	22,601,307	1,572,242,583	-20,051,359	4,659,876,557
	CC.25	13,216,453	3,544,287,044	3,123,600	339,071,776	10,092,853	3,205,215,268
Acceleration of Works							
C5	CC.43	14,859,665	581,233,315	14,859,665	581,233,315	0	0
		51,071,381	17,431,972,639	60,490,517	4,504,276,286	(9,419,136)	12,927,696,353
Total in VND			24,071,252,169		12,368,043,529		11,703,208,640
Total in JPY		185,163,478.00		95,138,796.00		90,024,682.00	

Note: Exchange Rate 1JPY = 130 VND.

2.5.2 Claims for Quantity Measurement Direct Works

CC.03 Adverse Water Conditions

(A) Contractor's Claims for Quantity Measurement

The Contractor's claim Document No.3 was updated from Document No.1, so Document No.3 was mainly referred for the quantification.

Claim Code	No.	Pay Item	Description	Supportive Document	Engineer's Judgment	Evidence
CC03	1	NEW 01	Additional Import of 4 Units of 8" Submergible Pumps	No.3	100%	Provided
	2	NEW 02	Additional Road Surface Repair Works	No.3 Insufficient	50%	QIS not provided
	3	NEW 03	Additional Pipelines, Transition Pits & Equipment	No.3 Insufficient	40%	QIS not provided
	4	NEW 04	Increase in Repair & Maintenance of Equipments (including costs of damage to equipments)	No.3 Insufficient	50%	QIS not provided
	5	NEW 05 (02346-2)	To apply Pay Item 02346-2 for additional 5 months.	No.3 Provided	2 month	Provided for 2 month

(B) The Engineer Justified Cost Estimate

Following is the summary of justification of the cost estimate. "UNIT PRICE ANALYSIS" was not applicable for this claim.

Please refer to **Appendix E** for detailed cost calculation.

Claim Code	No.	Pay Item	Supportive Document for Unit and Unit Rate	Engineer's Judgment for Unit Rate	Amount (JPY)	Amount (VND)
CC03	1	NEW 01	Provided	100%	5,488,000	39,445,400
	2	NEW 02	Provided	100%	21,370	74,628,000
	3	NEW 03	Insufficient	50%	12,776	16,470,988
	4	NEW 04	Insufficient	50%	3,148,613	0
	5	NEW 05 (02346-2)	02346-2	100%	2,600,496	62,709,052
			Total		11,271,255	193,253,440
			Total in VND			1,658,516,590
			Total in JPY		12,757,820	

CC.43 Deployment of 2nd Advance from South End of Tunnel

(A) General

The Employer issued Acceleration Order by his letter No. HVAL-011-03 dated 10 March 2003.

Upon the recommendation by the Engineer, the PK1A Contractor and the PK1B Contractor agreed with their Sub-Contract Agreement No. SC-P0306-01 on 28 June 2003 for the tunnel excavation further northward from STA. 5+500 by the PK1B Contractor in order to recover the delay of PK1A Contractor's progress.

Balances of PK1A Contractor's claim amount and the Sub-Contract Agreement No. SC-P0306-01 should be compensated by the Employer because the Employer issued the Acceleration Order.

(B) Works Accelerated

Acceleration period was calculated as follows:

Main Tunnel:	480 m / 155 m =	3.1 months
EP2 Tunnel:	75 m / 75 m =	1.0 month
Total		4.1 months

Note: 155 m is average rate for Main Tunnel by the PK1A Contractor; 75 m is that for EP tunnel.

(C) Contractor's Claims for Quantity Measurement

Quantity was measured in accordance with the Inspection Sheets used in the measurement of the PK1B Contractor's works.

The Engineer has no objection to use the Inspection Sheets as the evidence of the work quantity.

(D) The Engineer's Justified Cost Estimate

The Employer agreed to pay additional 10% of total of BOQ based claim for the compensation. The Engineer has no objection to the Employer's agreement.

Claim Code	No.		Amount (JPY)	Amount (VND)
CC43	1	Total of BOQ Based Amount	148,596,651	5,812,333,150
	2	The Employer's Acceptance (10%)	14,859,665	581,233,315
Total			14,859,665	581,233,315
Total in VND				2,512,989,765

	Total in JPY	19,330,691	
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2.5.3 Claims for Quantity Measurement (2), Work affected by the Claimed Activity

CC.02 Non-Contributing Production Resources Affected by Commencement Delay

(A) Contractor's Claims for Quantity Measurement

The Contractor's claim Document No.3 was updated from Document No.1, so Document No.3 was referred for the quantification.

