No.

REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES

PROJECT FOR POST-EARTHQUAKE REHABILITATION OF WATER RESOURCES MANAGEMENT FACILITIES IN PADANG IN REPUBLIC OF INDONESIA

FINAL REPORT

FEBRUARY 2011

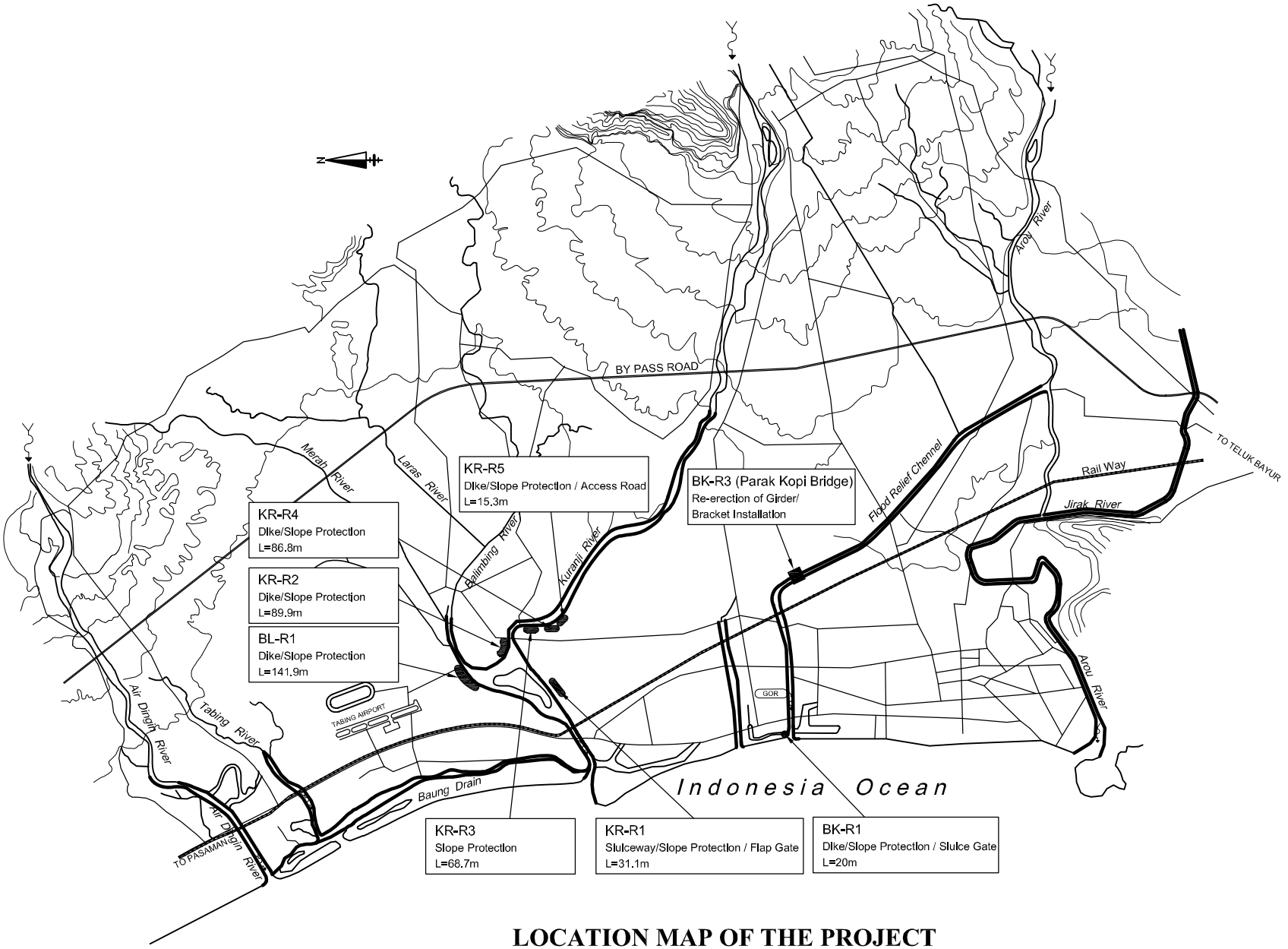
JAPAN INTERNATIONAL COOPERATION AGENCY

IDEA CONSULTANTS, INC.

A1P
JR
11-004

CURRENCY EQUIVALENTS (AS OF FEBRUARY 2010)

1 Indonesian Rupiah = 0.00969 Japanese Yen



LOCATION MAP OF THE PROJECT

SUMMARY

1. Background of the Project

Padang City is the capital city of the West Sumatra Province, which is located in the center of the western part of the Sumatra Island. Padang City is situated on the alluvial lands formed by the Arau, Kuranji and Air Dingin rivers. Therefore, the city had been suffering from frequent flood damages for many years. In order to prevent continuing flood damages, Japanese ODA Loan Projects, "Padang Area Flood Control Projects (I) (II)" had been implemented during a period from 1990 to 2002. After completion of the flood control projects, there is no remarkable flood damage in Padang City.

On September 30th, 2009, an earthquake of a moment magnitude 7.6 occurred off the coast of Padang City and caused the disasters in many parts of Padang City and West Sumatra. Many water resources management facilities including the flood control facilities were also affected by this earthquake.

After the earthquake, the Japan International Cooperation Agency ("JICA") had dispatched the Preparatory Survey Mission (The JICA Mission) for the Post-earthquake Rehabilitation of Water Resources Management Facilities in Padang in November 2009 in order to assist the rehabilitation planning of the damaged facilities. The earthquake caused devastation of river basins and increase of debris in the basins. Damages to the flood control facilities would extend flood damages in Padang City. Therefore, the earliest rehabilitation of these flood control facilities becomes one of the major keys to the recovery from the earthquake disaster.

2. Outline of Project

The Project was implemented in accordance with "Memorandum of Understanding between Japan International Cooperation Agency and The Ministry of Public Works of The Republic of Indonesia on Project for Post-Earthquake Rehabilitation of Water Resources Management Facilities In Padang" dated April 22, 2010.

Outline of the Project are as follows:

Overall Goal:

The secondary damages of the earthquake in Padang City are prevented by restoring the original function of damaged water resources management facilities.

Purposes:

Among the facilities constructed by "Padang Area Flood Control Projects (I) (II)", serious damages of the water resources management facilities are restored.

Output:

Among the facilities constructed by "Padang Area Flood Control Projects (I) (II)", damaged water resources management facilities which require urgent recovery are rehabilitated.

3. Organization Set Up

In the Project, JICA Indonesia Office is the employer for the rehabilitation works. Selection of contractor and construction supervision are implemented by JICA Indonesia Office and supported by the JICA Consultant Team and the following Indonesia agencies concerned:

Executive Agency:

Directorate of River, Lake and Reservoir, Directorate General of Water Resources (DGWR), Ministry of Public Works (MPW) is responsible for the project administration.

Implementing Agency:

Sumatra V River Basin Office (Balai Wilayah Sungai Sumatera V "BWS Sumatera V"), representing DGWR, MPW is responsible for the project implementation.

Related Agencies:

Regional Development Planning Agency (Badan Perencanaan Pembangunan Daerah "BAPPEDA"), West Sumatra,

Water Resources Management Services (Dinas Pengelolaan Sumber Daya Air, "Dinas PSDA"), West Sumatra,

Regional Disaster Management Agency (Badan Penaggulangan Bencana Daerah "BPBD"), West Sumatra, and

Technical Support Team for Post-earthquake Rehabilitation and Reconstruction of West Sumatra Province (Tim Pendukung Teknis Rehabilitassi dan Rekonstruksi Pasca Gempa Propinsi Sumatera Barat "TPT"), representing National Disaster Management Agency (Badan Nasional Penanggulangan Bencana "BNPB")

cooperate with the executive agency, the implementing agency as well as the consultant team for smooth project implementation.

In order to promote effective and successful project implementation, the Project Steering Committee and the Project Working Group were set up.

4. Selection of Contractor

Based on the detailed design, the bidding documents were prepared and the contractor was selected through the LCB procedure. The selection process was as follows:

Selection Process of Contractor(s)

Date	Events
March 29, 2010	Invitation for Bids (Media Indonesia)
March 30 –April 06, 2010	Distribution of Documents at JICA Indonesia Office and Project Working Group Office in Padang.
April 07, 2010	Pre-bid Meeting at Project Working Group Office in Padang
April 07, 2010	Joint Site Visit in Padang
April 13, 2010	Last date for questions from Bidders
April 15, 2010	Issue of Addendum No.1 and Answer to Questionnaire from Bidders
April 26, 2010	Submission of Bid (10:00 -14:00), and immediately Opening of Bids thereafter. The bidders are P.T. Pembangunan Perumahan, Tbk., P.T. Waskita Karya and P.T. Nindya Karya.
April 26 – May 5, 2010	Bid Evaluation
May 07, 2010	Issue of Letter of Acceptance to successful bidder (P.T. Waskita Karya. Corrected bid price is Rp.9,754,804,598.) Pre-Contract Meeting with P.T. Waskita Karya
May 18, 2010	Conclusion of Contract (Contract Signing)
May 19, 2010	Issue of Notice to Proceed to P.T. Waskita Karya.

5. Construction Works

The construction works were executed by the Contractor (P.T. Waskita Karya) under the established construction supervision system with a period of 270 days from May 19, 2010 to February 12, 2011.

During the construction period of the works, minor modifications of the original designs and the original works were made depending on the situations of the sites. In addition, the construction period was extended for 30 days from 240 days of the original contract due to the extreme weather condition, etc. Those variations of the Works and extension of the construction period were summarized to the following amendments to the contract.

- Amendment No. 1 (Contract No. 100517-0020-A01) dated on January 12, 2011 on extension of intended completion date.
  Original contract: 240 days (up to January 13, 2011)
  Amendment No.1: 270 days (up to February 12, 2011)
- Amendment No. 2 (Contract No. 100517-0020-A02) dated on February 04, 2011 on change of Bill of Quantities. The contract amount was reduced.
  Original Contract Amount: Rp. 9,754,804,598.
  Amendment No. 2: Rp. 9,228,567,657.
  (Reduction Rp. 526,236,941.
  5.4 % of the original amount)

The construction works was officially accepted by the Employer (JICA Indonesia Office) on February 12, 2011 and the works were taken over by the Ministry of Public Works of the Republic of Indonesia. The Defects Notice Period of 180 days commenced on February 13, 2011 and will end on August 11, 2011.

REPUBLIC OF INDONESIA
PROJECT FOR POST-EARTHQUAKE REHABILITATION OF WATER RESOURCES MANAGEMENT FACILITIES IN PADANG

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1. INTRODUCTION

1.1 Background of the Project

Padang City is the capital city of the West Sumatra Province, which is located in the center of the western part of the Sumatra Island. Padang City is prospering as a center of administration and education of West Sumatra and also as a commercial center in respect of communication and transport at the western coast of the Sumatra Island.

Padang City is located in the alluvial lands formed by the Arau, Kuranji and Air Dingin rivers. Therefore, the city had been suffering from frequent flood damages for many years. In order to prevent continuing flood damages, Japanese ODA Loan Projects, "Padang Area Flood Control Projects (I) (II)" had been implemented during a period from 1990 to 2002. After completion of the flood control projects, there is no remarkable flood damage in Padang City.

On September 30th, 2009, an earthquake of a moment magnitude 7.6 occurred off the coast of Padang City and caused the disasters in many parts of Padang City and West Sumatra. According to the information from West Sumatra Province, there were death toll 1,195 people, missing 2 people, injured 1,798 people, refugees 6,554 people and total damage amount of about Rp.4.8 Trillions, as of October 31st, 2009.

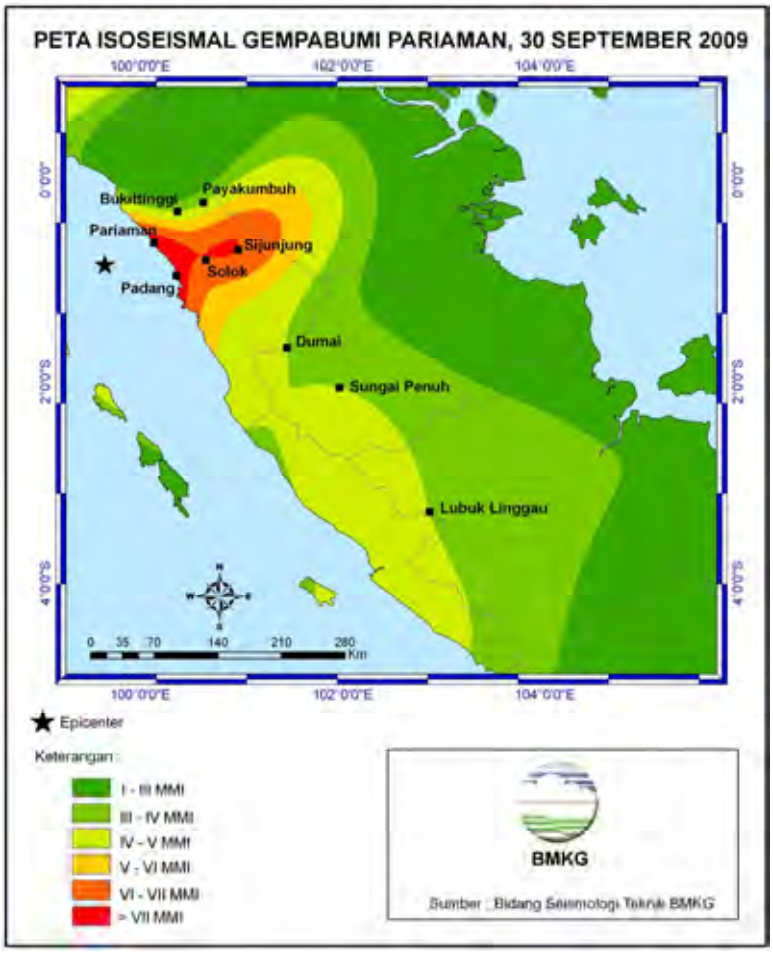


Figure 1.1 Seismic Intensity of 2009/Sep/30 Earthquake (Modified Mericalli Intensity)

Many water resources management facilities including the flood control facilities were also affected by this earthquake. According to the survey by the provincial government of West Sumatra as of October 10th, the damages of the flood control facilities such as the slope protection works, drop-structures, etc. were confirmed along 12 rivers. In particular, seismic intensity of this earthquake was greater in Padang City and the flood control facilities constructed by Japanese ODA Loan Projects have been also suffered damages.

After the earthquake, the Japan International Cooperation Agency ("JICA") had dispatched the Preparatory Survey Mission (The JICA Mission) for the Post-earthquake Rehabilitation of Water Resources Management Facilities in Padang in November 2009 in order to assist the rehabilitation planning of the damaged facilities. The earthquake caused devastation of river basins and increase of debris in the basins. Damages to the flood control facilities would extend flood damages in Padang City. Therefore, the earliest rehabilitation of these flood control facilities becomes one of the major keys to the recovery from the earthquake disaster.

1.2 Outline of the Project

The Project was implemented in accordance with "MEMORANDUM OF UNDERSTANDING BETWEEN JAPAN INTERNATIONAL COOPERATION AGENCY AND THE MINISTRY OF PUBLIC WORKS OF THE REPUBLIC OF INDONESIA ON PROJECT FOR POST-EARTHQUAKE REHABILITATION OF WATER RESOURCES MANAGEMENT FACILITIES IN PADANG" dated April 22, 2010. Outline of the Project are described hereunder.

1.2.1 Overall Goal

The secondary damages of the earthquake in Padang City are prevented by restoring the original function of damaged water resources management facilities.

1.2.2 Purposes

Among the facilities constructed by "Padang Area Flood Control Projects (I) (II)", serious damages of the water resources management facilities are restored.

1.2.3 Output

Among the facilities constructed by "Padang Area Flood Control Projects (I) (II)", damaged water resources management facilities which require urgent recovery are rehabilitated.

1.2.4 Activities

The activities of the Project are as follows:

(1) To select and design the objective facilities for rehabilitation
- To conduct field investigation in the project site
- To make rehabilitation design and cost estimation

(2) To select contractors
- To prepare tender documents
- To select contractors through the local competitive bidding

(3) To conduct construction works for rehabilitation
In the Project, JICA Indonesia Office is the employer for rehabilitation works. Contractor selection and construction supervision are implemented by JICA Indonesia

Office and supported by the consultant team.
The Government of Indonesia (GOI) undertakes to bear claims, if any arises, against the consultant team resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Republic of Indonesia except for those arising from the willful misconduct or gross negligence of the consultant team.

(4) To hand over the facilities after rehabilitation works
After final inspection, the rehabilitated facilities are handed over to GOI. JICA as well as consultants and contractors employed by JICA do not be liable for any defects nor damages after handing over of the facilities.

The consultant team assisted the rehabilitation works through selection of rehabilitation sites, rehabilitation design, selection of contractor(s) and construction supervision.

1.3 Project Area

The Project Area is Padang City of West Sumatra Province. Objective facilities are the flood control facilities damaged by the earthquake, which are constructed by the Japanese ODA Loan and require urgent recovery.

2. SUMMARY OF PROJECT MANAGEMENT

2.1 Project Activities

The Project was implemented during the period from February 2010 to February 2011. Project activity flow and progress of the activities are shown in Figure 2.1 and Table 2.1, respectively.

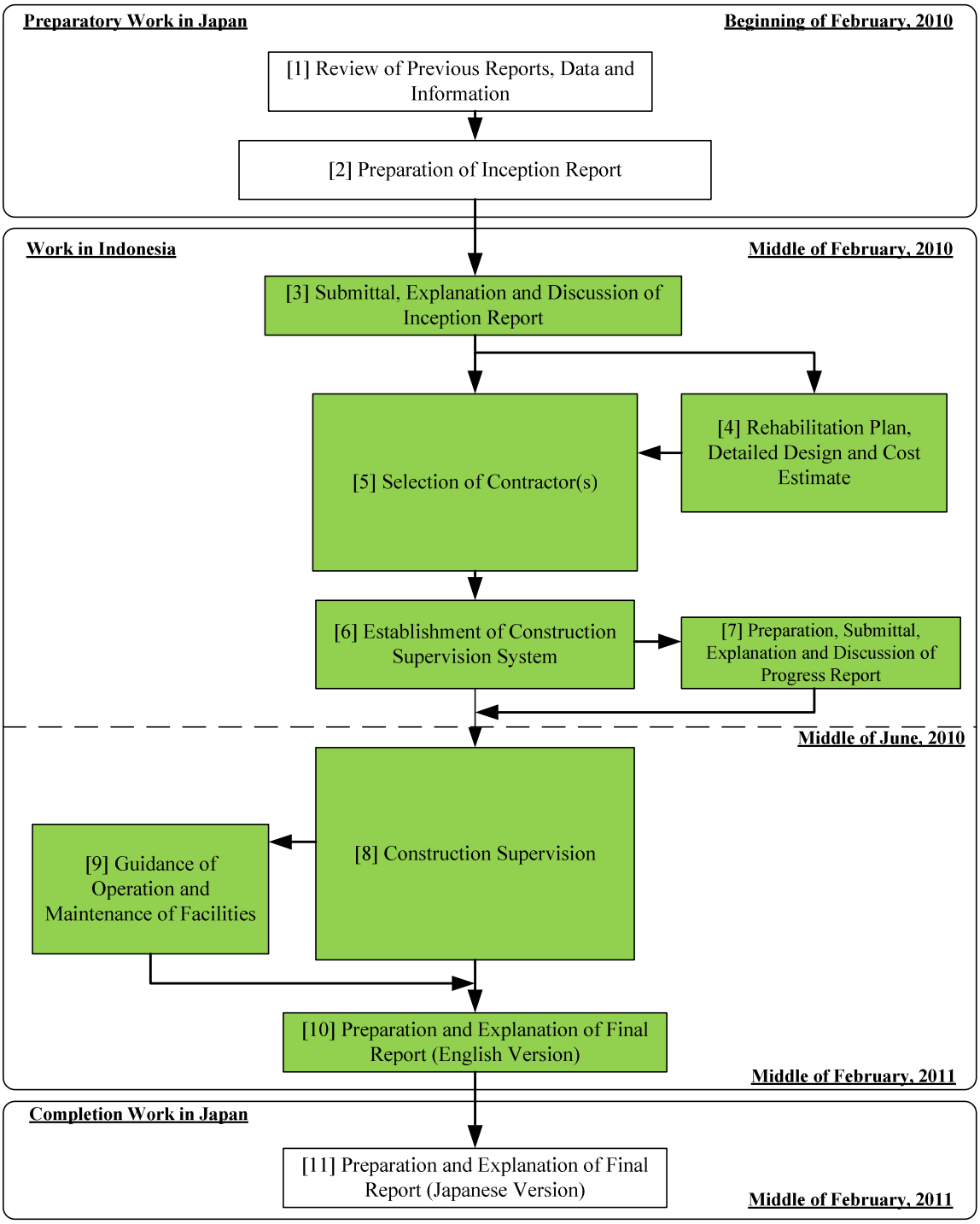
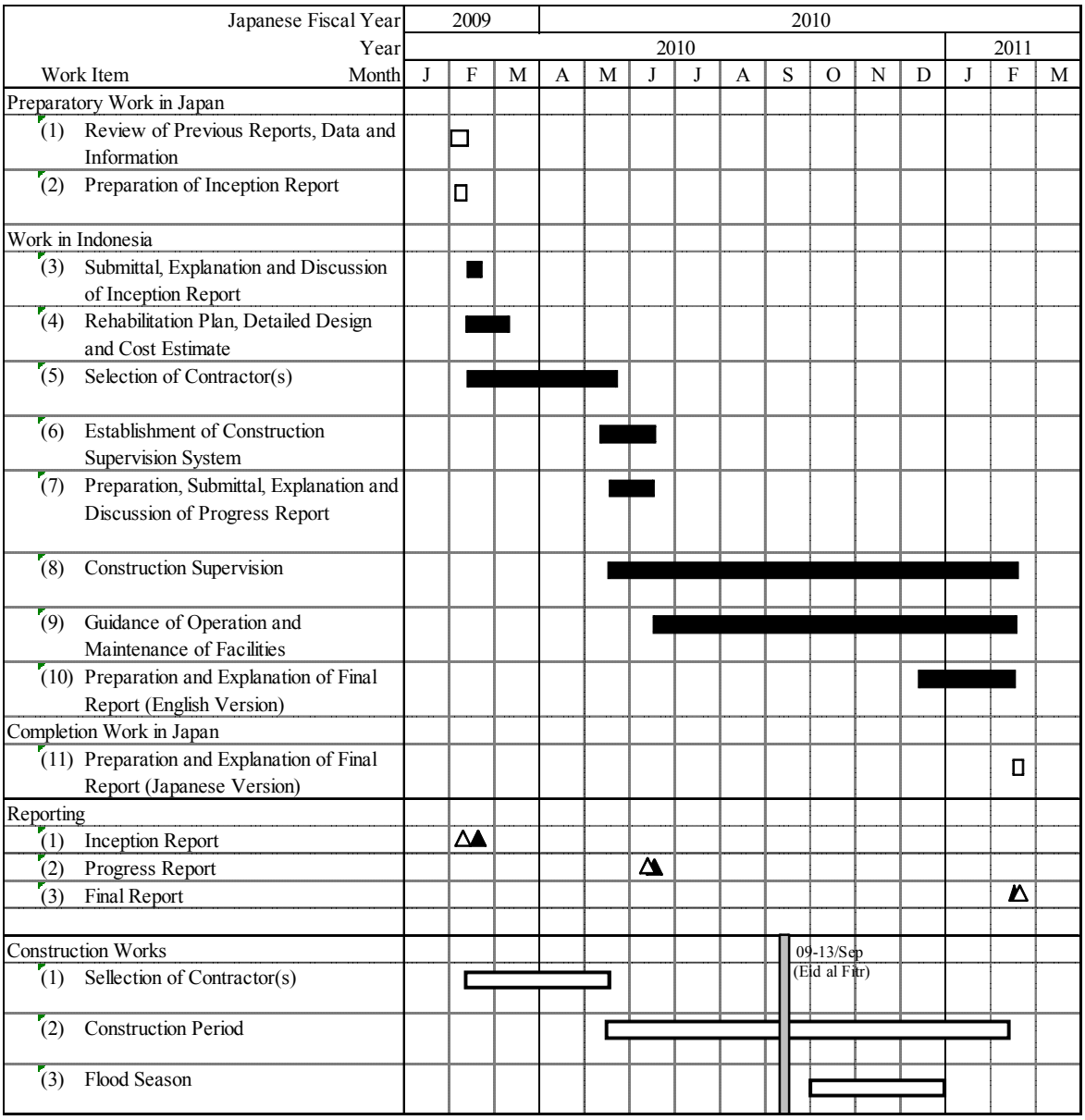


Figure 2.1 Project Activity Flow

Table 2.1 Progress of Activities



2.2 Implementing Arrangement

2.2.1 Indonesian Agencies Concerned

(1) Executive Agency:
Directorate of River, Lake and Reservoir (current Directorate of River and Coast), Directorate General of Water Resources (DGWR), Ministry of Public Works (MPW) is responsible for the project administration.

(2) Implementing Agency:
Sumatra V River Basin Office (Balai Wilayah Sungai Sumatera V "BWS Sumatera V"), representing DGWR, MPW is responsible for the project implementation.

(3) Related Agencies:
Regional Development Planning Agency (Badan Perencanaan Pembangunan Daerah "BAPPEDA"), West Sumatra,
Water Resources Management Services (Dinas Pengelolaan Sumber Daya Air, "Dinas PSDA"), West Sumatra,
Regional Disaster Management Agency (Badan Penaggulangan Bencana Daerah "BPBD"), West Sumatra and
Technical Support Team for Post-earthquake Rehabilitation and Reconstruction of West Sumatra Province (Tim Pendukung Teknis Rehabilitassi dan Rekonstruksi Pasca Gempa Propinsi Sumatera Barat "TPT"), representing National Disaster Management Agency (Badan Nasional Penanggulangan Bencana "BNPB")
cooperate with the executive agency, the implementing agency as well as the consultant team for smooth project implementation.

2.2.2 Organization Set Up

In order to promote effective and successful project implementation, the Project Steering Committee and the Project Working Group were established. Organization setup of the Project is presented below:

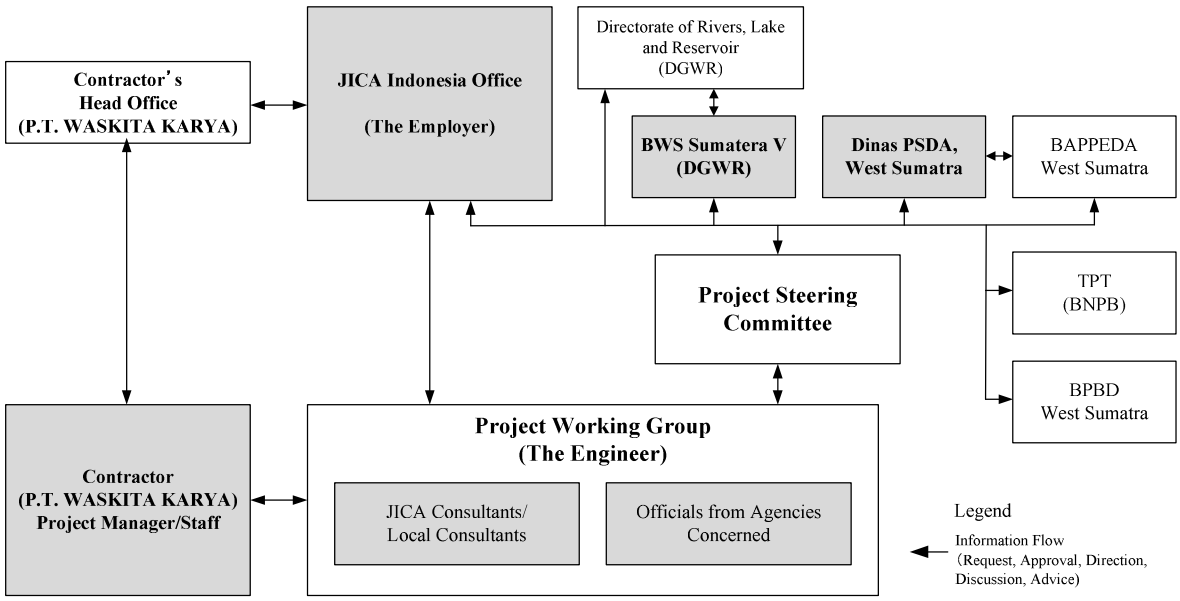


Figure 2.2 Organization of Project Implementation in Indonesia

The functions and compositions of the Project Steering Committee and the Project Working

Group are described below:

2.2.3 Project Steering Committee

(1) Functions

The Project Steering Committee was set up to promote effective and smooth implementation of the Project. The Steering Committee will meet on occasion, in order to fulfill following function:

- To review the progress of activities implemented under the activity plan,
- To review and exchange opinions on major issues that may arise during the implementation of the Project,
- To discuss any other issue(s) pertinent to the smooth implementation of the Project, and
- To give the guidance and suggestion to the Working Group.

(2) Compositions

The Steering Committee consists of;

- Chairperson: Director of River, Lake and Reservoir, DGWR, MPW
- Members
  Head of BWS Sumatra V, DGWR, MPW
  Head of BAPPEDA, West Sumatra Province
  Head of Dinas PSDA, West Sumatra Province
  Head of TPT, BNPB
  Head of BPBD, West Sumatra Province
  Senior Representative of JICA Indonesia Office
- Secretariat: JICA Indonesia Office and JICA Consultant Team

2.2.4 Project Working Group

(1) Functions

The Project Working Group served as the implementation organization of the Project including the JICA Consultant Team. Function of the Working Group is as follows:

- To assist all activities in the field, including rehabilitation design and final inspection,
- To report progress and plan of the activities to the Steering Committee regularly, and
- To cooperate on settlement of issues that may arise during the implementation of the Project.

(2) Compositions

The Steering Committee consists of:

- Chairperson: Head of BWS Sumatra V, DGWR, MPW
- Members: The JICA Consultant Team and the officials dispatched from the following agencies concerned:
  Directorate of River, Lake and Reservoir, DGWR, MPW
  BWS Sumatera V, DGWR, MPW
  Dinas PSDA, West Sumatra Province

2.2.5 JICA Consultant Team

The JICA Consultant Team composed of the Japanese experts and the experts from the local consultant firm under the subletting system. Composition of the JICA Consultant Team is presented at Figure 2.3.

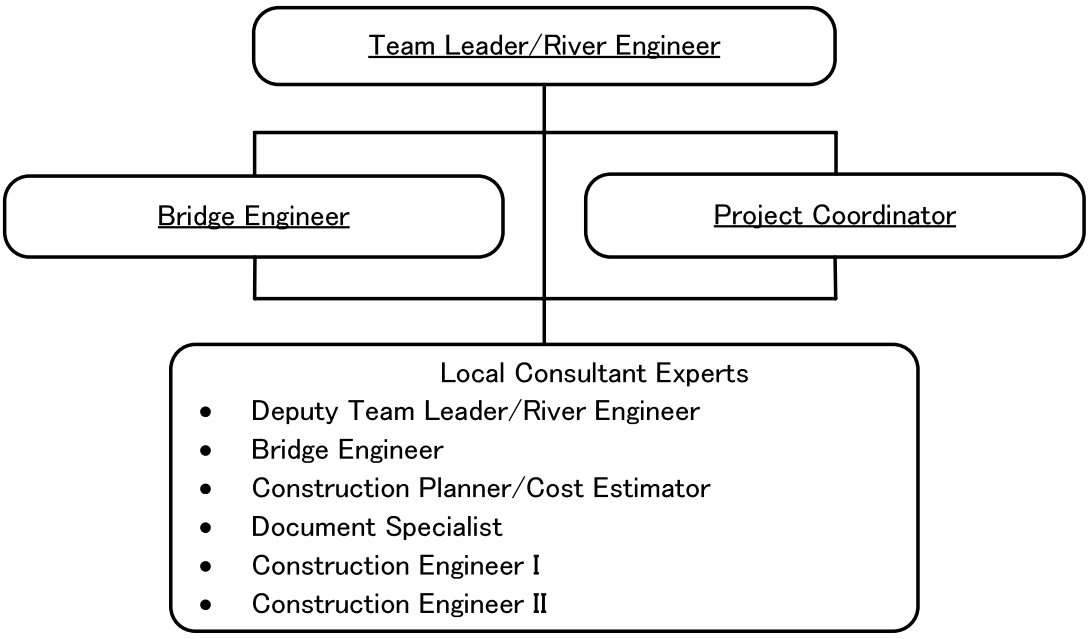


Figure 2.3 Composition of JICA Consultant Team

2.3 Input

2.3.1 Japanese Side Input

JICA procured the construction company for the rehabilitation works. In addition, JICA employed the JICA Consultant Team including Japanese experts and the local experts for assistance of implementation of the rehabilitation works.

2.3.2 Indonesia Side Input

(1) Assignment of counterpart personnel
The executing agency and related agencies assigned their officials as the counterpart personnel of the Project.

(2) Provision of appropriate office space and office equipment for the Team
The office space for the Project Working Group was prepared as follows:
- In Dinas PSDA, West Sumatera Province during the preparation and bidding stage (from February to May, 2010)
- In BWS Sumatra V during the construction stage (from May, 2010 to February 2011)

(3) Provision of data, information and documents related to Padang Area Flood Control Projects (I) and (II)

(4) Provision of data and information regarding the relevant contractors

3. REHABILITATION PLAN, DETAILED DESIGN AND COST ESTIMATE

3.1 Selection of Important Facilities for Rehabilitation Works

Water resources facilities damaged by the 30/Sep/2009 earthquake off the Padang were surveyed by the JICA Mission during November 2009. The summary of the survey by the JICA Mission are presented in Table 3.1 and Figure 3.1.

According to the results of the JICA Mission, 53 water resources management facilities were damaged by the earthquake. Out of those, some facilities suffered minor damages and would be repaired with the maintenance works or temporary works. Remaining 32 facilities required rehabilitation works.

In the Project, up to one hundred (100) million Japanese Yen was prepared as the construction budget for the rehabilitation works. Therefore, selection of important facilities for the rehabilitation was required. Based on the survey results as of November 2009, 16 facilities with high priority on both flood control and civil life aspects and a bridge with high priority on civil life aspect were considered and recommended as the candidate facilities of the rehabilitation works.

After the inspection of the JICA Mission during November 2010, there were four (4) big after-quakes and several floods, which would affect the progressing of the damages of the facilities. In order to confirm the present condition of the damaged facilities and to determine the objective facilities of the rehabilitation works, the joint inspection for the candidate facilities of the rehabilitation works were carried out by the JICA Consultant Team and the officials from the authorities concerned. After this joint inspection, the objective facilities for the rehabilitation works were discussed among the authorities concerned including the JICA Consultant Team, and determined as shown in Table 3.2 and Figure 3.2. In addition to the rehabilitation works of objective facilities, the daywork in the construction contract was employed to repair minor damages of the facilities and to prepare the contingency for the rehabilitation works.

Table 3.1 List of Damaged Water Resources Facilities (As of November 2009)

No.	Sta. No.	Damaged Structure	Priority: Flooding	Priority: Civil life	Countermeasures	Rehabilitation extent (m)	Cost (Rp. million)	Cost (Rp.mil.) F>=high	Cost (Rp.mil.) C>=high	Cost (Rp.mil.) F or C >=high	Cost (Rp.mil.) F and C: high	Proposed Rehabilitating
1	JI 1-1	Revetment	rather high	low	Reconstruction of revetment by gabion mattress instead of wet masonry	10	100	100	-	100	-	
2	JI 1-2	Low water revetment	low	high	Reconstruction of revetment with foot protection works in future	50	719	-	719	719	-	
3	JI 1-3	Low water revetment	low	high	Reconstruction of revetment with foot protection works in future	90	1,295	-	1,295	1,295	-	
4	JI 2	Low water revetment	low	high	Reconstruction of revetment with foot protection works in future	150	2,158	-	2,158	2,158	-	
5	BK 1-1	Sluiceway, revetment	high	high	Reconstruction of revetment	40	1,204	1,204	1,204	1,204	1,204	●
6	BK 1-2	Dike	high	high	Reconstruction of Dike beside the sluiceway	50	44	44	44	44	44	●
7	BK 1-3	Sluiceway, revetment	high	high	Reconstruction of revetment	26	782	782	782	782	782	●
8	BK 1-4	Dike	high	high	Reconstruction of Dike beside the culvert (Works will be included in BK1-3.)	-	-	-	-	-	-	●
9	BK 1-5	Revetment	low	high	Reconstruction of revetment	16	605	-	605	605	-	
10	BK 2	Footpath bridge (at Parak Kopi)	low	high	Putting back shifted beam with stopper	-	500	-	500	500	-	●
11	UG 1-1	Revetment	low	low	Reconstruction of revetment in future	-	-	-	-	-	-	
12	UG 1-2	Parapet wall & inspection road	low	low	Reconstruction of parapet wall and inspection road in future	-	-	-	-	-	-	
13	UG 1-3	Parapet wall & inspection road	low	low	Reconstruction of parapet wall and inspection road in future	-	-	-	-	-	-	
14	KR 1-1	Dike & revetment	low	low	Backfilling and mortar injection (repair works)	-	-	-	-	-	-	
15	KR 1-2	Dike	low	low	Backfilling (repair works)	-	-	-	-	-	-	
16	KR 1-3	Revetment	low	low	Mortar injection (repair works)	-	-	-	-	-	-	
17	KR 2	Dike & revetment	low	low	Mortar injection (repair works)	-	-	-	-	-	-	
18	KR 3-1	Culvert	low	low	Mortar injection and reconstruction of channel slab (repair works)	-	-	-	-	-	-	
19	KR 3-2	Dike	high	high	Rehabilitation of cracked part	53	10	10	10	10	10	●
20	KR 3-3	Sluiceway	high	high	Reconstruction of sluiceway	-	792	792	792	792	792	●
21	KR 4	Dike	low	rather high	Reconstruction of Dike	126	128	-	128	128	-	
22	KR 5-1	Low water revetment	low	low	Reconstruction of revetment with foot protection works in future	30	393	-	-	-	-	
23	KR 5-2	Culvert	low	low	Reconstruction during new bridge works	-	-	-	-	-	-	
24	KR 5-3	Dike & Revetment	high	high	Reconstruction of revetment with foot protection works including repair of dike	80	1,286	1,286	1,286	1,286	1,286	●
25	KR 6-1	Revetment	high	high	Reconstruction of upper half of revetment	60	244	244	244	244	244	●
26	KR 6-2	Dike & Revetment	high	high	Reconstruction of revetment with foot protection works	160	2,572	2,572	2,572	2,572	2,572	●
27	KR 6-3	Culvert	high	high	Mortar injection of gap (repair works), reconstruction of revetment with foot protection works	12	193	193	193	193	193	●
28	KR 6-4	Culvert	high	high	Mortar injection (ordinary repair works of maintenance)	-	-	-	-	-	-	
29	KR 6-5	Dike	high	high	Rehabilitation of cracked part (repair works)	12	3	3	3	3	3	●
30	KR 7-1	Low water revetment	high	high	Mortar injection (ordinary repair works of maintenance)	-	-	-	-	-	-	
31	KR 7-2	Sluiceway	low	high	Mortar injection (Ordinary repair works of maintenance)	-	-	-	-	-	-	
32	BP 1-1	Inspection road	rather low	low	No countermeasure for the time being	-	-	-	-	-	-	
33	BP 1-2	Revetment & inspection road	rather low	low	Reconstruction of revetment and inspection road in future	-	-	-	-	-	-	
34	BP 1-3	Bridge (abutments & revetment)	rather low	low	Reconstruction of abutment and revetment in future	-	-	-	-	-	-	
35	BL 1-1	Dike	high	high	Reconstruction of Dike	170	173	173	173	173	173	●
36	BL 1-2	Dike	high	high	Reconstruction of Dike	190	193	193	193	193	193	●
37	BL 2	Dike	high	high	Reconstruction of Dike	30	23	23	23	23	23	●
38	BL 3-1	Dike	high	high	Rehabilitation of crack	200	51	51	51	51	51	●
39	BL 3-2	Revetment	high	high	Reconstruction of revetment with foot protection works	30	600	600	600	600	600	●
40	BL 4-1	Culvert (wing & revetment)	high	low	Reconstruction of revetment and wing by use of gabion mattress	30	340	340	-	340	-	
41	BL 4-2	Revetment	high	rather low	Mortar injection (Ordinary repair works of maintenance)	-	-	-	-	-	-	
42	BL 4-3	Culvert	low	low	Mortar injection (Ordinary repair works of maintenance)	-	-	-	-	-	-	
43	BL 5-1	Revetment	low	high	Reconstruction of revetment with foot protection works	130	1,890	-	1,890	1,890	-	
44	BL 5-2	Low water revetment	low	high	Reconstruction of revetment with foot protection works	30	306	-	306	306	-	
45	BL 5-3	Low water revetment	low	high	Mortar injection (ordinary works of maintenance) and reconstruction of revetment with foot protection works	10	102	-	102	102	-	
46	BL 6	Bridge (revetment and approach road)	high	low	Mortar injection for crack (ordinary works of maintenance) and reconstruction of revetment	10	102	102	-	102	-	
47	AD 1	Sluiceway	high	high	Mortar injection (repair works)	-	-	-	-	-	-	
48	AD 2	Low water revetment	low	low	Reconstruction of upper half of revetment	30	70	-	-	-	-	
49	AD 3-1	Low water revetment	low	high	Mortar injection (repair works)	-	-	-	-	-	-	
50	AD 3-2	Revetment	high	low	Reconstruction of revetment with foot protection works in future	146	2,697	2,697	-	2,697	-	
51	AD 3-3	Revetment	high	low	Reconstruction of revetment with foot protection works in future	18	332	332	-	332	-	
52	AD 4	Drop structure (Pulai)	low	low	No countermeasure for the time being	-	-	-	-	-	-	
53	AD 5	Weir (Koto Tuo)	low	low	No countermeasure for the time being	-	-	-	-	-	-	
		TOTAL (Rp. million)					19,907	11,641	11,701	15,172	8,170	

● : Objecteve Facilities for Rehabilitation Works proposed by Planning Survey Mission (16 facilitiies with high priority on both flood control and civil life and a bridge with high priority on civil life.)