No.	Pay Item	Description
1	DIVISION 1	GENERAL REQUIREMENTS
2	DIVISION 2B	SITE AND ROAD WORKS

(B) Engineer's Evaluation for Claims for Quantity Measurement

(B1) Rate of Delay

A 2.5 months delay was approved by MOT/PMU85 for the open works. The Contractor simplified calculation by distributing it to 1.5 months for the delay caused by the rainy season and the remaining by the railway crossing, uniquely to each month, as shown below:

(B1a) Engineer's Evaluation

It is reasonable to distribute each month as proposed by the Contractor for calculation of delay rate.

Delay by Rainy Season = 1.5 months for 7 months (Oct 2000 ~ Apr 2001)
 $1.5/7.0 = 0.214$ month

Delay by Railway Crossing = 1.0 months for 5 months (Oct 2000 ~ Feb 2001)
 $1.0/5.0 = 0.200$ month

Month	Delay		
	Rainy Season	Railway Crossing	Total
Oct 00	0.214	0.200	0.414
Nov 00	0.214	0.200	0.414
Dec 00	0.214	0.200	0.414
Jan 01	0.214	0.200	0.414
Feb 01	0.214	0.200	0.414
Mar 01	0.214	---	0.214
Apr 01	0.214	---	0.214
			Total 2.50 months

(B2) Labor Cost

Labor working record is provided in the Contractor's Monthly Progress Report.

Labor monthly salary for the expatriates is provided in "Income Statement of Expatriates"

Labor monthly salary for the local workers is calculated on the basis of actual average monthly rate of workers and staff.

(B2a) Engineer's Evaluation

Labor cost for the expatriate is acceptable.

However, labor cost of local workers should be modified because works outside tunnel and inside tunnel is completely different so that the salary of local workers should be different considerably.

$$\begin{aligned}\text{Rate for Open Works} &= \text{Rate for Work inside tunnel} \times 0.70 \\ &= \text{Average Rate} \times 0.80\end{aligned}$$

(B3) Equipment Cost

The Contractor listed a series of construction equipment and computed all of those worked continuously for 2.5 months by applying "Schedule of Daywork Rates and Prices" in the contract.

(B3a) Engineer's Evaluation

In order to compute the extra cost of the construction equipment for 2.5 months period, the following parameters should be clarified.

- Rental cost of each construction equipment for 2.5 months
- Operation cost per hour of each construction equipment including operator's salary,
- Actual working record of each construction equipment, and
- Actual maintenance cost.

Acceptable cost is

$$\begin{aligned}& \text{Rental Cost for 2.5 months} \\ & + \text{Operation Unit Rate} \times \text{Working hours} \\ & + \text{Actual Maintenance Cost}\end{aligned}$$

The Actual working hours should be proved in the Contractor's work daily report. As

the Contractor doesn't provide appropriate supportive document, the Engineer's evaluation is roughly as follows:

Acceptable Equipment Cost for 2.5 months = Claimed Amount x 40%

(C) The Engineer Justified Cost Estimate

No.	Pay Item	Unit	Contractor's Claim		Engineer's Judgment	
			JPY	VND	JPY	VND
1	Additional Labor	1	905,927	641,276,210	905,927	513,020,968
2	Additional Equipment	1	0	1,182,882,420	0	473,152,968
	Total		905,927	1,824,158,630	905,927	986,173,936

CC.09 Non-Contributing Production Resources Affected by Ventilation Adit Works Delay

(A) Contractor's Claims for Quantity Measurement

No.	Pay Item	Description
1	DIVISION 1	GENERAL REQUIREMENTS
2	DIVISION 2A	TUNNEL WORKS
3	DIVISION 2B	SITE AND ROAD WORKS
4	DIVISION 13	SPECIAL CONSTRUCTION

(B) Engineer's Evaluation for Claims for Quantity Measurement

(B1) Rate of Delay

A 2.5 months delay by unforeseeable high water flow was agreed by the Employer. A 1.0 month delay by 144 m extension was approved by MOT.

(B1a) Engineer's Evaluation

The Engineer has no objection for the above agreement.

A 2.5 months delay by unforeseeable high water flow was occurred from December 2001 to June 2002.

It is reasonable to distribute each month as proposed by the Contractor for calculation of delay rate.

Delay by High Water Flow = 2.5 months for 7 months (Dec 2001 ~ June 2002)
2.5/7.0 = 0.357 month

Regarding, a 1.0 month delay by 144 m extension, the excavation rate is double

because of the severe working environment.