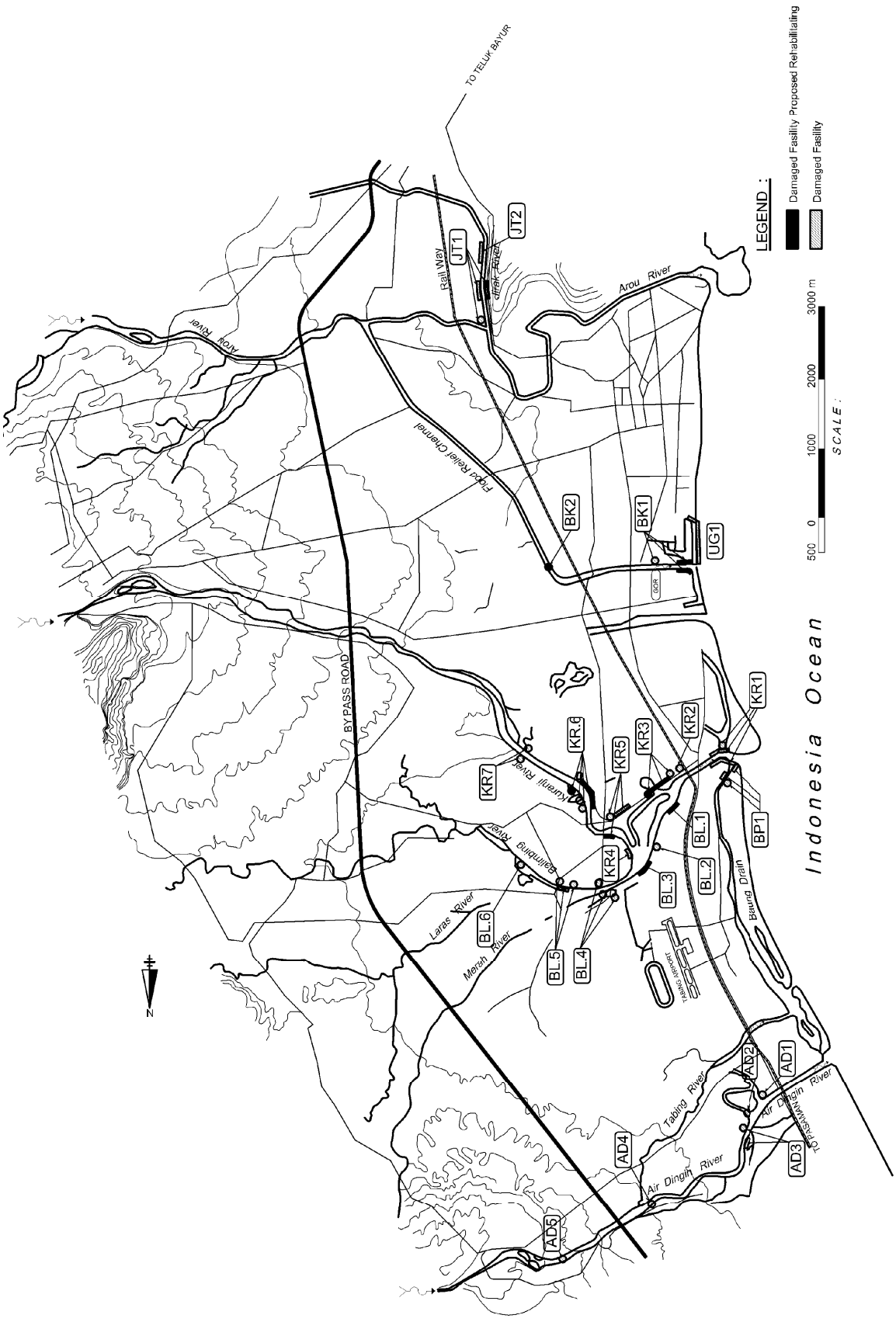


Figure 3.1 Location Map of Damaged Water Resources Management Facilities in Padang (As of November 2009)

Table 3.2 Selection of Objective Facilities for Rehabilitation

No.	Sta. No.	During Planning Survey (Nov/2009)							As of Feb/2010					Work-Site No.
		Damaged Structure	Damage degree	Priority		Countermeasures	Rehabilitation extent (m)	Cost (Rp. million)	Damage degree	Condition	Priority		Rehabiltiation extent (m)	Works by JICA	
				Flooding	Civil life						Flooding	Civil life			
1	BK 1-1	Sluiceway, revetment	rather heavy	high	high	Reconstruction of revetment	40	1,204	rather heavy	Same condistion as of Nov/2009	high	high	40.0	●	BK-R1
2	BK 1-2	Dike	heavy	high	high	Reconstruction of Dike beside the sluiceway	50	44	rather heavy	Same condistion as of Nov/2009	high	high	50.0	●	BK-R1
3	BK 1-3	Sluiceway, revetment	heavy	high	high	Reconstruction of revetment	26	782	heavy	Damage is progressing.	high	high	55.0		
4	BK 1-4	Dike	heavy	high	high	Reconstruction of Dike beside the culvert (Works will be included in BK1-3.)	-	-	heavy	Same condistion as of Nov/2009	high	high	-		
5	BK 2	Footpath bridge (at Parak Kopi)	rather heavy	low	high	Putting back shifted beam with stopper	-	500	rather heavy	Same condistion as of Nov/2009	low	high	-	●	BK-R3
6	KR 3-2	Dike	heavy	high	high	Rehabilitation of cracked part	53	10	Repaired	Repaired.	-	-	-		
7	KR 3-3	Sluiceway	heavy	high	high	Reconstruction of sluiceway	-	792	rather heavy	Damage is progressing.	high	high	31.6 (revetment)	●	KR-R1
8	KR 5-3	Dike & Revetment	heavy	high	high	Reconstruction of revetment with foot protection works including repair of	80	1,286	rather heavy	Damage is progressing.	high	high	90.0 (revetment)	●	KR-R2
9	KR 6-1	Revetment	heavy	high	high	Reconstruction of upper half of revetment	60	244	heavy	Damage is progressing.	high	high	56.8		
10	KR 6-2	Dike & Revetment	rather heavy	high	high	Reconstruction of revetment with foot protection works	160	2,572	rather heavy	Damage is progressing.	high	high	86.8 (revetment)	●	KR-R4
11	KR 6-3	Culvert	rather heavy	high	high	Mortar injection of gap (repair works), reconstruction of revetment with foot protection works	12	193	rather heavy	Damage is progressing.	high	high	15.3 (revetment)	●	KR-R5
12	KR 6-5	Dike	Heavey	high	high	Rehabilitation of cracked part (repair works)	12	3	Repaired	Damage repaired.	-	-	-		
13	BL 1-1	Dike	heavy	high	high	Reconstruction of Dike	170	173	-	At present, ristricted area by Army.	-	-	-		
14	BL 1-2	Dike	heavy	high	high	Reconstruction of Dike	190	193	-	At present, ristricted area by Army.	-	-	-		
15	BL 2	Dike	heavy	high	high	Reconstruction of Dike	30	23	repaired	Already repaired.	-	-	-		
16	BL 3-1	Dike	heavy	high	high	Rehabilitation of crack	200	51	repaired	Already repaired.	-	-	-		
17	BL 3-2	Revetment	rather heavy	high	high	Reconstruction of revetment with foot protection works	30	600	rather heavy	Damage is progressing.	high	high	141.8 (revetment)	●	BL-R1

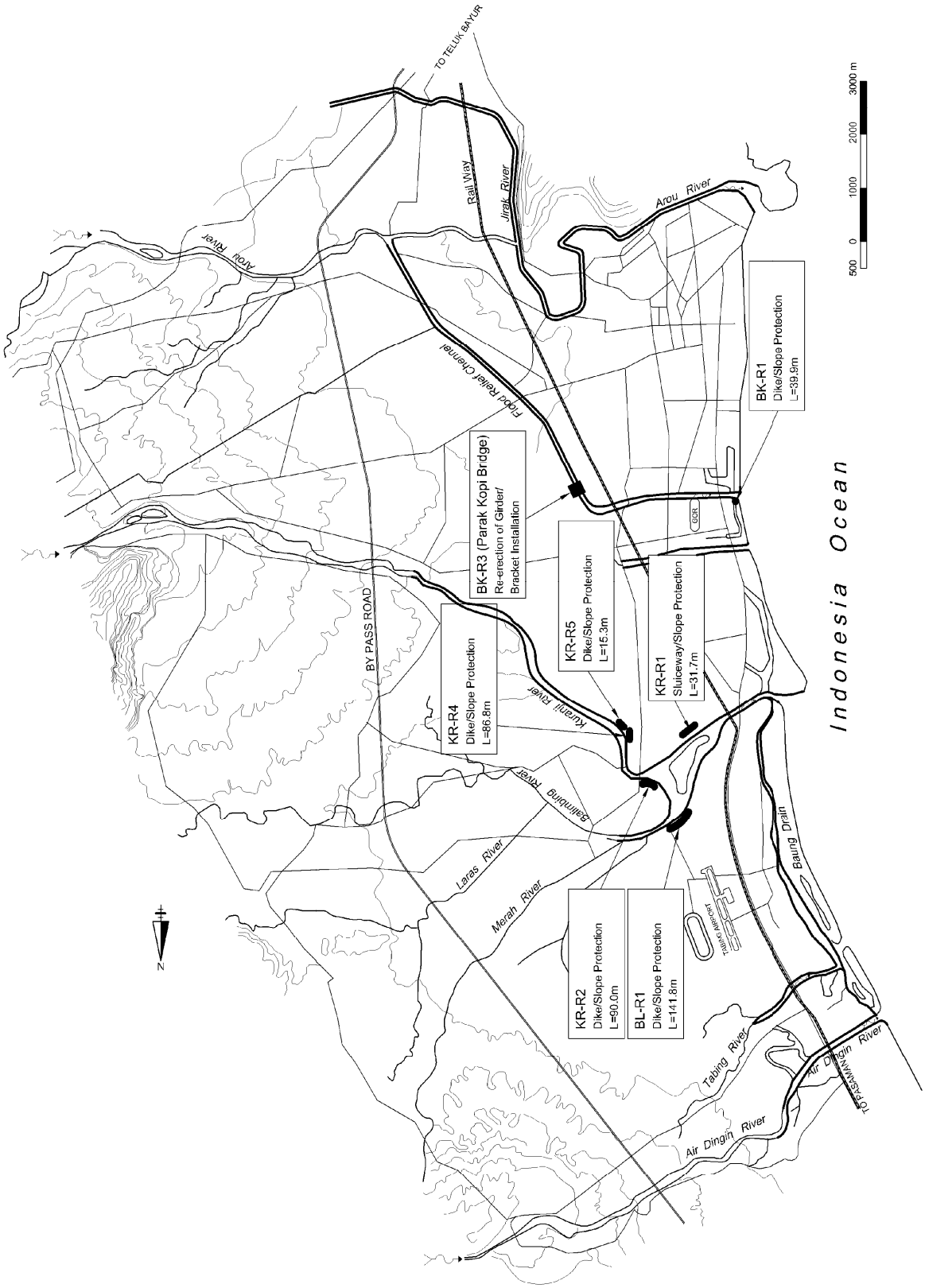


Figure 3.2 Location Map of Selected Rehabilitation Works

3.2 Rehabilitation Plan and Detailed Design

The objective rehabilitation works are summarized as follows:

Table 3.3 List of Rehabilitation Works

No.	River	Site No.	Scope of Work
1	Flood Relief Channel	BK-R1	Works around Purus Sluice (right bank, L=39.9m): dike, slope protection, outlet of sluice
2	Flood Relief Channel	BK-R3	Rehabilitation works of Parak Kopi footpath bridge: re-erection of girder, anti-seismic measure at abutments and pier.
3	Kuranji River	KR-R1	Works around K.8 Sluiceway (left bank, L=31.7m): Sluiceway, dike, slope protection
4	Kuranji River	KR-R2	Works at downstream site of Nanggalo Bridge (right bank, L=90.0m): dike, slope protection
5	Kuranji River	KR-R4	Works at upstream site 2 of Nanggalo Bridge (left bank, L=86.8m): dike, slope protection
6	Kuranji River	KR-R5	Works at upstream site 3 of Nanggalo Bridge (left bank, L=15.3m): dike, slope protection
7	Balimbing River	BL-R1	Works at downstream site of Tunggul Hitam Bridge (Right bank, L=141.8m): dike/slope protection works (BL 3-2)

Note, L indicates reconstruction length of slope protection.

Rehabilitation plan and design of the above works were made based on the following basic principles:

a. The rehabilitation works are principally restoration to the original facilities.
b. Design is made based on the as-built drawing. Extent of the rehabilitation works was surveyed at the site. Quantities of respective works are estimated based on the as-built design. Prior to the construction works, the contractor will conduct the survey work and prepare the working drawings. Actual quantities of the works will be estimated based on the working drawings.
c. Regarding the slope protection work:
   In order to cope with the riverbed degradation, the foot protection works with the riprap were applied to the rehabilitation of slope protection works on the assumption of the riverbed degradation with 1.0 m, except the works at BK-R1. There is no riverbed degradation around BK-R1.
   Because there is no reinforcement bars in the existing partition work of the wet-masonry type slope protection, it is difficult to prevent the damage of the slope protection from spreading. Therefore, the reinforcement bar arrangement to the partition work is applied to the rehabilitation works.
d. Regarding the Parak Kopi Footpath Bridge:
   The bridge girder was shifted at the left side abutment by the earthquake. The bridge has no anti-seismic device. Therefore, there is a fear to have recurrence of the girder shift by earthquake. In order to prevent recurrence of girder shift, anti-seismic devices are installed. The anti seismic devices include steel brackets at both sides of the piers and the RC bracket of the left abutment for extension of the bridge seat and the RC walls at the right and left abutment for restriction of displacement of the girders. The anti-seismic devices are also used as the support of the equipment for the re-erection of the girder.

As the results of the rehabilitation plan and the detailed design, the design drawings of the

rehabilitation works and the design note for the bridge works were prepared. The design drawings were compiled as the bidding drawings. Estimated quantities of the respective works are shown in Table 3.4.

Table 3.4 (1/3) Estimated Work Quantities of Respective Sites

ITEM NO.	DESCRIPTION	UNIT	BK R1		BK-R3	KR-R1	KR-R2	KR-R4	KR-R5	BL-R1	TOTAL
			BK 1-1 L=0	BK 1-2 L=39.9	BK 2 L=0	KR 3-3 L=31.7	KR 5-3 L=90.0	KR 6-2 L=86.8	KR 6-3 L=15.3	BL 3-2 L=141.8	
1	**GENERAL ITEMS**										
1.1	Progress photo and Survey works	L/S									1
1.2	Mobilization and Demobilization	L/S									1
2	**PREPARATORY WORKS**										
2.1	Temporary coffering by steel sheet pile including removal										
	- Type I (L=12m)	m	0	40	0	32					72
	- Type II (L=8m)	m					90	88	16	142	336
2.2	Temporary coffering by sand bag, including removal	m	20	40		10	10	8	8	8	104
2.3	Demolishing of existing Bank Protection including hauling of excavated material, < 10 Km	cu.m	0	160	0	187	370	299	53	420	1,489
3	**SLOPE PROTECTION**										
3.1	**Concrete cribe type**										
3.1.1	Structural excavation including hauling of excavated material, L < 10 Km	cu.m		503							503
3.1.2	Backfill from borrow pit	cu.m		503							503
3.1.3	Furnishing & driving Wooden pile, ø 150 m/m, L = 3.0m	nos		31							31
3.1.4	Concrete class B	cu.m		71							71
3.1.5	Concrete class C1	cu.m		4							4
3.1.6	Concrete class C2	cu.m		30							30
3.1.7	Lean concrete	cu.m		4							4
3.1.8	Reinforcement steel bar	kg		5,042							5,042
3.1.9	Form work	sq.m		302							302
3.1.10	Elastic filler, t = 10 m/m	sq.m		8							8
3.1.11	Asphalt sealing	cu.m		0.1							0.1
3.1.12	Gravel backfill	cu.m		60							60
3.1.13	Cobble stone, dia. 150 m/m - 200 m/m including filling concrete class C2	cu.m		59							59
3.1.14	Weep hole ø 50 m/m, L = 1.11 m	nos		32							32
3.2	**Wet masonry type**										
3.2.1	Structural excavation including hauling of excavated material, L < 10 Km	cu.m	0	0	0	520	1,561	1,422	251	2,410	6,164
3.2.2	Backfill from borrow pit	cu.m	0	0	0	520	1,561	1,422	251	2,410	6,164
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	0	0	0	26	69	79	16	107	297
3.2.4	Concrete class B	cu.m	0	0	0	14	40	39	7	63	163

Table 3.4 (2/3) Estimated Work Quantities of Respective Sites

ITEM NO.	DESCRIPTION	UNIT	BK R1		BK-R3	KR-R1	KR-R2	KR-R4	KR-R5	BL-R1	TOTAL
			BK 1-1 L=0	BK 1-2 L=39.9	BK 2 L=0	KR 3-3 L=31.7	KR 5-3 L=90.0	KR 6-2 L=86.8	KR 6-3 L=15.3	BL 3-2 L=141.8	
3.2.5	Concrete class C1	cu.m	0	0	0	6	16	15	3	24	64
3.2.6	Concrete class C2	cu.m	0	0	0	32	106	86	16	121	361
3.2.7	Lean concrete	cu.m	0	0	0	34	114	93	17	132	390
3.2.8	Reinforcement steel bar	kg	0	0	0	1,292	3,934	3,209	566	5,837	14,838
3.2.9	Form work	sq.m	0	0	0	134	392	353	63	579	1,521
3.2.10	Elastic filler, t = 10 m/m	sq.m	0	0	0	19	64	43	8	72	206
3.2.11	Asphalt sealing	cu.m	0	0	0	0.2	0.4	0.3	0.1	0.5	1.5
3.2.12	Wet Masonry	cu.m	0	0	0	63	212	171	31	241	718
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	0	0	0	34	95	92	17	150	388
3.2.14	Geotextile	sq.m				258	615	593	105	968	2,539
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	0	0	0	137	361	375	67	700	1,640
4	**SLUICEWAY**										
4.1	Structural excavation including hauling of excavated material, L < 10 Km	cu.m	0	0	0	76	0	0	0	0	76
4.2	Backfill from borrow pit	cu.m	0	0	0	76	0	0	0	0	76
4.3	Furnishing & driving wooden pile ø 150 m/m, L = 4.0 m	nos				69					69
4.4	Furnishing & driving steel sheet pile (YSP II, L = 2.0 m)										
	- Furnishing	m				38					38
	- Driving	m			0	38	0	0	0	0	38
4.5	Concrete class B	cu.m	9		0	77	0	0	0	0	86
4.6	Later stage concrete, class B	cu.m			0	2	0	0	0	0	2
4.7	Lean concrete	cu.m	2		0	13	0	0	0	0	15
4.8	Reinforcement steel bar	kg	652		0	8,337	0	0	0	0	8,989
4.9	Form work	sq.m	52		0	255	0	0	0	0	307
4.10	Elastic filler, t = 10 m/m	sq.m	2		0	4	0	0	0	0	6
4.11	Water stop w =300 m/m, t = 10 m/m	m	4		0	11	0	0	0	0	15
4.12	Wet masonry	cu.m			0	62	0	0	0	0	62
4.13	Gravel backfill	cu.m			0	458	0	0	0	0	458
4.14	Weep hole ø 50m/m, L = 0.60m	nos			0	5	0	0	0	0	5
4.15	Hand rail SGP 50	m			0	4	0	0	0	0	4
4.16	Steel ladder ø 19	kg	18		0	19	0	0	0	0	37
4.17	Slide gate, 2.5m x 2.0m	nos			0	1	0	0	0	0	1

Table 3.4 (3/3) Estimated Work Quantities of Respective Sites

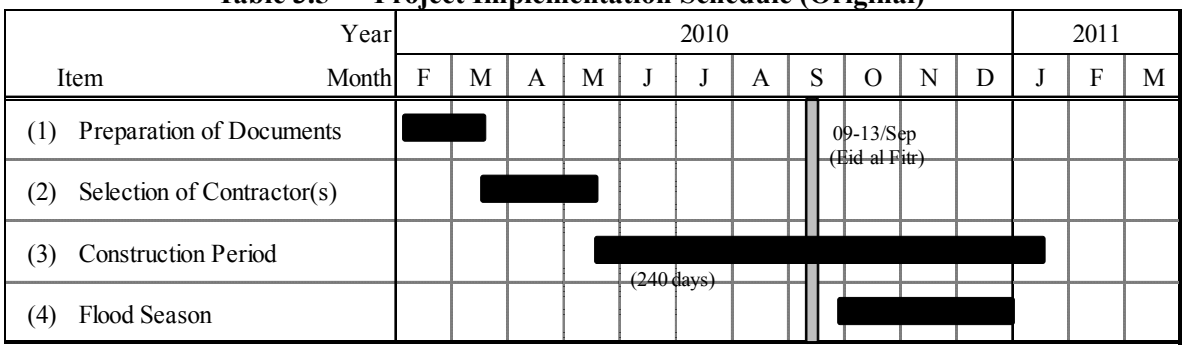
ITEM NO.	DESCRIPTION	UNIT	BK R1		BK-R3	KR-R1	KR-R2	KR-R4	KR-R5	BL-R1	TOTAL
			BK 1-1 L=0	BK 1-2 L=39.9	BK 2 L=0	KR 3-3 L=31.7	KR 5-3 L=90.0	KR 6-2 L=86.8	KR 6-3 L=15.3	BL 3-2 L=141.8	
5	**PARAK KOPI BRIDGE**										
5.1	**Re-erection of PC Girder**	L/S			1						1
5.2	**Structure Works**										
5.2.1	Concrete class B	cu.m			2						2
5.2.2	Form work	sq.m			8						8
5.2.3	Reinforcement steel bar D13-D25 (SD345)	kg			274						274
5.2.4	Reinforcement steel bar D29-D51 (SD345)	kg			226						226
5.2.5	Steel Bracket, Plate PL, SS400	kg			1,216						1,216
5.2.6	Steel Bracket, DB, NT, WS	kg			224						224
5.2.7	Anchor Drilling Hole Æ45,L=0.625 m	m			20						20
5.2.8	Anchor Drilling Hole Æ39,L=0.445 m	m			17						17
5.2.9	Anchor Drilling Hole Æ32,L=0.640 m	m			20						20
5.2.10	Weld (Filet Weld 7 mm)	m			39						39
5.2.11	Expansion Rubber,400x150x50(Polycholoropren)	sheet			2						2
5.2.12	Expansion Rubber,700x150x50(Polycholoropren)	sheet			2						2
5.2.13	Shoe, Rubber Bearing Pad 400x400x30	pcs			2						2
5.2.14	Stapling (13x22x200 cm)	cu.m			2						2
5.2.15	Chipping concrete	sq.m			9						9
5.2.16	Support	L/S			1						1
5.2.17	Scaffold work	L/S			1						1
6	**INSPECTION ROAD**										
6.1	Embankment from borrow pit	cu.m		300		252	600	582	150	912	2,796
6.2	Subgrade	sq.m		150		126	300	291	75	456	1,398
6.3	Gravel pavement, t = 260 m/m	cu.m		39		33	78	76	20	119	365
6.4	Asphalt wearing surface, t = 5 cm	sq.m		150		126	300	291	75	456	1,398
6.5	Sodding	sq.m		274		230	547	531	137	832	2,551

3.3 Construction Plan

The construction plan of the Project was prepared based on the following basic conditions:

a. Implementation schedule:
The construction works of the Project are planned to be implemented at one (1) contract procured through the local competitive bidding (LCB), and with the construction period of 240 days from the middle of May 2010 to the middle of January 2011 as shown in Table 3.5, in consideration of urgency of the works and work volume.

Table 3.5 Project Implementation Schedule (Original)



b. Climate and workable days:
The climate of the Project area is characterized by no definite distinction between the dry and wet seasons. According to the rainfall observation record at Tabing Station during the period from 2005 to 2009, the average annual rainfall in Padang area is about 4,260 mm. The rainfall lows occur in May and August and rainfall highs occur during October through December.
Monthly workable days are estimated on the assumption that construction works will be suspended in the National holiday and rainy day. Based on the rainfall records during a period from 2005 to 2009 at Tabing Station, the workable days are estimated as follows:

Table 3.6 Estimation of Workable Days

Month	Calender day	National Holiday *1	Rainfall days			Workable day *3
			Rainfall days	> 10 mm	> 20 mm	
January	31	1	14	8	5	25
February	28	2	12	8	4	22
March	31	1	15	9	6	24
April	30	1	18	6	4	25
May	31	2	13	5	3	26
June	30	0	13	7	5	25
July	31	1	13	7	5	25
August	31	1	15	7	4	26
September *2	30	8	14	7	5	17
October	31	0	18	9	7	24
November	30	1	20	9	6	23
December	31	3	21	11	7	21

Note, 1. National Holidays based on 2010.
2. Holidays in September are Eid al Fitr holidays + 4 additional days.
3. Earth and structure works: suspended at holidays and rainfall days with over 20 mm.

Daily working shift and hours are assumed to be one (1) sift of eight (8) hours for

construction works in principle. While, daily operation hours of construction equipment are assumed to be 6 hours in net.

c. Construction equipment to be employed
Major construction works required for the project are earth works, concrete works. Mechanized construction system will be adopted for the execution of the works in order to shorten the construction period. Construction equipment, which will be utilized for those construction works, is available mostly at Padang, Pekanbaru, Medan or Jakarta City with rental basis or other methods. The required equipment to be employed is as follows:
- Backhoe, 0.6 cu.m
- Dump Truck 8 ton
- Crawler Crane 35 ton
- Vibro Driver 40 kW
- Diesel Generator 45 KVA
- Diesel Generator 125 KVA
- Submersible pump 4”
- Hydraulic Breaker 1,300 kg
- Concrete mixer 0.3 cu.m

d. Construction materials and transportations
Major construction materials to be required will be cement, aggregates, stone, and kinds of steel materials. Those materials are available in Padang City mostly. Ready mixed concrete is also available in the several factories in Padang City. However, it is difficult to procure the steel sheet piles for temporary coffering at Padang, and those materials need to transport from Pekanbaru, Medan or Jakarta.

e. Labor Source
Skilled and unskilled labors to be required will be recruited in Padang City mostly.

f. Temporary Coffering
In general, the rehabilitation works except the bridge works are executed with the river diversions. The following water levels are principally applied to the designing of temporary coffering for river diversions in consideration of the flood discharge during the construction and levee cut off:

<u>During non flood season</u>
- With levee cutoff (KR-R1): maximum water level during non flood season in last five (5) years
- Without cutoff of dike: maximum water level during non flood season in last five (5) years

<u>During flood season</u>
- With levee cutoff (KR-R1): design high water level
- Without cutoff of dike: maximum water level in last five (5) years

Based on the above principles and the interview results at the sites, the water levels of the respective work sites for the temporary coffering are determined as shown in Table 3.7.

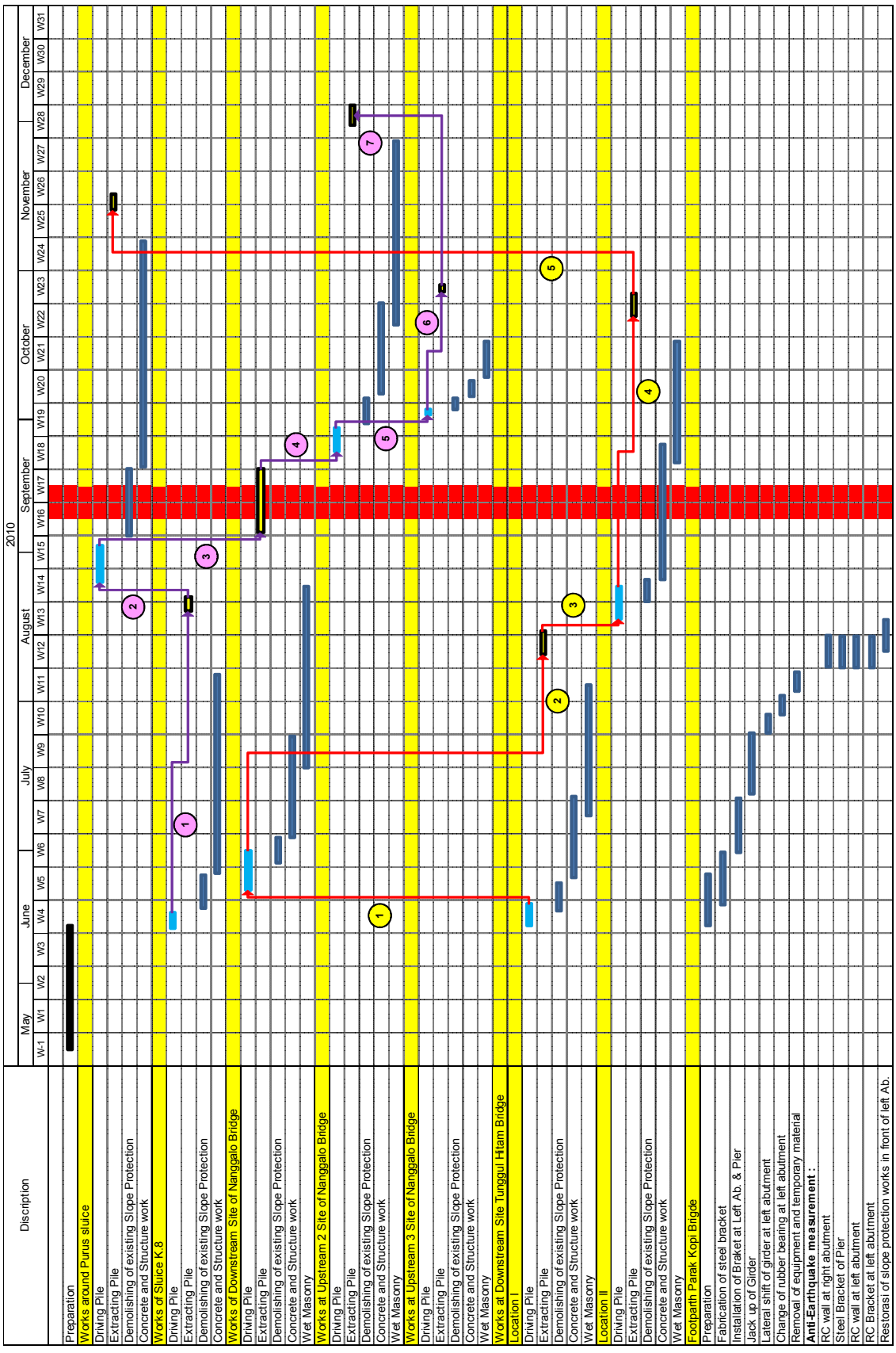
Table 3.7 Water Level for Design of Temporary Coffering

Site	Water Level (DHWL Base: m)	
	Non-Flood Season	Flood Season
BK-R1	-0.30	0.00
KR-R1	-0.40	0.00
KR-R2	-1.50	-0.40
KR-R4	-2.10	-0.60
KR-R5	-2.10	-0.60
BL-R1	-1.30	-0.40

In consideration of the water depth and river-bed material, the coffering works by use of the steel sheet piles and sand bags are proposed to the rehabilitation works. During the non flood season coffering works by steel sheet piles with a length of 12 m can be applied at BK-R1 and KR-R1, and 8 m at KR-R2, KR-R4, KR-R5 and BL-R1. The coffering works during flood season becomes a larger scale than during non- flood season.

Based on the above conditions, the construction plan of the works was made and compiled as the design note for the construction supervision. The reference construction time schedule of the works is shown in Table 3.8

Table 3.8 Reference Construction Time Schedule (Equipment: 2 Sets)



3.4 Cost Estimate

The basic conditions and assumptions of the cost estimate are as follows:

a. The cost estimate is made in Indonesian Rupiah (Rp).
b. The exchange rate used in the cost estimate is Rp 1.00 = Yen 0.00969 at February 2010, which was used in JICA.
c. The construction cost is estimated with the unit price estimate method in principle.
d. Each of the unit prices of the civil works is developed by a breakdown of unit price on the price level of January 2010.
e. The equipment cost consists of the depreciation cost, repairing cost and administration cost, which are calculated using a rate of delivered cost in Indonesia and the Indonesian standard economical life and repairing rate. Each cost is made referring to Pedoman Pokok Pelaksanaan dengan Peralatan (P5) to determine the life time, rate of repair, maintenance and administration expenses. With regard to the operation cost of equipment, the cost of operator and the cost of petroleum, oil, lubricant and consumables are counted into the each unit cost.
f.. The contractor's expenses are counted in every unit cost proportionally. These expenses are assumed to be 20 % of direct cost to cover the cost of field administration and supervision, corporate overhead and profit, cost of assistance and back support from head office, material handling cost, insurances, bond and other incidentals.
g. JICA is included as one of the representative offices of international organizations of the Official Development Assistance that is entitled to the tax facilities provided under the Government Regulation No. 25 of 2001. Therefore, Value added tax (VAT) is not applied in the cost estimate.

Based on the above conditions and assumptions, the construction cost was estimated as follows:

- Priced Bill of Quantities: Rp. 9,549,592,900.-
- Daywork: Rp. 419,671,000.-
- Total Cost: Rp. 9,969,263,900.-

The detailed cost estimate is given in Table 3.9 and Table 3.10.

Table 3.9 (1/2) Cost Estimate: Priced Bill of Quantities

Item No.	Description	Unit	Unit Price (Rp.)	BK-R1				BK-R3		KR-R1		KR-R2		KR-R4		KR-R5		BL-R1		Total (Rp.)
				BK 1-1 L=0	Amount	BK 1-2 L=39.9	Amount	BK 2 L=0	Amount	KR 3-3 L=31.7	Amount (Rp.)	KR 5-3 L=90.0	Amount (Rp.)	KR 6-2 L=86.8	Amount (Rp.)	KR 6-3 L=15.3	Amount (Rp.)	BL 3-2 L=141.8	Amount (Rp.)	
1	**GENERAL ITEMS**																			
1.1	Progress photo and Survey works	L/S	16,800,000				2,500,000		1,800,000		2,500,000		2,500,000		2,500,000		2,500,000		2,500,000	16,800,000
1.2	Mobilization and Demobilization	L/S	32,000,000				5,000,000		2,000,000		5,000,000		5,000,000		5,000,000		5,000,000		5,000,000	32,000,000
	Total of (1)				**0**		**7,500,000**		**3,800,000**		**7,500,000**		**7,500,000**		**7,500,000**		**7,500,000**		**7,500,000**	**48,800,000**
2	**PREPARATORY WORKS**																			
2.1	Temporary coffering by steel sheet pile, including removal																			
	- Type I (L=12m)	m	10,039,800		0	40	401,592,000		0	32	321,273,600		0		0		0		0	722,865,600
	- Type II (L=8m)	m	6,404,400		0		0		0		0	90	576,396,000	88	563,587,200	16	102,470,400	142	909,424,800	2,151,878,400
2.2	Temporary coffering by sand bag, including removal	m	1,056,400	20	21,128,000	40	42,256,000			10	10,564,000	10	10,564,000	8	8,451,200	8	8,451,200	8	8,451,200	109,865,600
2.3	Demolishing of existing Bank Protection																			
	including hauling of excavation material, L< 10 Km	cu.m	77,700	0	0	160	12,432,000			187	14,529,900	370	28,749,000	299	23,232,300	53	4,118,100	420	32,634,000	115,695,300
	Total of (2)				**21,128,000**		**456,280,000**		**0**		**346,367,500**		**615,709,000**		**595,270,700**		**115,039,700**		**950,510,000**	**3,100,304,900**
3	**SLOPE PROTECTION**																			
3.1	**Concrete cribe type**																			
3.1.1	Structural excavation including hauling of																			
	excavated material, L < 10 Km	cu.m	41,500		0	503	20,874,500		0		0		0		0		0		0	20,874,500
3.1.3	Backfill from borrow pit	cu.m	97,800		0	503	49,193,400		0		0		0		0		0		0	49,193,400
3.1.4	Furnishing & driving Wooden pile, ø 150 m/m, L = 3.0m	nos	67,900		0	31	2,104,900		0		0		0		0		0		0	2,104,900
3.1.5	Concrete class B	cu.m	941,800		0	71	66,867,800		0		0		0		0		0		0	66,867,800
3.1.6	Concrete class C1	cu.m	896,500		0	4	3,586,000		0		0		0		0		0		0	3,586,000
3.1.7	Concrete class C2	cu.m	890,800		0	30	26,724,000		0		0		0		0		0		0	26,724,000
3.1.8	Lean concrete	cu.m	839,200		0	4	3,356,800		0		0		0		0		0		0	3,356,800
3.1.9	Reinforcement steel bar	kg	32,700		0	5,042	164,873,400		0		0		0		0		0		0	164,873,400
3.1.10	Form work	sq.m	296,300		0	302	89,482,600		0		0		0		0		0		0	89,482,600
3.1.11	Elastic filler, t = 10 m/m	sq.m	126,000		0	8	1,008,000		0		0		0		0		0		0	1,008,000
3.1.12	Asphalt sealing	cu.m	5,028,000		0	0.1	502,800		0		0		0		0		0		0	502,800
3.1.13	Gravel backfill	cu.m	112,700		0	60	6,762,000		0		0		0		0		0		0	6,762,000
3.1.14	Cobble stone, dia. 150 m/m - 200 m/m																			
	including filling concrete class C2	cu.m	621,600		0	59	36,674,400		0		0		0		0		0		0	36,674,400
3.1.15	Weep hole ø 50 m/m, L = 1.11 m	nos	70,300		0	32	2,249,600		0		0		0		0		0		0	2,249,600
	Sub-total of (3.1)				**0**		474,260,200.00		0		0		0		0		0		0	474,260,200
3.2	**Wet masonry type**																			
3.2.1	Structural excavation including hauling of																			
	excavated material, L < 10 Km	cu.m	41,500		0		0		0	520	21,580,000	1,561	64,781,500	1,422	59,013,000	251	10,416,500	2,410	100,015,000	255,806,000
3.2.3	Backfill from borrow pit	cu.m	97,800		0		0		0	520	50,856,000	1,561	152,665,800	1,422	139,071,600	251	24,547,800	2,410	235,698,000	602,839,200
3.2.4	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	67,900		0		0		0	26	1,765,400	69	4,685,100	79	5,364,100	16	1,086,400	107	7,265,300	20,166,300
3.2.5	Concrete class B	cu.m	941,800		0		0		0	14	13,185,200	40	37,672,000	39	36,730,200	7	6,592,600	63	59,333,400	153,513,400
3.2.6	Concrete class C1	cu.m	896,500		0		0		0	6	5,379,000	16	14,344,000	15	13,447,500	3	2,689,500	24	21,516,000	57,376,000
3.2.7	Concrete class C2	cu.m	890,800		0		0		0	32	28,505,600	106	94,424,800	86	76,608,800	16	14,252,800	121	107,786,800	321,578,800
3.2.8	Lean concrete	cu.m	839,200		0		0		0	34	28,532,800	114	95,668,800	93	78,045,600	17	14,266,400	132	110,774,400	327,288,000
3.2.9	Reinforcement steel bar	kg	32,700		0		0		0	1,292	42,248,400	3,934	128,641,800	3,209	104,934,300	566	18,508,200	5,837	190,869,900	485,202,600
3.2.10	Form work	sq.m	296,300		0		0		0	134	39,704,200	392	116,149,600	353	104,593,900	63	18,666,900	579	171,557,700	450,672,300
3.2.11	Elastic filler, t = 10 m/m	sq.m	126,000		0		0		0	19	2,394,000	64	8,064,000	43	5,418,000	8	1,008,000	72	9,072,000	25,956,000
3.2.12	Asphalt sealing	cu.m	5,028,000		0		0		0	0.2	1,005,600	0.4	2,011,200	0.3	1,508,400	0.1	502,800	0.5	2,514,000	7,542,000
3.2.13	Wet Masonry	cu.m	617,000		0		0		0	63	38,871,000	212	130,804,000	171	105,507,000	31	19,127,000	241	148,697,000	443,006,000
3.2.14	Weep hole ø 50 m/m, L = 1.11 m	nos	70,300		0		0		0	34	2,390,200	95	6,678,500	92	6,467,600	17	1,195,100	150	10,545,000	27,276,400
3.2.15	Geotextile	sq.m	31,300							258	8,075,400	615	19,249,500	593	18,560,900	105	3,286,500	968	30,298,400	79,470,700
3.2.16	Riprap of cobble stone (200 - 500 mm)	cu.m	360,600		0		0		0	137	49,402,200	361	130,176,600	375	135,225,000	67	24,160,200	700	252,420,000	591,384,000
	Sub-total of (3.2)				0		0		0		333,895,000		1,006,017,200		890,495,900		160,306,700		1,458,362,900	3,849,077,700
	Total of (3)				**0**		**474,260,200**		**0**		**333,895,000**		**1,006,017,200**		**890,495,900**		**160,306,700**		**1,458,362,900**	**4,323,337,900**
4	**SLUICEWAY**																			
4.1	Structural excavation including hauling of																			
	excavated material, L < 10 Km	cu.m	41,500	0	0		0		0	76	3,154,000		0		0		0		0	3,154,000
4.2	Backfill from borrow pit	cu.m	97,800		0		0		0	76	7,432,800		0		0		0		0	7,432,800
4.3	Furnishing & driving wooden pile ø 150 m/m, L = 4.0 m	nos	82,100		0		0		0	69	5,664,900		0		0		0		0	5,664,900
4.4	Furnishing & driving steel sheet pile (YSP II, L = 2.0 m)																			
	- Furnishing	m	1,200,000		0		0		0	38	45,600,000		0		0		0		0	45,600,000
	- Driving	m	65,900		0		0		0	38	2,504,200		0		0		0		0	2,504,200