(B2) Labor Cost

Labor working record is provided in the Contractor's Monthly Progress Report. Labor monthly salary for the expatriates is provided in "Income Statement of Expatriates"

(B2a) Engineer's Evaluation

Labor cost for the high water flow can be calculated as follows:

Month/ Year	ACTUAL LABOR COST		Delay Extent	ADDITIONAL LABOR COST	
	Foreign Currency (JPY)	Local Currency (VND)		Foreign Currency (JPY)	Local Currency (VND)
Dec-01	300,456	54,679,274	0.3570	107,263	19,520,501
Jan-02	92,448	109,756,575	0.3570	33,004	39,183,097
Feb-02	15,408	82,042,224	0.3570	5,501	29,289,074
Mar-02	7,704	127,358,804	0.3570	2,750	45,467,093
Apr-02	-	134,871,241	0.3570	-	48,149,033
May-02	-	145,495,006	0.3570	-	51,941,717
Jun-02	-	119,474,843	0.3570	-	42,652,519
TOTAL			2.5000	148,518	276,203,034

Additional labor cost for the 144m extension can be calculated

Month/Year	ACTUAL LABOR COST	
	Foreign Currency	Local Currency
	JPY	VND
Feb-03	144,000	122,484,332
Mar-03	102,816	159,392,548
Total	246,816	281,876,880
Average	123,408	140,938,440

(B3) Equipment Cost

The Contractor listed a series of construction equipment and computed all of those had worked continuously for 3.5 months by applying average monthly equipment cost.

(B3a) Engineer's Evaluation

The Engineer's major comments are as follows:

- The Contractor's calculation can't be accepted because those are not actual record of the cost.
- Price index of "Norm and Unit Price on Basic construction for laly Hydroelectric Plan" and "Schedule of Daywork and prices" can't be accepted.
- The Contractor reported the following construction equipment were working continuously for 3.5 months for 9.5 hours per day.

Nos	Equipment
1	boom Jumbo Drill
1	Hydraulic Excavator
1	Wheel Loader
5	Dump Trucks 20T
1	Shotcrete Machine
1	Grout Pump

There is no supportive documents submitted, the Engineer applied "UNIT PRICE ANALYSIS" in the Contract.

Average excavation during high water flow is 85 m,
Cross-sectional area for the excavation of the ventilation adit is 45 m²,
Therefore, monthly excavation volume is 3,825 m³.

Pay Item	Unit	Qty	Unit Rate		Engineer's Judgment	
			JPY	VND	JPY	VND
02330-7	m3	3,825	557	31,011	2,130,525	118,617,075
For 3.5 months (Total)					7,456,837.5	415,159,762.5

(C) The Engineer Justified Cost Estimate

Pay Item	Unit	Qty	Unit Rate		Engineer's Judgment	
			JPY	VND	JPY	VND
Labor (1)	month	2.5			148,518	276,203,034
Labor (2)	month	1			123,408	140,938,440
02330-7	month	3.5	2,130,525	118,617,075	7,456,837.5	415,159,762.5
For 3.5 months (Total)					7,728,763.5	832,301,236.5

CC.24 Non-Contributing Production Resources Affected by Main Tunnel Works Delay

(A) Contractor's Claims for Quantity Measurement

No.	Pay Item	Description
1	DIVISION 1	GENERAL REQUIREMENTS
2	DIVISION 2A	TUNNEL WORKS
3	DIVISION 13	SPECIAL CONSTRUCTION

(B) Engineer's Evaluation for Claims for Quantity Measurement

(B1) Rate of Delay

A 3.23 months delay by in the main tunnel was agreed by the Employer.

(B1a) Engineer's Evaluation

The Engineer has no objection for the above agreement.

It is reasonable to distribute each month as proposed by the Contractor for calculation of delay rate.

Delay by Geological Deformation = 0.73 months
for 6 months (Oct 2002 ~ Mar 2003)
 $0.73/6.0 = 0.122$ month

Delay by Adit Excavation = 2.50 months
for 13 months (May 2002 ~ May 2003)
 $2.50/13.0 = 0.192$ month

Month	Delay		
	Geological	Adit	Total
May 02		0.192	0.192
Jun 02		0.192	0.192
Jul 02		0.192	0.192
Aug 02		0.192	0.192
Sep 02		0.192	0.192
Oct 02	0.122	0.192	0.314
Nov 02	0.122	0.192	0.314
Dec 02	0.122	0.192	0.314
Jan 03	0.122	0.192	0.314
Feb 03	0.122	0.192	0.314
Mar 03	0.122	0.192	0.314
Apr 03		0.192	0.192
May 03		0.192	0.192
			Total 3.23 months

(B2) Labor Cost

Labor working record is provided in the Contractor's Monthly Progress Report. Labor monthly salary for the expatriates is provided in "Income Statement of Expatriates"

(B2a) Engineer's Evaluation

Labor cost for the delay, the Engineer has no objection to the Contractor's calculation.