Table 3.9 (2/2) Cost Estimate: Priced Bill of Quantities

Item No.	Description	Unit	Unit Price (Rp.)	BK-R1				BK-R3		KR-R1		KR-R2		KR-R4		KR-R5		BL-R1		Total (Rp.)
				BK 1-1 L=0	Amount	BK 1-2 L=39.9	Amount	BK 2 L=0	Amount	KR 3-3 L=31.7	Amount (Rp.)	KR 5-3 L=90.0	Amount (Rp.)	KR 6-2 L=86.8	Amount (Rp.)	KR 6-3 L=15.3	Amount (Rp.)	BL 3-2 L=141.8	Amount (Rp.)	
4.5	Concrete class B	cu.m	941,800	9	8,476,200		0		0	77	72,518,600		0		0		0		0	80,994,800
4.6	Later stage concrete, class B	cu.m	977,000		0		0		0	2	1,954,000		0		0		0		0	1,954,000
4.7	Lean concrete	cu.m	839,200	2	1,678,400		0		0	13	10,909,600		0		0		0		0	12,588,000
4.8	Reinforcement steel bar	kg	32,700	652	21,320,400		0		0	8,337	272,619,900		0		0		0		0	293,940,300
4.9	Form work	sq.m	296,300	52	15,407,600		0		0	255	75,556,500		0		0		0		0	90,964,100
4.10	Elastic filler, t = 10 m/m	sq.m	126,000	2	252,000		0		0	4	504,000		0		0		0		0	756,000
4.11	Water stop w =300 m/m, t = 10 m/m	m	244,300	4	977,200		0		0	11	2,687,300		0		0		0		0	3,664,500
4.12	Wet masonry	cu.m	617,000		0		0		0	62	38,254,000		0		0		0		0	38,254,000
4.13	Gravel backfill	cu.m	112,700		0		0		0	458	51,616,600		0		0		0		0	51,616,600
4.14	Weep hole ø 50m/m, L = 0.60m	nos	58,100		0		0		0	5	290,500		0		0		0		0	290,500
4.15	Hand rail SGP 50	m	496,000		0		0		0	4	1,984,000		0		0		0		0	1,984,000
4.16	Steel ladder ø 19	kg	52,300	18	941,400		0		0	19	993,700		0		0		0		0	1,935,100
4.17	Slide gate, 2.5m x 2.0m	nos	118,560,000		0		0		0	1	118,560,000		0		0		0		0	118,560,000
	Total of (4)				**49,053,200**		**0**		0		**712,804,600**		**0**		**0**		**0**		0	**761,857,800**
5	**PARAK KOPI BRIDGE**																			
5.1	**Re-erection of PC Girder**	L/S	450,000,000					1	450,000,000											
	Sub-total of (5.1)								450,000,000				0		0		0		0	450,000,000
5.2	**Structure Works**																			
5.2.1	Concrete class B	cu.m	941,800					2	1,883,600											1,883,600
5.2.2	Form work	sq.m	296,300					8	2,370,400											2,370,400
5.2.3	Reinforcement steel bar D13-D25 (SD345)	kg	41,600					274	11,398,400											11,398,400
5.2.4	Reinforcement steel bar D29-D51 (SD345)	kg	41,600					226	9,401,600											9,401,600
5.2.5	Steel Bracket,Plate PL,SS400	kg	70,300					1,216	85,484,800											85,484,800
5.2.6	Steel Bracket,DB,NT,WS	kg	60,900					224	13,641,600											13,641,600
5.2.7	Anchor Drilling Hole Æ45,L=0.625 m	m	1,065,600					20	21,312,000											21,312,000
5.2.8	Anchor Drilling Hole Æ39,L=0.445 m	m	1,065,600					17	18,115,200											18,115,200
5.2.9	Anchor Drilling Hole Æ32,L=0.640 m	m	1,065,600					20	21,312,000											21,312,000
5.2.10	Weld (Filet Weld 7 mm)	m	201,600					39	7,862,400											7,862,400
5.2.11	Expansion Rubber,400x150x50(Polycholoropren)	sheet	1,400,000					2	2,800,000											2,800,000
5.2.12	Expansion Rubber,700x150x50(Polycholoropren)	sheet	1,800,000					2	3,600,000											3,600,000
5.2.13	Shoe, Rubber Bearing Pad 400x400x30	pcs	1,300,000					2	2,600,000											2,600,000
5.2.14	Stapling (13x22x200 cm)	cu.m	1,000,000					2	2,000,000											2,000,000
5.2.15	Chipping concrete	sq.m	143,400					9	1,290,600											1,290,600
5.2.16	Support	L/S	400,000					1	400,000											400,000
5.2.17	Scaffold work	L/S	3,000,000					1	3,000,000											3,000,000
	Sub-total of (5.2)								208,472,600				0		0		0		0	208,472,600
	Total of (5)				**0**		**0**		**658,472,600**		**0**		**0**		**0**		**0**		**0**	**658,472,600**
6	**INSPECTION ROAD**																			
6.1	Embankment from borrow pit	cu.m	118,700		0	300	35,610,000		0	252	29,912,400	600	71,220,000	582	69,083,400	150	17,805,000	912	108,254,400	331,885,200
6.2	Subgrade	sq.m	36,200		0	150	5,430,000		0	126	4,561,200	300	10,860,000	291	10,534,200	75	2,715,000	456	16,507,200	50,607,600
6.3	Gravel pavement, t = 260 m/m	cu.m	146,900		0	39	5,729,100		0	33	4,847,700	78	11,458,200	76	11,164,400	20	2,938,000	119	17,481,100	53,618,500
6.4	Asphalt wearing surface, t = 5 cm	sq.m	117,000		0	150	17,550,000		0	126	14,742,000	300	35,100,000	291	34,047,000	75	8,775,000	456	53,352,000	163,566,000
6.5	Sodding	sq.m	22,400		0	274	6,137,600		0	230	5,152,000	547	12,252,800	531	11,894,400	137	3,068,800	832	18,636,800	57,142,400
	Total of (6)				**0**		**70,456,700**		**0**		**59,215,300**		**140,891,000**		**136,723,400**		**35,301,800**		**214,231,500**	**656,819,700**
	Total of (1) - (6)				**70,181,200**		**1,008,496,900**		**662,272,600**		**1,459,782,400**		**1,770,117,200**		**1,629,990,000**		**318,148,200**		**2,630,604,400**	**9,549,592,900**

Table 3.10 Cost Estimate: Priced Daywork

ITEM NO.	DESCRIPTION	UNIT	Q'TY	UNIT PRICE Rp.	AMOUNT Rp.
1	**Labour**				
1.1	Foreman	hrs	600	9,800	5,880,000
1.2	Skilled Labor	hrs	6,400	6,800	43,520,000
1.3	Common labor	hrs	800	6,000	4,800,000
1.4	Mason	hrs	2,000	8,300	16,600,000
1.5	Concrete worker	hrs	2,800	8,300	23,240,000
	Total of (1)				**94,040,000**
2	**Materials**				
2.1	Sand bag including filling sand	pcs	250	10,000	2,500,000
2.2	Gravel	cu.m	60	114,000	6,840,000
2.3	Sand	cu.m	160	108,000	17,280,000
2.4	Cement (50 kg)	bag	1,400	66,000	92,400,000
2.5	Stone masonry	cu.m	220	87,600	19,272,000
2.6	Cobble stone (200 - 500 mm)	cu.m	200	296,520	59,304,000
2.7	Soil from borrow pit	cu.m	1,000	74,500	74,500,000
	Total of (2)				**272,096,000**
3	Constructional Plant				
3.1	Giant breaker	hrs	18	290,000	5,220,000
3.2	Backhoe	hrs	90	443,500	39,915,000
3.3	Concrete mixer 0.3 cu.m	hrs	420	13,000	5,460,000
3.4	Concrete vibrator	hrs	420	7,000	2,940,000
	Su-total of (3)				**53,535,000**
	Total of (1) - (3)				**419,671,000**

4 SELECTION OF CONTRACTOR(S)

4.1 Selection Process of Contractor

The construction works of the Project were planned to be executed at one (1) contract package. Selection of the Contractor for the contract package was implemented through LCB procedures. The selection process of the Contractor was as follows:

Table 4.1 Selection Process of Contractor(s)

Date	Events
March 29, 2010	Invitation for Bids (Media Indonesia)
March 30 –April 06, 2010	Distribution of Documents at JICA Indonesia Office and Project Working Group Office in Padang.
April 07, 2010	Pre-bid Meeting at Project Working Group Office in Padang
April 07, 2010	Joint Site Visit in Padang
April 13, 2010	Last date for questions from Bidders
April 15, 2010	Issue of Addendum No.1 and Answer to Questionnaire from Bidders
April 26, 2010	Submission of Bid (10:00 -14:00), and immediately Opening of Bids thereafter.
April 26 – May 5, 2010	Bid Evaluation
May 07, 2010	Issue of Letter of Acceptance to successful bidder (P.T. WASKITA KARYA), Pre-Contract Meeting with P.T. WASKITA KARYA
May 18, 2010	Conclusion of Contract (Contract Signing)
May 19, 2010	Issue of Notice to Proceed to P.T. WASKITA KARYA

Details of the Selection process are described below:

4.2 Preparation of Bidding Documents

Based on the detailed design and the cost estimate, the bidding documents of the construction works were prepared, referring to "The Sample Bidding Documents under Japanese ODA Loans: Procurement of Civil Works Smaller Contracts",
The Bidding Documents consist of the following volumes:

Volume I Invitation for Bids
- Section 1 : Instructions to Bidders
- Section 2 : Conditions of Contract
- Section 3 : Contract Data
- Section 5 : Form of Bid, Qualification Information, Letter of Acceptance and Integrity Pact

	Section 6	: Bill of Quantities
	Section 7	: Form of Agreement
	Section 8	: Security Forms
Volume II	Section 4	: Specifications
	Part I	: General Specifications
	Part II	: Technical Specifications
Volume III	Section 9	: Drawings

Engineer's Estimate of the Works is Rp. 9,969,263,900 including daywork.

4.3 Bidding

(1) Advertisement and Document Distribution

Advertisement of the bid was made through MEDIA INDONESIA on March 29, 2010. Following six (6) companies received the Bidding Documents at JICA Indonesia Office in Jakarta and the Working Group Office in Padang.

1. P.T. Duta Graha Indah, Tbk
2. P.T. Waskita Karya
3. P.T. Pembangunan Perumahan, Tbk
4. P.T. Basuki Rahmanta Putra
5. P.T. Nindya Karya
6. P.T. Gunakarya Nusantara

(2) Pre-bid Meeting and Joint Site Visit

The Pre-bid Meeting and Joint Site Visit were held on April 07, 2010 in Padang. After those, P.T, Basuki Rahmanta Putra withdrew his intention to the bid.

(3) Issue of Addendum No.1

On April 15, Addendum No.1 to Bidding Documents was issued including the Minutes of Pre-bid Meeting and Answer to Questionnaire from the bidders.

(4) Bid Submission and Opening

The Bidding Documents were distributed to six (6) companies. Among them, the three (3) bidders submitted their Bids at JICA Indonesia Office during a period from 10:00 to 14:00 of Western Indonesian Standard Time on April 26, 2010. There is no bid by the joint venture.
Just after closing of submission of bids, the bids were publicly opened one by one in the presence of the Employer (JICA), Consultant team and representatives of three (3) bidders. Read-out Bid Prices at the Bid Opening are as follows:

Table 4.2 Read-out Bid prices

No.	Bidder	Bid Price
1.	PT. Pembangunan Perumahan, Tbk	Rp. 10,742,990,000.-
2.	PT. Waskita Karya	Rp. 9,754,827,000.-
3.	PT. Nindya Karya	Rp. 10,617,926,947.76-
Reference: Engineer's Estimate		Rp. 9,969,263,900.-

One (1) Bidder offered a price lower than the Engineer's Estimate.

4.4 Bid Evaluation and Contract

(1) Bid Evaluation

The bid evaluation was conducted in accordance with the following procedure and checklist:

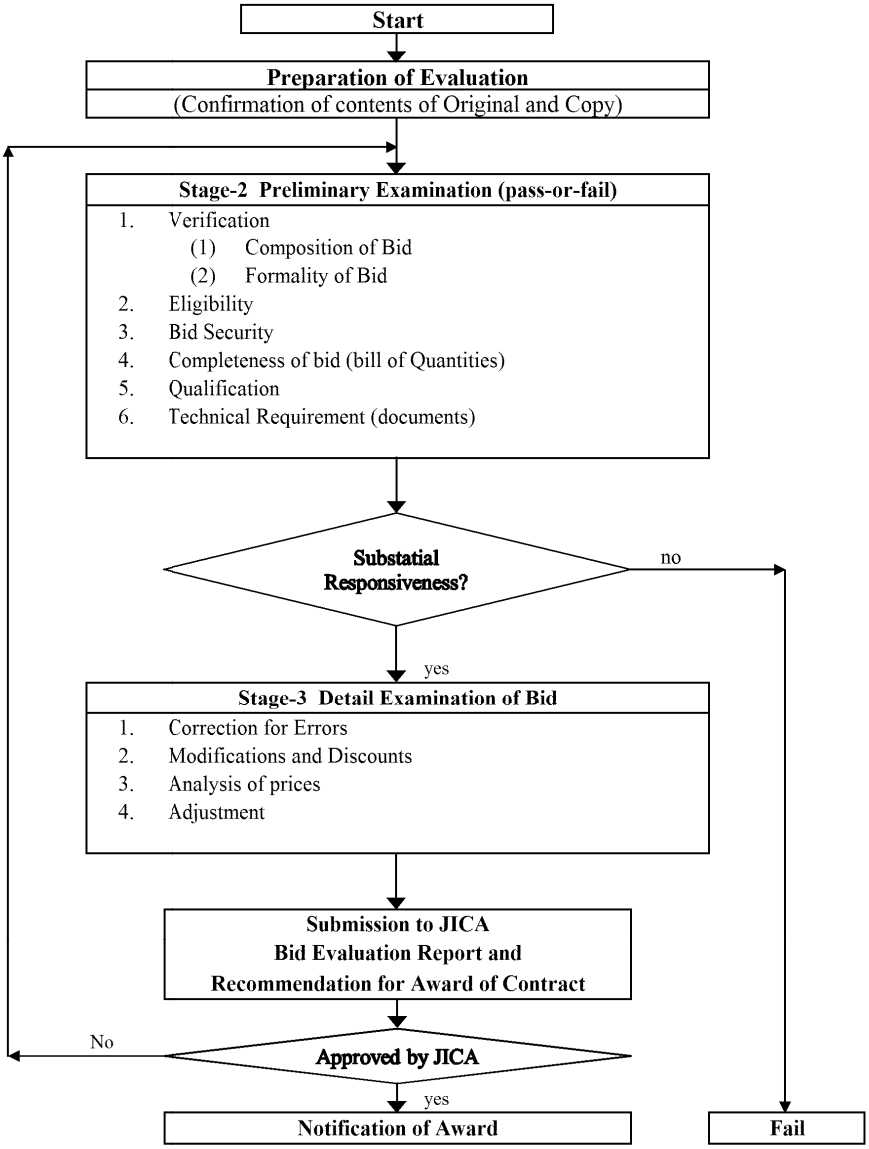


Figure 4.1 Bid Evaluation Procedure

Table 4.3 Checklist of Preliminary Examination (1/2)

Name of Bidder:

No	Evaluation Data	Pass	Fail	Stipulated Clause
1	**Verification**			
	(1) Composition of Bid			
	a. Bid Form	Yes	No	IB-6 12.1(a)
	b. Bid Security	Yes	No	IB-6 12.1(b)
	c. Priced Bill Of Quantities	Yes	No	IB-6 12.1(c)
	d. Qualification Information Form and Documents			IB-6 12.1(d)
	1) Legal status of bidder			QI-1 1.1
	- Copy of cosntitution or legal statuss	Yes	No	
	- Place of registration	Yes	No	
	- Principle place of business	Yes	No	
	2) Copy of registration of SBU	Yes	No	QI-1 1.2
	3) Annual turnover during last 5 years or equibalent information	Yes	No	QI-1 1.3
	4) Work performed as prime Contractor on works of similar nature and volume over the last 10 years	Yes	No	QI-1 1.4
	5) Major items of Contractor's equipment	Yes	No	QI-1 1.5
	6) Qualification and experience of Key personnel	Yes	No	QI-1 1.6
	7) Proposed subcontractors (if any)	Yes	No	QI-2 1.7
	8) Financial report last 5 years	Yes	No	QI-2 1.8
	9) Evidence of access to financial resources	Yes	No	QI-2 1.9
	10) Name, address and telephon of bidder's Bank	Yes	No	QI-2 1.10
	11) Information of current litigation	Yes	No	QI-2 1.11
	12) Statement of Eligibility Satisfactory (or Integrity Pact)	Yes	No	QI-2 1.12
	13) Proposed Program (work method and schedule)	Yes	No	QI-2 1.13
	14) Copies of ISO 9001 and 14001	Yes	No	QI-2 1.14
	e. Power of Attorney (if required)	(Yes)	(No)	IB-6 12.1(e)
	f. Integrity Pact (or Statement of Eligibility Satisfactory)	Yes	No	IB-6 12.1(f)
	(2) Formality of Bid			
	a. Bid Form			IB-6 12.1(a)
	1) Authorized signature/Power of Attorney	With	Without	
	2) Common seal, date of sign	Complete	Incomplete	
	b. Bid validity (minimum 60 days)	Yes	No	IB-7 15.1
	c. Power of Attorney (if required)			IB-6 12.1(e)
	1) sign by authorized person	With	Without	
	2) Common seal, date of sign	Complete	Incomplete	
	d. Joint Venture agreement (if any)			QI-2
	1) Completeness of Information			QI-2 2.1
	2) Power of Attorney			QI-2 2.3
	3) Agreement of Joint Venture			QI-3 2.4
2	**Eligibility**			
	(1) Legal status of Indonesian Contractor	Yes	No	IB-1 3.1(a)
	(2) Statement of eligibility satisfactory (or Integrity Pact)	Yes	No	IB-2 3.2 (QI-2 1.12)
3	**Bid Security**			
	(1) Amount of 1% of Bid price	More or Eq	Less	IB-8 16.1
	(2) Issued by reputable bank in Indonesia	Yes	No	IB-8 16.2
	(3) Validity: Minimum 60 days+28 days = 88 days	Yes	No	IB-8 16.2
	(4) Joint venture should be in the name of the joint venture (if any)			

Table 4.3 Checklist of Preliminary Examination (2/2)

Name of Bidder:

No	Evaluation Data	Pass	Fail	Stipulated Clause
4	**Completeness of Bid (Bill of Quantities)**			BQ-5 to 8
	(1) Partial bid	No	Yes	
	(2) Any erasures, interrelations, additions or other changes	No	Yes	
	(3) Missing pages in original and copy of the bid	No	Yes	
5	**Qualification**			
	(1) Effective registration of SBU with Golongan usaha besar, subbidang Persungaian, Rawa dan Pantai (Kode 22012)	Yes	No	IB-3 4.4(a)
	(2) Annual turnover, last 5 years			IB-3 4.4(b)
	a. Single Bid not less than Rp. 200 billion	Yes	No	
	b. If Joint Venture at least Rp. 240 billion (in case of 2 firms) 1) Partner in charge at least Rp. 160 billion 2) each Partner at least Rp. 80 billion			
	3) with evidence or acceptable based on Financial Reports			
	(3) Experience of works with similar nature and complexity during last 10 years			IB-3 4.4 (c)
	a. River improvement works, at least 3 projects with contract price minimum Rp. 10 billion, as prime contractor	Yes	No	
	b. with evidence or acceptable based on other information	With	Without	
	(4) Essential Construction Equipment (minimum requirement)			IB-4 4.4(d)
	a. Crawler Crane 2 units	Yes	No	
	b. Vibration Hammer 2 units	Yes	No	
	c. Backhoe Excavator 0.7 cum 2 units	Yes	No	
	d. Hydraulic Breaker 1,300 kg 5 units	Yes	No	
	e. Diesel Generator (45 KVA: 2 units, 150 KVA: 2 units) or equivalent (depend on work plan)	Yes	No	
	(5) Contract manager			IB-4 4.4(e)
	a. Minimum 5 years experience of construction works	Yes	No	
	b. Minimum 3 years experience as Manager	Yes	No	
	(6) Cash Flow capacity			IB-4 4.4.(f)
	Net worth: Credit Facility with bank reference Other financial facility with reference: Total: not less than Rp. 5 billion	Yes	No	
	(7) Copies of certificate ISO 9001 and 14001 a. ISO 9001 Quality Management	With	Without	IB-4 4.4(g)
	b. ISO 14001 Environmental Management System	With	Without	
	(8) Current litigation			IB-4 4.4
	a. Frequency and nature of claim: none or 1	No	Yes	
	b. No corruption or fraudulent practices	No	Yes	
6	**Technical Requirements**			IB-2 4.1
	a. Construction method	Realistic	Unrealistic	
	b. Construction Time Schedule (240 days)	Realistic	Unrealistic	
	Determination of Substantial Responsiveness	**Pass/Fail**		

After confirmation of contents of original document and copied document of respective bids, the preliminary examination through pass-or-fail method was made on all the bids to confirm completeness of the documents and conformity with required qualifications. As the results, three (3) bids, that is, all of the bids were determined substantially responsive to requirements by the bidding documents.

Through the arithmetic checking, a small number of arithmetic errors in some bids were found, but no significant difference between the original price and corrected one was observed. Based on the corrected bid prices, the bids were ranked as follows:

Table 4.4 Bid Price after Detailed Examination

No.	Bidder	Corrected Bid Price
1.	P.T. Waskita Karya	Rp. 9,754,804,598.-
2.	P.T. Nindya Karya	Rp. 10,617,899,171.-
3.	P.T. Pembangunan Perumahan, Tbk	Rp. 10,742,971,539.-
Engineer's Estimate		Rp. 9,969,263,900.-

To examine the unbalanced bid prices from the engineers' estimate, the corrected bid prices were compared with the engineers' estimate. There are some low prices in the bids. However, it is not serious in consideration of their bid prices. It is not required to consider increase of the present performance security.

In due consideration of all the above, it was recommended that the Bid offered by P.T. Waskita Karya was judged to be the lowest evaluated responsive one.

Table 4.5 Proposed Contract Award

1.	Lowest evaluated responsive bidder (Proposed for contract award)	(a) Name: P.T. Waskita Karya (b) Address: Jl. Ahmad Yani No.19, Padang
2.	Principle country of origin of goods/materials	Republic of Indonesia
3.	Estimated date (month, year) of contract signing	May 2010
4.	Estimated delivery to project site/completion period	January 2011
5.	Bid Price (Read-out)	Rp. 9,754,827,000.
6.	Correction for Errors	Rp. – 22,402.
7.	Discount	Not Applied
8.	Other Adjustment	Not Applied
9.	Proposed Award	Rp. 9,754,804,598.
10.	Required Performance Guarantee (10% of Contract Price)	Rp. 975,480,460.

The Bid Evaluation Report was prepared and submitted to the JICA Indonesia Office on May 05, 2010.

(2) Contract Award

Based on the bid evaluation result, the Letter of Acceptance was issued to P.T. Waskita Karya on May 07, 2010.
The corrected bid price of P.T. Waskita Karya is shown in Table 4.6.

Table 4.6 Corrected Bid Price (1/5)

SUMMARY OF PRICED BILL OF QUANTITIES

Correction of Errors
Bidder: PT. Waskita Karya

No.	Item	ENGINEER'S COST ESTIMATE	By Bidder
		Amount (Rp.)	Corrected Amount (Rp.)
A	**BILL**		
1	General Item	48,800,000	57,805,000
2	Preparatory Works	3,100,304,900	3,443,784,385
3	Slope Protection	4,323,337,900	4,226,007,623
4	Sluiceway	761,857,800	609,853,127
5	Parak Kopi Bridge	658,472,600	312,033,596
6	Inspection Road	656,819,700	620,325,227
	Subtotal of Bill	**9,549,592,900**	**9,269,808,958**
B	**DAYWORK**		
1	Labour	94,040,000	99,450,000
2	Materials	272,096,000	331,270,000
3	Constructional Plant	53,535,000	54,275,640
	Subtotal of Daywork	**419,671,000**	**484,995,640**
	Grand Total	**9,969,263,900**	**9,754,804,598**

Table 4.6 Corrected Bid Price (2/5)

BILL OF QUANTITIES (1/3)

Correction of Errors

Bidder: PT. Waskita Karya

ITEM NO.	DESCRIPTION	UNIT	ENGINEER'S COST ESTIMATE			ARITHMETIC CHECK					%
			Q'TY	UNIT PRICE	AMOUNT	Q'TY (1)	Offered UNIT PRICE (Integer) (2)	Offerd AMOUNT (integer) (3)	Corrected UNIT PRICE	Corrected AMOUNT	
1	**GENERAL ITEMS**										
1.1	Progress photo and Survey works	L/S	1	16,800,000	16,800,000	1	12,500,000	12,500,000	12,500,000	12,500,000	74
1.2	Mobilization and Demobilization	L/S	1	32,000,000	32,000,000	1	45,305,000	45,305,000	45,305,000	45,305,000	142
	Total of (1)				48,800,000			57,805,000		57,805,000	
2	**PREPARATORY WORKS**										
2.1	Temporary coffering by steel sheet pile, including removal										
	- Type I (L=12m)	m	72	10,039,800	722,865,600	72	10,643,062	766,300,498	10,643,062	766,300,464	106
	- Type II (L=8m)	m	336	6,404,400	2,151,878,400	336	7,307,628	2,455,363,218	7,307,628	2,455,363,008	114
2.2	Temporary coffering by sand bag, including removal	m	104	1,056,400	109,865,600	104	964,837	100,343,100	964,837	100,343,048	91
2.3	Demolishing of existing Slope Protection including hauling of excavated material, L< 10 Km	cu.m	1,489	77,700	115,695,300	1,489	81,785	121,777,865	81,785	121,777,865	105
	Total of (2)				3,100,304,900			3,443,784,682		3,443,784,385	
3	**SLOPE PROTECTION**										
3.1	**Concrete cribe type**										
3.1.1	Structural excavation including hauling of excavated material, L < 10 Km	cu.m	503	41,500	20,874,500	503	41,986	21,119,339	41,986	21,118,958	101
3.1.2	Backfill from borrow pit	cu.m	503	97,800	49,193,400	503	103,151	51,885,400	103,151	51,884,953	105
3.1.3	Furnishing & driving Wooden pile, ø 150 m/m, L = 3.0m	nos	31	67,900	2,104,900	31	61,930	1,919,830	61,930	1,919,830	91
3.1.4	Concrete class B	cu.m	71	941,800	66,867,800	71	947,257	67,255,250	947,257	67,255,247	101
3.1.5	Concrete class C1	cu.m	4	896,500	3,586,000	4	905,941	3,623,764	905,941	3,623,764	101
3.1.6	Concrete class C2	cu.m	30	890,800	26,724,000	30	905,941	27,178,231	905,941	27,178,230	102
3.1.7	Lean concrete	cu.m	4	839,200	3,356,800	4	817,608	3,270,433	817,608	3,270,432	97
3.1.8	Reinforcement steel bar	kg	5,042	32,700	164,873,400	5,042	15,022	75,741,680	15,022	75,740,924	46
3.1.9	Form work	sq.m	302	296,300	89,482,600	302	301,994	91,202,291	301,994	91,202,188	102
3.1.10	Elastic filler, t = 10 m/m	sq.m	8	126,000	1,008,000	8	177,941	1,423,532	177,941	1,423,528	141
3.1.11	Asphalt sealing	cu.m	0.1	5,028,000	502,800	0.1	5,137,500	513,750	5,137,500	513,750	102
3.1.12	Gravel backfill	cu.m	60	112,700	6,762,000	60	156,593	9,395,614	156,593	9,395,580	139
3.1.13	Cobble stone, dia. 150 m/m - 200 m/m including filling concrete class C2	cu.m	59	621,600	36,674,400	59	898,525	53,013,005	898,525	53,012,975	145
3.1.14	Weep hole ø 50 m/m, L = 1.11 m	nos	32	70,300	2,249,600	32	80,118	2,563,785	80,118	2,563,776	114
	Sub-total of (3.1)				474,260,200			410,105,909		410,104,135	
3.2	**Wet masonry type**										
3.2.1	Structural excavation including hauling of excavated material, L < 10 Km	cu.m	6,164	41,500	255,806,000	6,164	41,986	258,806,376	41,986	258,801,704	101
3.2.2	Backfill from borrow pit	cu.m	6,164	97,800	602,839,200	6,164	103,151	635,828,243	103,151	635,822,764	105
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	297	67,900	20,166,300	297	61,930	18,393,210	61,930	18,393,210	91
3.2.4	Concrete class B	cu.m	163	941,800	153,513,400	163	947,257	154,402,898	947,257	154,402,891	101

Table 4.6 Corrected Bid Price (3/5)

BILL OF QUANTITIES (2/3)

Correction of Errors

Bidder: PT. Waskita Karya

ITEM NO.	DESCRIPTION	UNIT	ENGINEER'S COST ESTIMATE			ARITHMETIC CHECK					%
			Q'TY	UNIT PRICE	AMOUNT	Q'TY (1)	Offered UNIT PRICE (Integer) (2)	Offerd AMOUNT (integer) (3)	Corrected UNIT PRICE	Corrected AMOUNT	
3.2.5	Concrete class C1	cu.m	64	896,500	57,376,000	64	905,941	57,980,227	905,941	57,980,224	101
3.2.6	Concrete class C2	cu.m	361	890,800	321,578,800	361	905,941	327,044,717	905,941	327,044,701	102
3.2.7	Lean concrete	cu.m	390	839,200	327,288,000	390	817,608	318,867,300	817,608	318,867,120	97
3.2.8	Reinforcement steel bar	kg	14,838	32,700	485,202,600	14,838	15,022	222,898,661	15,022	222,896,436	46
3.2.9	Form work	sq.m	1,521	296,300	450,672,300	1,521	301,994	459,333,397	301,994	459,332,874	102
3.2.10	Elastic filler, t = 10 m/m	sq.m	206	126,000	25,956,000	206	177,941	36,655,949	177,941	36,655,846	141
3.2.11	Asphalt sealing	cu.m	1.5	5,028,000	7,542,000	1.5	5,137,500	7,706,250	5,137,500	7,706,250	102
3.2.12	Wet Masonry	cu.m	718	617,000	443,006,000	718	669,907	480,993,302	669,907	480,993,226	109
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	388	70,300	27,276,400	388	80,118	31,085,900	80,118	31,085,784	114
3.2.14	Geotextile	sq.m	2,539	31,300	79,470,700	2,539	29,622	75,211,121	29,622	75,210,258	95
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	1,640	360,600	591,384,000	1,640	445,555	730,710,200	445,555	730,710,200	124
	Sub-total of (3.2)				3,849,077,700			3,815,917,755		3,815,903,488	
	Total of (3)				4,323,337,900			4,226,023,665		4,226,007,623	
4	**SLUICEWAY**										
4.1	Structural excavation including hauling of										
	excavated material, L < 10 Km	cu.m	76	41,500	3,154,000	76	41,986	3,190,993	41,986	3,190,936	101
4.2	Backfill from borrow pit	cu.m	76	97,800	7,432,800	76	103,151	7,839,543	103,151	7,839,476	105
4.3	Furnishing & driving wooden pile ø 150 m/m, L = 4.0 m	nos	69	82,100	5,664,900	69	82,573	5,697,560	82,573	5,697,537	101
4.4	Furnishing & driving steel sheet pile (YSP II, L = 2.0 m)										
	- Furnishing	m	38	1,200,000	45,600,000	38	1,178,640	44,788,320	1,178,640	44,788,320	98
	- Driving	m	38	65,900	2,504,200	38	67,659	2,571,072	67,659	2,571,042	103
4.5	Concrete class B	cu.m	86	941,800	80,994,800	86	947,257	81,464,106	947,257	81,464,102	101
4.6	Later stage concrete, class B	cu.m	2	977,000	1,954,000	2	947,257	1,894,514	947,257	1,894,514	97
4.7	Lean concrete	cu.m	15	839,200	12,588,000	15	817,608	12,264,126	817,608	12,264,120	97
4.8	Reinforcement steel bar	kg	8,989	32,700	293,940,300	8,989	15,022	135,034,106	15,022	135,032,758	46
4.9	Form work	sq.m	307	296,300	90,964,100	307	301,994	92,712,263	301,994	92,712,158	102
4.10	Elastic filler, t = 10 m/m	sq.m	6	126,000	756,000	6	177,941	1,067,649	177,941	1,067,646	141
4.11	Water stop w =300 m/m, t = 10 m/m	m	15	244,300	3,664,500	15	239,420	3,591,307	239,420	3,591,300	98
4.12	Wet masonry	cu.m	62	617,000	38,254,000	62	669,907	41,534,240	669,907	41,534,234	109
4.13	Gravel backfill	cu.m	458	112,700	51,616,600	458	156,593	71,719,859	156,593	71,719,594	139
4.14	Weep hole ø 50m/m, L = 0.60m	nos	5	58,100	290,500	5	80,118	400,591	80,118	400,590	138
4.15	Hand rail, SGP 50	m	4	496,000	1,984,000	4	450,000	1,800,000	450,000	1,800,000	91
4.16	Steel ladder ø 19	kg	37	52,300	1,935,100	37	44,600	1,650,200	44,600	1,650,200	85
4.17	Slide gate, 2.5m x 2.0m	nos	1	118,560,000	118,560,000	1	100,634,600	100,634,600	100,634,600	100,634,600	85
	Total of (4)				761,857,800			609,855,055		609,853,127	
5	**PARAK KOPI BRIDGE**										
5.1	**Re-erection of PC Girder**	L/S	1	450,000,000	450,000,000	1	114,747,084	114,747,084	114,747,084	114,747,084	25

Table 4.6 Corrected Bid Price (4/5)

BILL OF QUANTITIES (3/3)

Correction of Errors

Bidder: PT. Waskita Karya

ITEM NO.	DESCRIPTION	UNIT	ENGINEER'S COST ESTIMATE			ARITHMETIC CHECK					%
			Q'TY	UNIT PRICE	AMOUNT	Q'TY (1)	Offered UNIT PRICE (Integer) (2)	Offerd AMOUNT (integer) (3)	Corrected UNIT PRICE	Corrected AMOUNT	
	Sub-total of (5.1)				450,000,000			114,747,084		114,747,084	
5.2	**Structure Works**										
5.2.1	Concrete class B	cu.m	2	941,800	1,883,600	2	947,257	1,894,514	947,257	1,894,514	101
5.2.2	Form work	sq.m	8	296,300	2,370,400	8	301,994	2,415,954	301,994	2,415,952	102
5.2.3	Reinforcement steel bar D13-D25 (SD345)	kg	274	41,600	11,398,400	274	37,150	10,179,100	37,150	10,179,100	89
5.2.4	Reinforcement steel bar D29-D51 (SD345)	kg	226	41,600	9,401,600	226	37,150	8,395,900	37,150	8,395,900	89
5.2.5	Steel Bracket, Plate PL, SS400	kg	1,216	70,300	85,484,800	1,216	62,601	76,123,217	62,601	76,122,816	89
5.2.6	Steel Bracket, DB, NT, WS	kg	224	60,900	13,641,600	224	54,000	12,096,000	54,000	12,096,000	89
5.2.7	Anchor Drilling Hole Æ45,L=0.625 m	m	20	1,065,600	21,312,000	20	1,369,636	27,392,722	1,369,636	27,392,720	129
5.2.8	Anchor Drilling Hole Æ39,L=0.445 m	m	17	1,065,600	18,115,200	17	1,097,000	18,649,000	1,097,000	18,649,000	103
5.2.9	Anchor Drilling Hole Æ32,L=0.640 m	m	20	1,065,600	21,312,000	20	956,000	19,120,000	956,000	19,120,000	90
5.2.10	Weld (Filet Weld 7 mm)	m	39	201,600	7,862,400	39	200,000	7,800,000	200,000	7,800,000	99
5.2.11	Expansion Rubber,400x150x50(Polycholoropren)	sheet	2	1,400,000	2,800,000	2	1,000,000	2,000,000	1,000,000	2,000,000	71
5.2.12	Expansion Rubber,700x150x50(Polycholoropren)	sheet	2	1,800,000	3,600,000	2	1,500,000	3,000,000	1,500,000	3,000,000	83
5.2.13	Shoe, Rubber Bearing Pad 400x400x30	pcs	2	1,300,000	2,600,000	2	1,200,000	2,400,000	1,200,000	2,400,000	92
5.2.14	Stapling (13x22x200 cm)	cu.m	2	1,000,000	2,000,000	2	900,000	1,800,000	900,000	1,800,000	90
5.2.15	Chipping concrete	sq.m	9	143,400	1,290,600	9	130,000	1,170,000	130,000	1,170,000	91
5.2.16	Support	L/S	1	400,000	400,000	1	350,510	350,510	350,510	350,510	88
5.2.17	Scaffold work	L/S	1	3,000,000	3,000,000	1	2,500,000	2,500,000	2,500,000	2,500,000	83
	Sub-total of (5.2)				208,472,600			197,286,919		197,286,512	
	Total of (5)				658,472,600			312,034,003		312,033,596	
6	**INSPECTION ROAD**										
6.1	Embankment from borrow pit	cu.m	2,796	118,700	331,885,200	2,796	103,151	288,412,681	103,151	288,410,196	87
6.2	Subgrade	sq.m	1,398	36,200	50,607,600	1,398	28,757	40,202,985	28,757	40,202,286	79
6.3	Gravel pavement, t = 260 m/m	cu.m	365	146,900	53,618,500	365	224,977	82,116,787	224,977	82,116,605	153
6.4	Asphalt wearing surface, t = 5 cm	sq.m	1,398	117,000	163,566,000	1,398	115,000	160,770,000	115,000	160,770,000	98
6.5	Sodding	sq.m	2,551	22,400	57,142,400	2,551	19,140	48,826,140	19,140	48,826,140	85
	Total of (6)				656,819,700			620,328,593		620,325,227	
	Total of (1) - (6)				9,549,592,900			9,269,831,000		9,269,808,958	

Table 4.6 Corrected Bid Price (5/5)

DAYWORK

Correction of Errrs

Bidder: PT. Waskita Karya

ITEM NO.	DESCRIPTION	UNIT	ENGINEER'S COST ESTIMATE			ARITHMETIC CHECK					%
			Q'TY	UNIT PRICE	AMOUNT	Q'TY	Offered UNIT PRICE (Integer) (2)	Offerd AMOUNT (integer) (3)	Corrected UNIT PRICE	Corrected AMOUNT	
1	**Labour**										
1.1	Foreman	hrs	600	9,800	5,880,000	600	9,750	5,850,000	9,750	5,850,000	99
1.2	Skilled Labor	hrs	6,400	6,800	43,520,000	6,400	8,250	52,800,000	8,250	52,800,000	121
1.3	Common labor	hrs	800	6,000	4,800,000	800	6,750	5,400,000	6,750	5,400,000	113
1.4	Mason	hrs	2,000	8,300	16,600,000	2,000	8,250	16,500,000	8,250	16,500,000	99
1.5	Concrete worker	hrs	2,800	8,300	23,240,000	2,800	6,750	18,900,000	6,750	18,900,000	81
	Total of (1)				94,040,000			99,450,000		99,450,000	
2	**Materials**										
2.1	Sand bag including filling sand	pcs	250	10,000	2,500,000	250	9,500	2,375,000	9,500	2,375,000	95
2.2	Gravel	cu.m	60	114,000	6,840,000	60	208,000	12,480,000	208,000	12,480,000	182
2.3	Sand	cu.m	160	108,000	17,280,000	160	162,500	26,000,000	162,500	26,000,000	150
2.4	Cement (50 kg)	bag	1,400	66,000	92,400,000	1,400	68,860	96,404,000	68,860	96,404,000	104
2.5	Stone masonry	cu.m	220	87,600	19,272,000	220	195,000	42,900,000	195,000	42,900,000	223
2.6	Cobble stone (200 - 500 mm)	cu.m	200	296,520	59,304,000	200	445,555	89,111,000	445,555	89,111,000	150
2.7	Soil from borrow pit	cu.m	1,000	74,500	74,500,000	1,000	62,000	62,000,000	62,000	62,000,000	83
	Total of (2)				272,096,000			331,270,000		331,270,000	
3	Constructional Plant										
3.1	Giant breaker	hrs	18	290,000	5,220,000	18	295,000	5,310,000	295,000	5,310,000	102
3.2	Backhoe	hrs	90	443,500	39,915,000	90	444,000	39,960,000	444,000	39,960,000	100
3.3	Concrete mixer 0.3 cu.m	hrs	420	13,000	5,460,000	420	13,400	5,628,000	13,400	5,628,000	103
3.4	Concrete vibrator	hrs	420	7,000	2,940,000	420	8,042	3,378,000	8,042	3,377,640	115
	Su-total of (3)				53,535,000			54,276,000		54,275,640	
	Total of (1) - (3)				419,671,000			484,996,000		484,995,640	

(3) Pre-Contract Meeting

Just after the issue of the Letter of Acceptance to P.T. Waskita Karya on May 07, 2010, the Pre-Contract Meeting with P.T. Waskita Karya was held in order to discuss the administrative matters regarding the contract and the construction works. During the meeting, draft contract document was handed over to P.T. Waskita Karya.

(4) Contract Signing

The contract agreement between JICA Indonesia Office and P.T. Waskita Karya was signed and concluded on May 18, 2010.

(5) Notice to Proceed

The Notice to Proceed for the construction works was issued on May 19, 2010 and The construction works has started officially.

5. CONSTRUCTION WORKS AND CONSTRUCTION SUPERVISION

5.1 Establishment of Construction Supervision System

The Project was implemented with the organization setup as shown in Figure 2.2 in the Sub-section 2.2.2 of the Chapter 2 in this Report. The construction works in the field was implemented in accordance with the conditions, specifications and drawings in the contract form May 19, 2010, in response to the Issuance of Notice to Proceed.
The Project Working Group including the JICA Consultant Team assisted all activities of the supervision of the construction works and reporting the progress and plan to the JICA Indonesia Office as the Employer and the Project Steering Committee. In order to facilitate the assistance of the construction supervision in the field, the construction supervision system was established as follows:

(1) Organization of Project Working Group during Construction Stage

The organization of the Project Working Group for assistance of the construction supervision in the field was set up as shown in Figure 5.1.