(B3) Equipment Cost

The Contractor listed a series of construction equipment and applied price index of "Norm and Unit Price on Basic construction for laly Hydroelectric Plan" and "Schedule of Daywork and prices"

Item No.	Description	Unit	Qty	Hourly Rate (VND)	Amount (VND)	Average Time of Utilisation per Round
A	1 - Three-boom Jumbo Drill	hr.	9.5	1,793,618	17,039,371	full time
B	1 - Two-boom Jumbo Drill	hr.	9.5	1,195,745	11,359,578	full time
C	1 - Hydraulic Excavator/Breaker	hr.	9.5	130,435	1,239,133	full time
D	4 - Dump Truck 40T	hr.	16.0	121,739	1,947,824	4 hours
E	5 - Dump Truck 20T	hr.	20.0	104,348	2,086,960	4 hours
F	1 - Shotcrete Machine	hr.	9.5	870,632	8,271,004	full time
G	1 - Grout Pump	hr.	1.0	30,435	30,435	1 hour
H	1 - Wheel Loader	hr.	3.0	156,522	469,566	3 hours

TOTAL EQUIPMENT COST PER ROUND

42,443,871

(B3a) Engineer's Evaluation

The Engineer's major comments are as follows:

- The Contractor's calculation can't be accepted because those are not actual cost.
- Price index of "Norm and Unit Price on Basic construction for laly Hydroelectric Plan" and "Schedule of Daywork and prices" can't be accepted.

There is no supportive documents submitted to enable to check working hour of each equipment per round, the Engineer applied "UNIT PRICE ANALYSIS" in the Contract.

Average excavation advance per round is 3.4 m,

Cross-sectional area for the excavation of main tunnel is 91 m²,
Therefore, excavation volume per round is 309 m³.
Equipment cost for per round based on UNIT PRICE ANALYSIS is

Pay Item	Unit	Qty	Unit Rate		Engineer's Judgment		
			JPY	VND	JPY	VND	VND (Total)
02330-1	m3	309	556	8,061	171,804	2,490,849	24,825,369

Therefore, average monthly equipment cost is

$$24,825,369 \times 1084 \text{ (round)} / 30 \text{ (months)} = 897,023,333 \text{ (VND)}$$

or

$$6,207,851 \text{ (JPY)} + 90,002,677 \text{ (VND)}$$

(C) The Engineer Justified Cost Estimate

Pay Item	Unit	Qty	Unit Rate		Engineer's Judgment	
			JPY	VND	JPY	VND
Labor	month	3.23			2,549,948	1,281,533,936
02330-1	month	3.23	6,207,851	90,002,677	20,051,359	290,708,647
For 3.5 months (Total)					22,601,307	1,572,242,583

CC.25 Consolidated EOT Request (including Time-Related Costs of Delay)

(A) Contractor's Claims for Quantity Measurement

No.	Pay Item	Description
1	DIVISION 1	GENERAL REQUIREMENTS

(B) Engineer's Evaluation for Claims for Quantity Measurement

(B1) Rate of Delay

A 3.5 months delay by in the main tunnel was agreed by the Employer.

(B1a) Engineer's Evaluation

The Engineer has no objection for the above agreement.

(B2) Cost of Delay

The Contractor claimed the following cost for the delay and submitted detailed cost data as supportive documents.

- 1 Indirect Labor Cost
- 2 Indirect Equipment Cost
- 3 General Expense

(B2a) Engineer's Evaluation

The indirect cost consisting of overhead and profit is usually included in the Pay Item for each work unit with a fixed percentage (10%) to sum of equipment, labor and materials. Therefore, the indirect cost for the extended period should be in same manner as follows:

(C) The Engineer Justified Cost Estimate

Claim Code No.	Engineer's Justification (B)		Indirect Cost (D) = (B) x 10%	
	JPY	VND	JPY	VND

Delay of Commencement

	CC.02	905,927	986,173,936	90,593	98,617,394
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Ventilation Adit

C2	CC.03	11,271,255	193,253,440	----	----
	CC.09	7,728,764	832,301,237	772,876	83,230,124

Main Tunnel

	CC.24	22,601,307	1,572,242,583	2,260,131	157,224,258
	CC.25	3,123,600	339,071,776	----	----

Acceleration of Works

C5	CC.43	14,859,665	581,233,315	----	----
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60,490,517 4,504,276,286 3,123,600 339,071,776

Total in VND 12,368,043,529 664,834,888

Total in JPY 95,138,796.00 5,114,114.00

Note: Exchange Rate 1JPY = 130 VND.