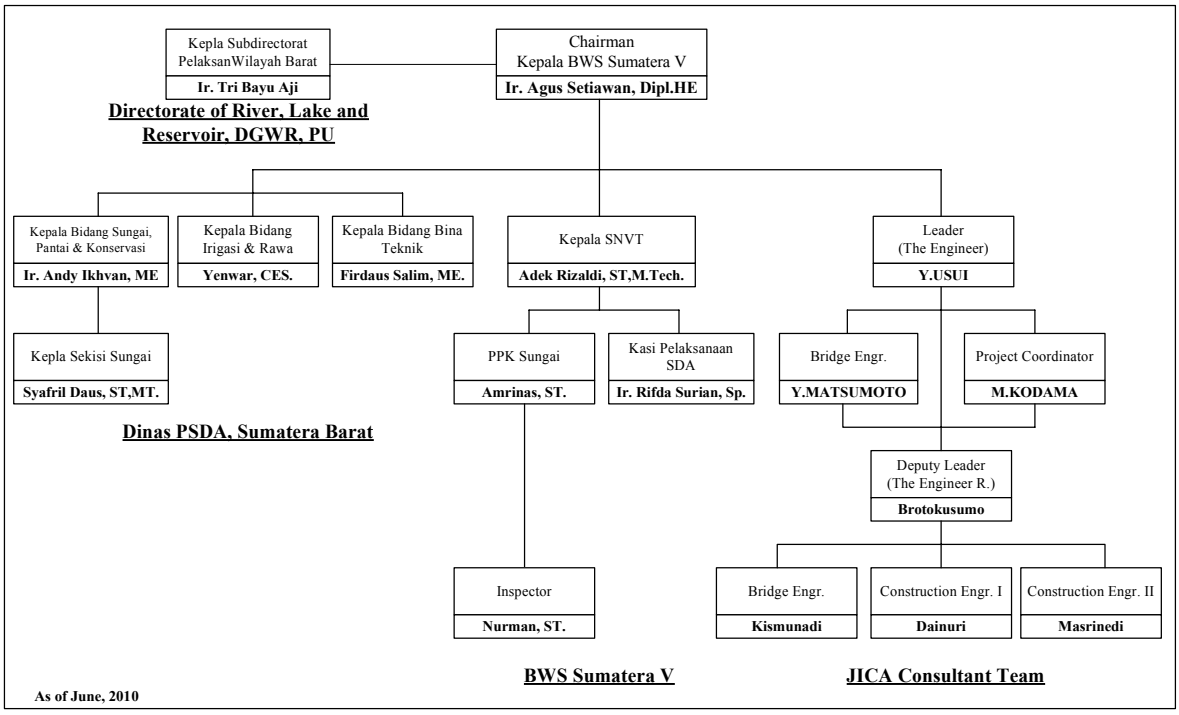


Figure 5.1 Organization of Project Working Group (Construction Supervision)

In addition to the members of the Project Working Group proposed by Dinas PSDA, West Sumatra, the BWS Sumatera V Office assigned one (1) Inspector in the field.
Daily activities of supervision were done by the Inspectors and the JICA Consultant Team. Information of the construction works were reported to the Project Working Group by them, in addition to the report from the Contractor.
Important instructions and approval, which affect the progress, quantity and quality of the construction works, were done by the Engineer after discussion with the Project Working Group.

Instructions and approval of the following matter were determined to be done by the JICA Indonesia Office as the Employer under the assistance of the Project Working Group.

- Contract modification (increasing of contract amount, extension of construction period and penalty to the Contractor)
- Approval of payment request.

(2) Office of Project Working Group

The office of Project Working Group including the JICA Consultant Team was set up in BWS Sumatera V Office. Address of the office is as follows:

Office Name:
Project Working Group Office on JICA Project for Post-earthquake Rehabilitation of Water Resources Management Facilities in Padang
Address:
C/O Balai Wilayah Sungai Sumatera V
Jl. Banjir Kanal No. 1, Parak Kopi, Padang 25139
Tel & Fax: 0751-891700

(3) Management Meeting (Joint Progress Meeting)

In order to review the plans of remaining works and to deal with the matters raised during execution of the Works, the Management Meeting were held between the Project Working Group and the Contractor once a week in principle and at least once two (2) weeks in the condition of smooth execution of the Works. The business of the Management Meeting is as follows:

- Reconfirmation of the Minutes of last Management Meeting.
- Confirmation of the results of the actions determined at the previous meeting.
- Progress of the works
- Review of the plan of remaining works (if required).
- Discussion of drawings and documents submitted by the Contractor.
- Matters raised during execution of the works and actions to be taken (if required).

The minutes of the meeting were recorded by the JICA Consultant Team and distributed to the participants, to confirm the determined actions.

(4) Monthly Joint Inspection

In order to confirm the monthly progress of the construction works, the joint inspection between the Project Working Group and the Contractor were carried out at the end of every month. Based on the joint inspection, the monthly progress report was prepared by the Contractor.

(5) Submission and Review or Approval of Drawings and Documents

The drawings and documents prepared and submitted by the Contractor were reviewed and approved in accordance with the following flow:

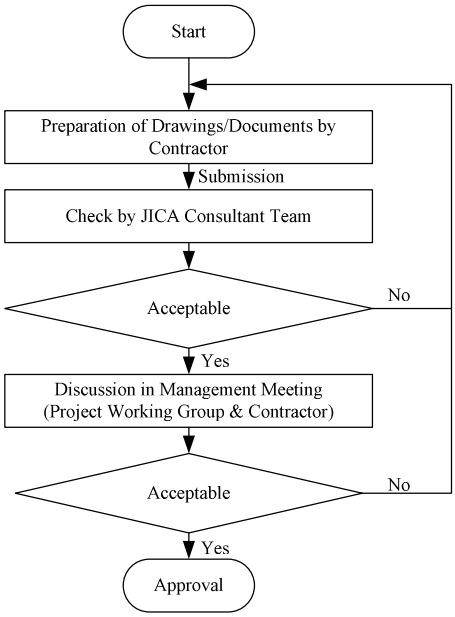


Figure 5.2 Review or Approval of Drawings and Documents

(6) Report to the Employer and Project Steering Committee

The JICA Consultant Team reported the progress and schedule of the construction works to the JICA Indonesia Office as the Employer and members of the Project Steering Committee once a month (around 10th of every month) or on occasion. The materials of the report are as follows:

- Monthly progress report submitted by the Contractor
- Monthly progress report by the JICA Consultant Team (including list of outgoing letters and incoming letters and Minutes of Management Meeting).
- Other materials (if any).

(7) Use of Daywork

In order to repair minor damages of the facilities and to prepare the contingency for the rehabilitation works, the daywork was employed in the construction contract. Objective sites for use of the daywork were determined under the discussion of the Project Working Group, after confirmation of the actual work quantities of respective original work sites based on the survey results by the Contractor.

(8) Checklists and Forms for Construction Supervision.

The following checklists and forms were prepared and applied during the construction supervision:

- Form for minute of management meeting
- Workflow for check of drawings and documents
- Checklist for pamphlets, diagram and similar data for equipments and materials
- Checklist for trial mixes of concrete
- Form of daily report, weekly progress and monthly progress
- Form of progress payment request

(9) Bench Mark (BM) of Survey Control System of the Works

There are five (5) BMs of the BAKOSURTANAL and PU in Padang City as shown in Table 5.1. In consideration of the condition of the BMs and settlement during the earth-quake, the BM No. TTG 1351 was applied as the BM of the survey control system of the Works.

Table 5.1 BMs in Padang City

Name	Coordinate Geodetic		Coordinate UTM		Elevation (m)	Location
	Latitude	Longitude	X(E)	Y(N)	Z	
TTG 1350	-0.9517°	100.3761°	-	-	7.402	Jl. Stasiun K.A
TTG 1351	-0.9550°	100.3614°	652,356.158	9,895,646.595	5.703	Hospital Dr. M. Jamil.
TTG 1353	-0.8717°	100.3467°	-	-	3.386	Jl. Prof. Hamka, Air Tawar Timur
TTG.. (not clear)	-	-	649,826.326	9,893,333.035	-	Top of Mountain Padang
PU-1	-	-	-	-	+ 4.370 (MSL)	Taman Kota

5.2 Organization of Contractor

In order to implement the Works of the Project, the Contractor (P.T. WASKITA KARYA) set up the organization of the field, site facilities including site office, camp, warehouse, spoil bank, borrow pit, quarry site, etc.. The organization of the field is shown in Figure 5.3 and the locations of the site facilities are presented in Figure 5.4, respectively.

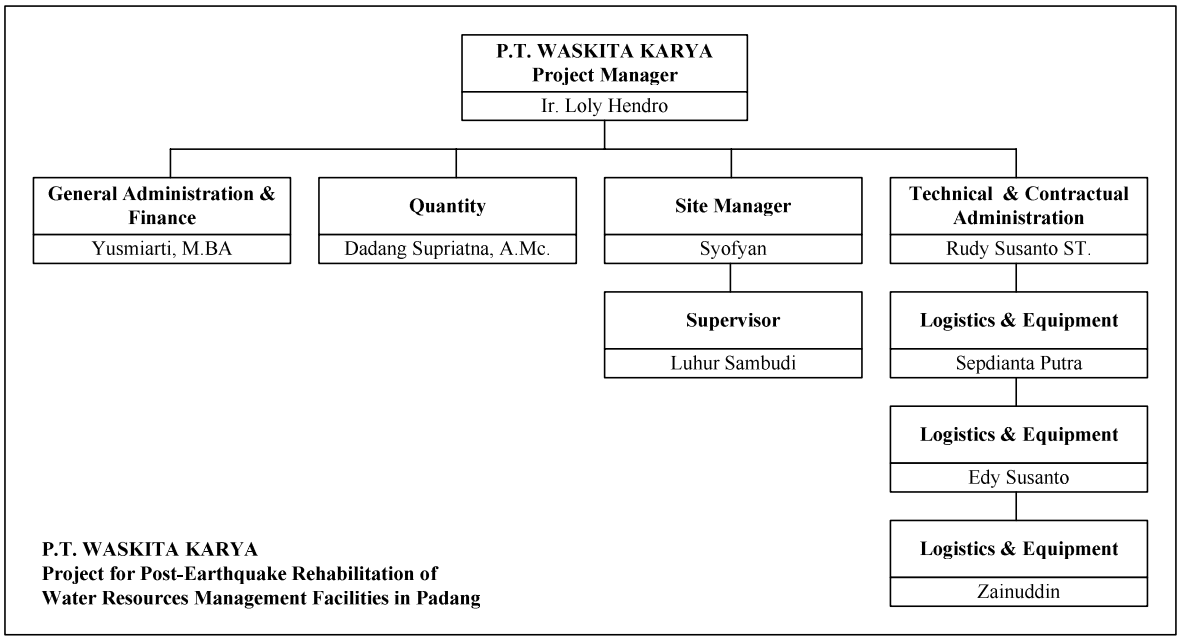


Figure 5.3 Organization of the Contractor in Field

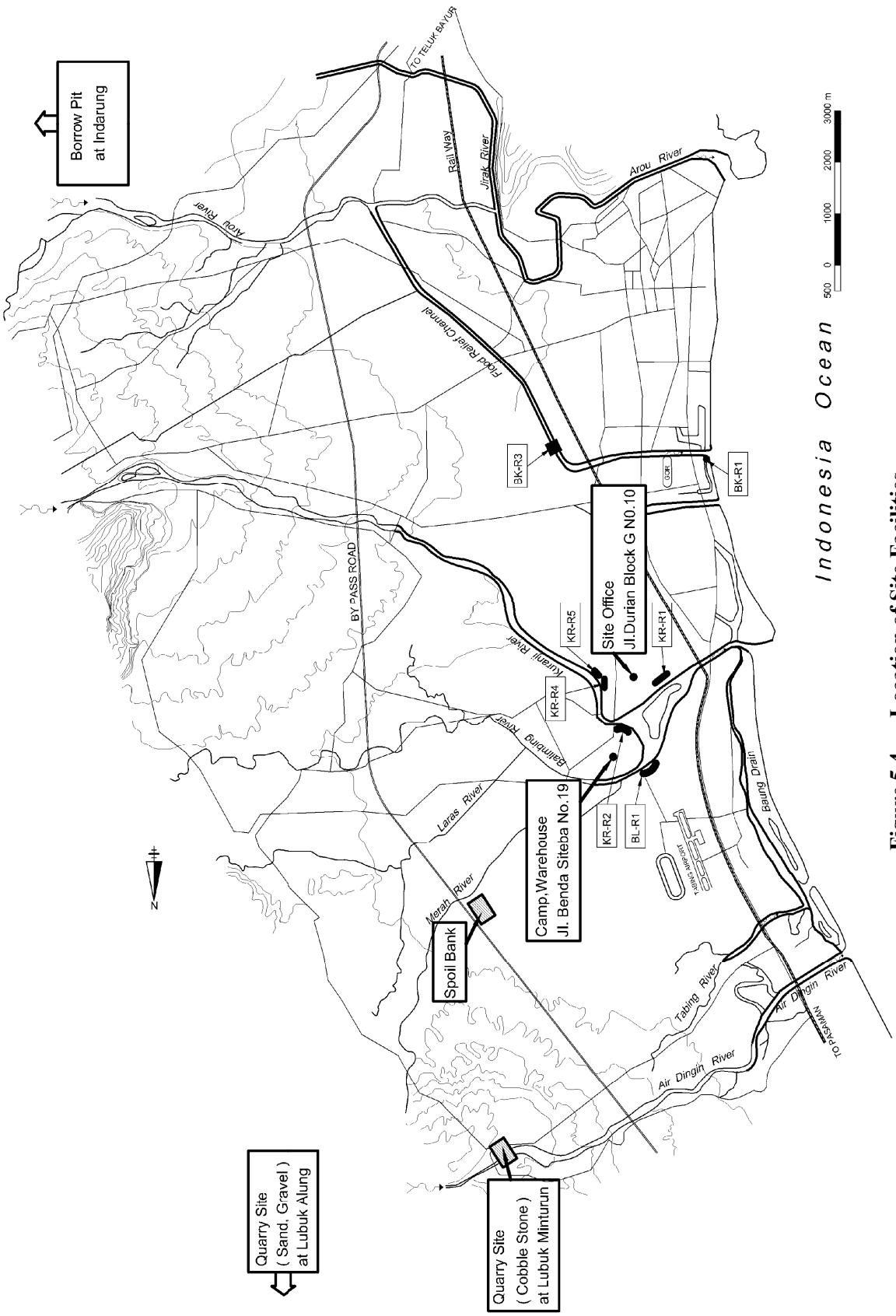


Figure 5.4 Location of Site Facilities

5.3 Construction Period and Construction Time Schedule

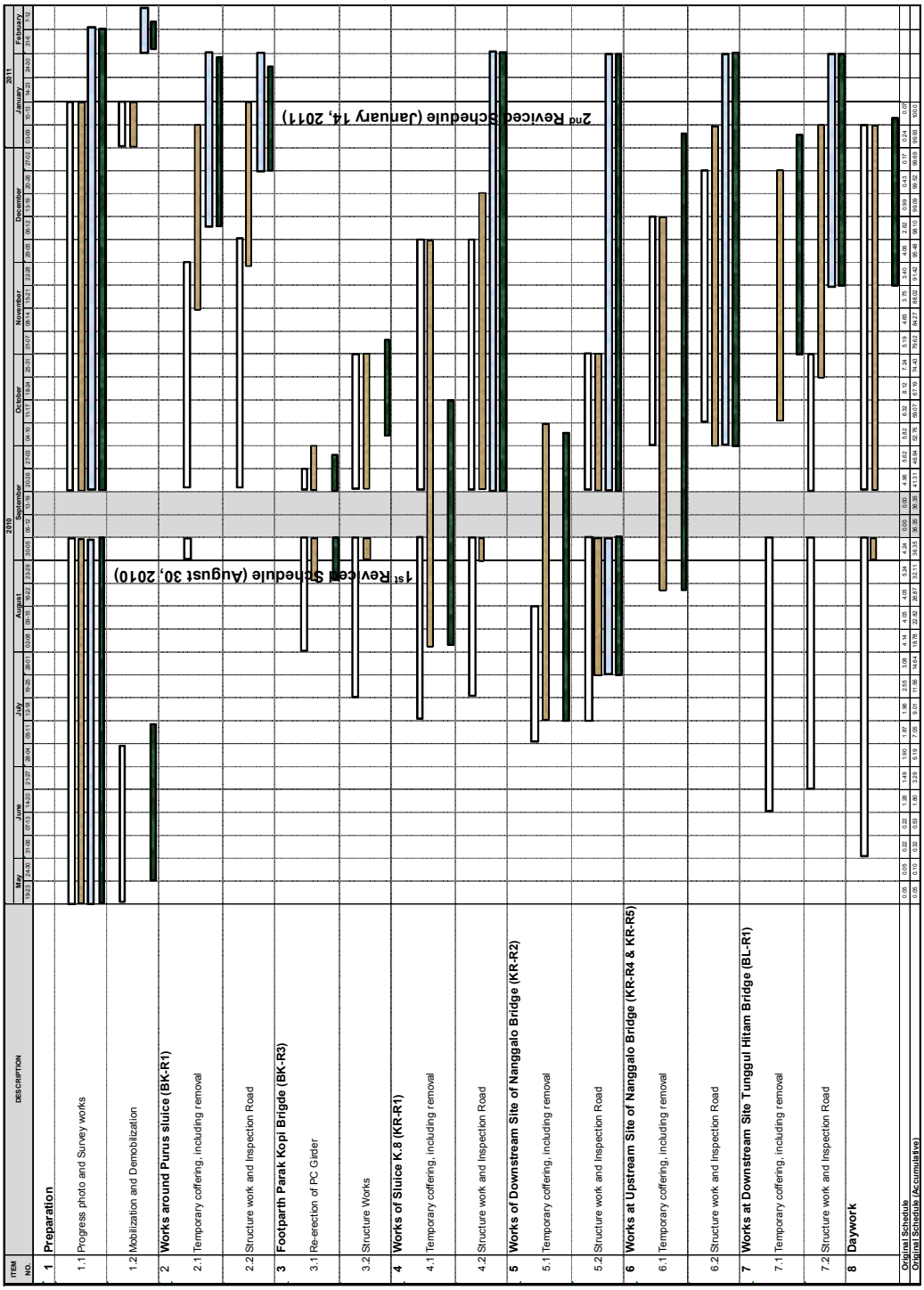
The construction period of the Works was amended from the original contract as follows:

Original Contract (No. 100517-0020-A00)
- Construction Period: 240 days from May 19, 2010 (date to issuance of the Notice to Proceed) to January 13, 2011.

Amendment No.1 (No. 100517-0020-A01)
- Construction Period: 270 days from May 19, 2010 to February 12, 2011

The Contractor prepared the construction time schedule in the original contract. The time schedule was revised twice due to the delay of the works caused by extreme weather condition. Revision of the construction time schedule and actual progress are shown in Table 5.2 and Figure 5.5.

Table 5.2 Construction Time Schedule and Progress



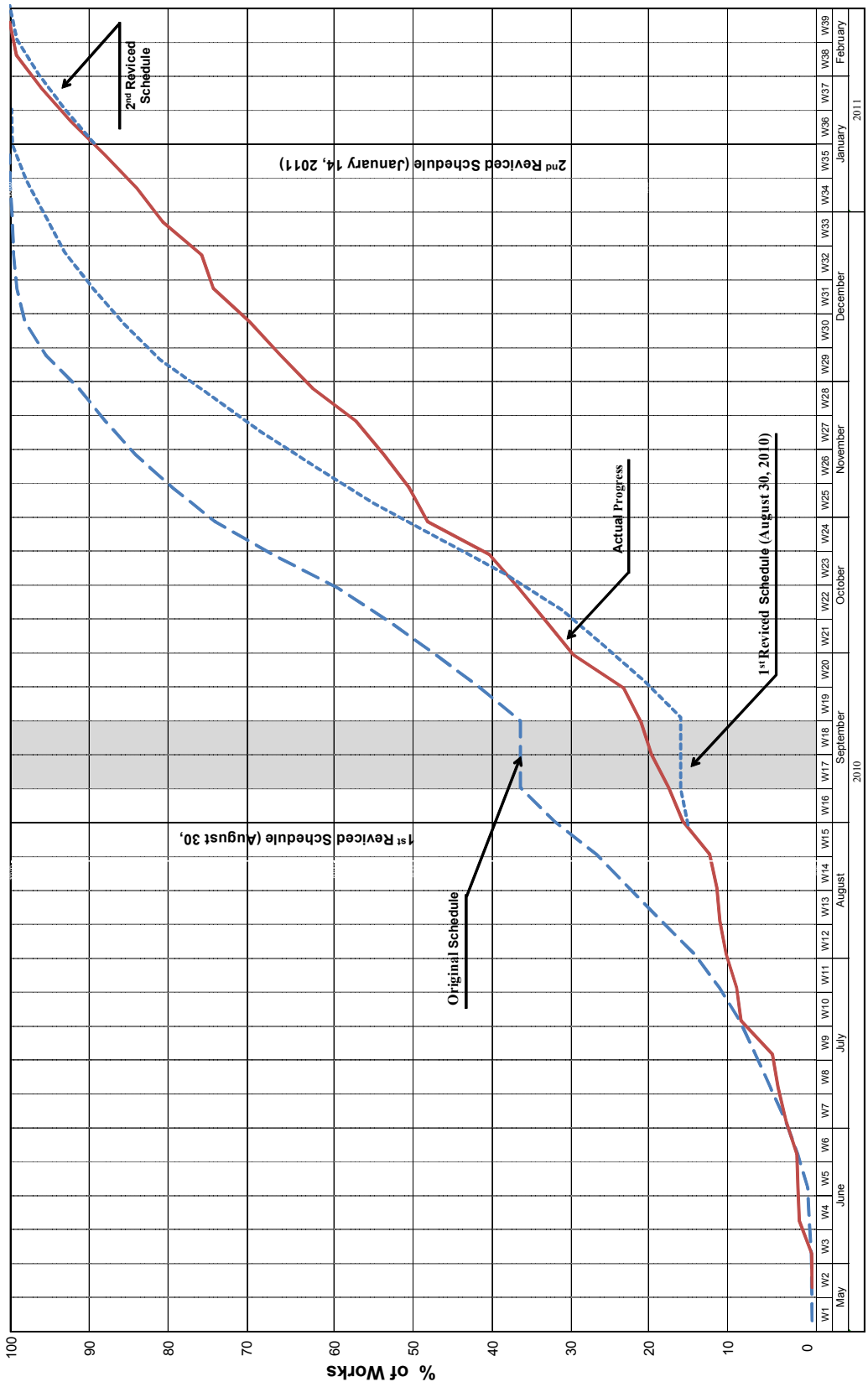


Figure 5.5 Construction Schedule and Progress

5.4 Construction Progress

5.4.1 Progress of the Works

The rehabilitation works were executed by the Contractor (P.T. WASKITA KARYA) under the established construction supervision system with a period of 270 days from May 19, 2010 to February 12, 2011. The progress of the works is summarized in Table 5.2 and Figure 5.5.
During the construction period of the works, minor modifications of the original designs were made depending on the situations of the sites. In addition, the construction period was extended for 30 days from 240 days of the original contract due to the extreme weather condition, site arrangement with bridge work, etc. Those variations of the Works and extension of the construction period were summarized to the following amendments to the contract.

- Amendment No. 1 (Contract No. 100517-0020-A01) dated on January 12, 2011 on extension of intended completion date
- Amendment No. 2 (Contract No. 100517-0020-A02) dated on February 04, 2011 on change of Bill of Quantities

All construction works were officially accepted by the Employer (JICA Indonesia Office) on February 12, 2011 and the works were taken over by the Ministry of Public Works of the Republic of Indonesia, in accordance with "Memorandum of Understanding between Japan International Cooperation Agency and The Ministry of Public Works of The Republic of Indonesia on Project for Post-earthquake Rehabilitation of Water Resources Management Facilities in Padang" dated April 22, 2010. The Defects Notice Period of 180 days commenced on February 13, 2011 and will end on August 11, 2011.

The contents of two (2) amendments and completion process of the Works are described hereunder:

5.4.2 Amendment No.1 (Contract No. 100517-0020-A01)

Amendment No.1 to the Contract was concluded on January 12, 2011. Content and background of the Amendment No. 1 are as follows:

(1) Content of Amendment No. 1
In order to cope with delay of the work progress, the Intended Completion Date was extended for thirty (30) days from two hundred forty (240) days from the date of commencement of the Works. That is, the Intended Completion Date was on February 12, 2011.

(2) Background of Amendment No. 1

(a) Delay due to weather condition
Due to "*La ni˜na*" phenomena, there were extreme rainfall depth and heavy rainfall days in Padang City during the construction period. Therefore, there were not sufficient workable days and the Works were forced to be delayed. The rainfall condition from May to December in 2010 is presented in Table 5.3.

Table 5.3 Rainfall Condition in 2010

Item	May	Jun.	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average 2005-2009									
Average Rainfall Depth (mm)	183.4	313.9	361.1	284.9	347.6	457.2	373.7	495.9	2,817.7
Rainfall Day (day)	13	13	13	15	14	18	20	21	127
Rainfall Day over 20 mm (day)	3	5	5	4	5	7	6	7	42
Record in 2010									
Rainfall Depth in 2010 (mm)	280.7	346.2	366.3	312.9	528.5	516.7	539.2	165.4	3,055.9
Rainfall Day (day)	8	13	19	13	19	16	21	13	122
Rainfall Days over 20 mm (day)	6	6	5	7	6	7	9	2	48

Source: Data from Tabing Meteorological Station

(b) Delay of commencement of works at BK-R1 due to coordination of bridge works

After the commencement of the construction works of the Project, unscheduled bridgeworks by the Provincial Road Department were recommenced at the just downstream site of BK-R1 at the river mouth of Flood Relief Channel. The yard for materials and the access road scheduled for the works of BK-R1 were used by the bridgeworks. Therefore, the Works of BK-R1 were forced to commence from December 2010.

(c) Delay due to modification of large scale coffering works at BK-R1

In addition to above, the coffering works of BK-R1 required modification to the larger scale one due to the situation of the site. Therefore, completion of the coffering works was delayed.

5.4.3 Amendment No. 2 (Contract No. 100517-0020-A02)

Amendment No. 2 to the Contract was concluded on February 04, 2011. Content and background of the Amendment No. 2 are as follows:

(1) Content of Amendment No. 2

The Amendment No.1 summarized the final bill of quantities and an addendum of the technical specifications in the original contract. As the results of the variation of the Works, the contract amount decreased to Rp. 9,228,567,657.

(2) Background of Amendment No. 2

The rehabilitation works were designed based on the as-built drawings of the construction works of the previous Padang Area Flood Control Projects (I) and (II). After the commencement of the Works, the survey works was carried out at the respective sites. The construction works were executed applying the modified design based on the survey results. Variations of the Works are summarized as follows:

Table 5.4 Summary of Variation of the Works (1/4)

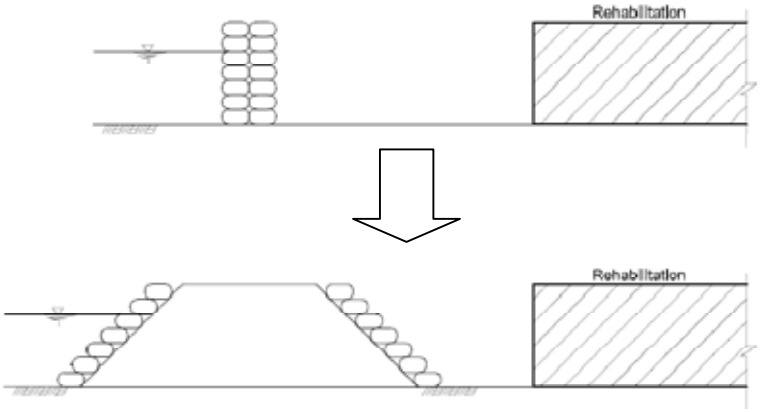
Site No.	BK-R1 (Works around Purus Sluice at right side of Flood Relief Channel)
Works	dike, slope protection (L=39.9), wing wall at outlet of sluice
Variation/ reason	Variation No.1: Content: Change of the coffering works from steel sheet piles with sand bags to steel sheet pile with earth dam covered with sand bags. Reason: Depending on the site condition, it was difficult to coffer the rehabilitation site by the steel sheet piles with sand bags. Therefore, sand bags were changed to the earth dam covered with sand bags, as shown below:  In addition, steel sheet piles for support beams below the low water level were cut and buried in the slope protection work. Increased amount of the cost was supposed to be appropriated from the cost of the daywork. Variation No. 2: Content: Change of slope protection works at the downstream side of Purus Sluice from full scale rehabilitation to partial repair. Reason: After the coffering works for the downstream side, it was confirmed that the foundation of the slope protection works was in good condition. Therefore, only upper half of the slope protection was repaired. Variation No. 3: Content: Cancelling of the works at upstream side of Purus Sluice Reason: The dike and slope protection works at the upstream side of Purus Sluice had minor damages by the earthquake. In consideration of the condition of foundation of the slope protection works at downstream site, it is no fear of the damages of the foundation of the upstream slope protection works. Variation No.4: Content: Replacement and maintenance of sluice gates (2 leaves) Reason: Due to the vibrations by the earthquake and corrosion by the sea water intrusion, the sluice gates were not able to function properly.

Table 5.4 Summary of Variation of the Works (2/4)

Site No.	BK-R3 (Rehabilitation works of Parak Kopi footpath bridge along Flood Relief Channel)
Works	Re-erection of girder, anti-seismic measure at abutments and pier
Variation	No variation
Site No.	KR-R1 (Works around K.8 Sluiceway at left side of Kuranji River)
Works	Sluiceway, dike, slope protection (L=31.7m)
Variation/ reason	Variation No. 1: Content: Re-installation of access road to inspection road at dike crown Reason: In order reconstruct the sluice, the access road required to remove. Therefore, the access road was reconstructed after the reconstruction of the sluice. Variation No. 2: Content: Installation of flap gate Reason: Flap gate near the K.8 Sluice damaged by the earthquake was washed away and inundation damages occurred in the inland. In response to the request from the members of the Project Working Group, the flap gate was re-installed. Variation No.3: Content: Repair of small part of slope protection work beside the work site and removal of sediment in the drainage canal into K.8 Sluice. The works were done as the daywork. Reason: To maintain the facilities rehabilitated by the Works.
Site No.	KR-R2 (Works at downstream site of Nanggalo Bridge along right bank of Kuranji River)
Works	Dike, slope protection (L=90.0m)
Variation	No variation
Site No.	KR-R3 (Works at upstream site of Nanggalo Bridge along left bank of Kuranji River
Works	Repair of slope protection work (L=89.9m)
Variation	Variation: Content: Partial repair of the slope protection work near the work sites of Kuranji River. The works were done as the daywork. Reason; Cracks of the slope protection by the earthquake were expanded by the floods and there was a fear of the collapse of the slope protection works. Therefore, the slope protection works repaired partially.

Table 5.4 Summary of Variation of the Works (3/4)

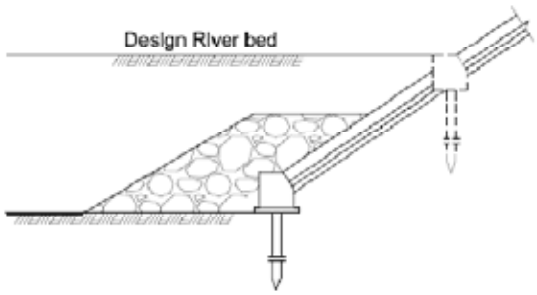
Site No.	KR-R4 (Works at upstream site of Nanggalo Bridge along left bank of Kuranji River)
Works	Dike, slope protection (L=86.8m)
Variation/ reason	Variation: Content: Modification of embedment depth of the slope protection work with about 1.3m Reason: The work site is located at the outer bend of the river channel and there was sever local scouring. In order to cope with this local scouring, the foundation of slope protection work was embedded. 
Site No.	KR-R5 Works at upstream site of Nanggalo Bridge along left bank of Kuranji River)
Works	Dike, slope protection (L=15.3m)
Variation/ reason	Variation: Content: Pavement of access road to the works sites of KR-R3、KR-R4、KR-R5, with L=185m Reason: The access road is only road to access the inspection road for the dike crown and was without pavement. In respose to the request from the River Basin office based on expectation of the residents, the asphalt pavement works were carried out at the same time with the pavement works of the construction sites.
Site No.	BL-R1 Works at downstream site of Tunggul Hitam Bridge along right bank of Balimbing River
Works	Dike, slope protection (L=141.8m)
Variation	No variation

Table 5.4 Summary of Variation of the Works (4/4)

Site No.	All sites
Works	Pavement of dike crown
Variation	Variation No.1: Content: Change of material of the road bed of inspection road from Gravel to Base Coarse Class A. Reason: Procurement of the gravel materials became difficult due to delay of annual approval of extraction. Therefore, the road bed material changed to the Base Coarse Class A, which were made of the crushed stones. Variation No.2: Content: Addendum of the technical specification of Base Coarse from Class B to Class A. Reason: Class B was specified in the technical specification of the contract documents as the material for the sub-base material of road. However, Class B materials have no enough strength for the base of the asphalt covering. Therefore, the technical specifications of Base Coarse were modifies from Class B to Class A.

5.4.4 Completion of the Works

Completion of the Works was confirmed as the following manners:

(1) Submittal of Application of Completion Certificate of the Works by the Contractor on February 06, 2011

(2) First joint inspection between the Project Working Group and the Contractor on February 08, 2011.
Visual inspection was carried out and the Contractor cleaned up the sites based on the inspection results.

(3) Examination of related documents by the JICA Consultant Team from February 07 to February 09, 2011

(4) Second joint inspection among the representative of the Employer, the Project Working Group and the Contractor.
Based on the results of document examination and the first joint inspection, the second inspection was carried out. As the results of the second inspection, the Project Working Group recommended that the works were acceptable with the completion date of February 12, 2010 and Taking Over of the works was able to certified with the following conditions:
- The Defects Notice Period of 180 days commenced on February 13, 2011.
- The Ministry of Public Works of the Republic of Indonesia takes over the Site and the Works after the issuance of this Certificate of Completion, in accordance with the Article 48 in the Condition of Contract.

(5) Issuance of Certificate of Completion by the Employer (JICA Indonesia Office) on February 14, 2011, with the completion date of February 12, 2011.

6. CONTRACT COST AND DISBURSEMENT

6.1 Contract Cost

During the construction period, minor modifications of the Works were made and the contract cost was finally revised in the Amendment No. 2 to Contract dated February 04, 2011, as follows:

- Original Contract Amount: Rp. 9,754,804,598.
- Amendment No. 2: Rp. 9,228,567,657. (Reduction Rp. 526,236,941., 5.4 % of the original amount)

Summary of the priced bill of quantities, the breakdown of bill of quantities and breakdown of daywork in the Amendment No. 2 are shown in Table 6.1, Table 6.2 and Table 6.3, respectively. In addition, Breakdown of bill of quantities for each site is shown in Table 6.4.

Table 6.1 Summary of Priced Bill of Quantities

No.	Item	Scheduled Amount		
		Original (Rp.)	Amendment No.2 (Rp.)	+/- (Rp.)
A	**BILL**			
1	General Item	57,805,000	57,805,000	0
2	Preparatory Works	3,443,784,385	3,574,063,797	130,279,412
3	Slope Protection	4,226,007,623	3,879,279,859	-346,727,764
4	Sluiceway	609,853,127	703,233,756	93,380,629
5	Parak Kopi Bridge	312,033,596	286,829,564	-25,204,032
6	Inspection Road	620,325,227	602,649,359	-17,675,868
	Subtotal of Bill	9,269,808,958	9,103,861,335	-165,947,623
B	**DAYWORK**			
1	Labour	99,450,000	31,866,000	-67,584,000
2	Materials	331,270,000	82,346,860	-248,923,140
3	Constructional Plant	54,275,640	10,493,462	-43,782,178
	Subtotal of Daywork	484,995,640	124,706,322	-360,289,318
C	**Grand Total**	**9,754,804,598**	**9,228,567,657**	**-526,236,941**

Table 6.2 Breakdown of Priced Bill of Quantities (1/3)

Item No.	Description	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment No.2	+/-		Original (Rp.)	Amendment No.2 (Rp.)	+/- (Rp.)
1	**GENERAL ITEMS**								
1.1	Progress photo and Survey works	L/S	1	1	0	12,500,000	12,500,000	12,500,000	0
1.2	Mobilization and Demobilization	L/S	1	1	0	45,305,000	45,305,000	45,305,000	0
	Total of (1)						57,805,000	57,805,000	0
2	**PREPARATORY WORKS**								
2.1	Temporary coffering by steel sheet pile,								
	including removal								
	- Type I (L=12m)	m	72	62	-10	10,643,062	766,300,464	659,869,844	-106,430,620
	- Type II (L=8m)	m	336	333	-3	7,307,628	2,455,363,008	2,433,440,124	-21,922,884
2.2	Temporary coffering by sand bag, including removal	m	104	52	-52	964,837	100,343,048	50,171,524	-50,171,524
2.3	Demolishing of existing Slope Protection								
	including hauling of excavated material, L< 10 Km	cu.m	1,489	1,683	194	81,785	121,777,865	137,644,155	15,866,290
2.4	Temporary coffering by earth dam and sand bag,								
	including removal	m		30	30	9,764,605	0	292,938,150	292,938,150
	Total of (2)						3,443,784,385	3,574,063,797	130,279,412
3	**SLOPE PROTECTION**								
3.1	Concrete cribe type								
3.1.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	503	245	-258	41,986	21,118,958	10,286,570	-10,832,388
3.1.2	Backfill from borrow pit	cu.m	503	245	-258	103,151	51,884,953	25,271,995	-26,612,958
3.1.3	Furnishing & driving Wooden pile, ø 150 m/m, L = 3.0m	nos	31	0	-31	61,930	1,919,830	0	-1,919,830
3.1.4	Concrete class B	cu.m	71	14	-57	947,257	67,255,247	13,261,598	-53,993,649
3.1.5	Concrete class C1	cu.m	4	2	-2	905,941	3,623,764	1,811,882	-1,811,882
3.1.6	Concrete class C2	cu.m	30	11	-19	905,941	27,178,230	9,965,351	-17,212,879
3.1.7	Lean concrete	cu.m	4	0	-4	817,608	3,270,432	0	-3,270,432
3.1.8	Reinforcement steel bar	kg	5,042	1,331	-3,711	15,022	75,740,924	19,994,282	-55,746,642
3.1.9	Form work	sq.m	302	89	-213	301,994	91,202,188	26,877,466	-64,324,722
3.1.10	Elastic filler, t = 10 m/m	sq.m	8.0	5.0	-3.0	177,941	1,423,528	889,705	-533,823
3.1.11	Asphalt sealing	cu.m	0.10	0.02	-0.08	5,137,500	513,750	102,750	-411,000
3.1.12	Gravel backfill	cu.m	60	21	-39	156,593	9,395,580	3,288,453	-6,107,127
3.1.13	Cobble stone, dia. 150 m/m - 200 m/m								
	including filling concrete class C2	cu.m	59	20	-39	898,525	53,012,975	17,970,500	-35,042,475
3.1.14	Weep hole ø 50 m/m, L = 1.11 m	nos	32	0	-32	80,118	2,563,776	0	-2,563,776
	Sub-total of (3.1)						410,104,135	129,720,552	-280,383,583
3.2	Wet masonry type								
3.2.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	6,164	5,888	-276	41,986	258,801,704	247,213,568	-11,588,136
3.2.2	Backfill from borrow pit	cu.m	6,164	6,826	662	103,151	635,822,764	704,108,726	68,285,962
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	297	241	-56	61,930	18,393,210	14,925,130	-3,468,080

Table 6.2 Breakdown of Priced Bill of Quantities (2/3)

Item No.	Description	Unit	Quantity			Unit Price	Amount		
			Original	Amendment No.2	+/-	(Rp.)	Original (Rp.)	Amendment No.2 (Rp.)	+/- (Rp.)
3.2.4	Concrete class B	cu.m	163	159	-4	947,257	154,402,891	150,613,863	-3,789,028
3.2.5	Concrete class C1	cu.m	64	71	7	905,941	57,980,224	64,321,811	6,341,587
3.2.6	Concrete class C2	cu.m	361	371	10	905,941	327,044,701	336,104,111	9,059,410
3.2.7	Lean concrete	cu.m	390	409	19	817,608	318,867,120	334,401,672	15,534,552
3.2.8	Reinforcement steel bar	kg	14,838	15,585	747	15,022	222,896,436	234,117,870	11,221,434
3.2.9	Form work	sq.m	1,521	1,244	-277	301,994	459,332,874	375,680,536	-83,652,338
3.2.10	Elastic filler, t = 10 m/m	sq.m	206.0	141.5	-64.5	177,941	36,655,846	25,178,652	-11,477,194
3.2.11	Asphalt sealing	cu.m	1.50	1.17	-0.33	5,137,500	7,706,250	6,010,875	-1,695,375
3.2.12	Wet Masonry	cu.m	718	733	15	669,907	480,993,226	491,041,831	10,048,605
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	388	370	-18	80,118	31,085,784	29,643,660	-1,442,124
3.2.14	Geotextile	sq.m	2,539	2,039	-500	29,622	75,210,258	60,399,258	-14,811,000
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	1,640	1,472	-168	445,555	730,710,200	655,856,960	-74,853,240
3.2.16	Furnishing & driving steel sheet pile								
	- Furnishing	m	0	16	16	1,178,640	0	18,858,240	18,858,240
	- Driving	m	0	16	16	67,659	0	1,082,544	1,082,544
	Sub-total of (3.2)						3,815,903,488	3,749,559,307	-66,344,181
	Total of (3)						4,226,007,623	3,879,279,859	-346,727,764
4	**SLUICEWAY**								
4.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	76	66	-10	41,986	3,190,936	2,771,076	-419,860
4.2	Backfill from borrow pit	cu.m	76	66	-10	103,151	7,839,476	6,807,966	-1,031,510
4.3	Furnishing & driving wooden pile ø 150 m/m, L = 4.0 m	nos	69	69	0	82,573	5,697,537	5,697,537	0
4.4	Furnishing & driving steel sheet pile (YSP II, L = 2.0 m)								
	- Furnishing	m	38	38	0	1,178,640	44,788,320	44,788,320	0
	- Driving	m	38	38	0	67,659	2,571,042	2,571,042	0
4.5	Concrete class B	cu.m	86	77	-9	947,257	81,464,102	72,938,789	-8,525,313
4.6	Later stage concrete, class B	cu.m	2	1	-1	947,257	1,894,514	947,257	-947,257
4.7	Lean concrete	cu.m	15	9	-6	817,608	12,264,120	7,358,472	-4,905,648
4.8	Reinforcement steel bar	kg	8,989	8,004	-985	15,022	135,032,758	120,236,088	-14,796,670
4.9	Form work	sq.m	307	243	-64	301,994	92,712,158	73,384,542	-19,327,616
4.10	Elastic filler, t = 10 m/m	sq.m	6.0	0.0	-6.0	177,941	1,067,646	0	-1,067,646
4.11	Water stop w =300 m/m, t = 10 m/m	m	15.0	10.3	-4.7	239,420	3,591,300	2,466,026	-1,125,274
4.12	Wet masonry	cu.m	62	77	15	669,907	41,534,234	51,582,839	10,048,605
4.13	Gravel backfill	cu.m	458	314	-144	156,593	71,719,594	49,170,202	-22,549,392
4.14	Weep hole ø 50m/m, L = 0.60m	nos	5	0	-5	80,118	400,590	0	-400,590
4.15	Hand rail, SGP 50	m	4	3	-1	450,000	1,800,000	1,350,000	-450,000
4.16	Steel ladder ø 19	kg	37	15	-22	44,600	1,650,200	669,000	-981,200
4.17	Slide gate, 2.5m x 2.0m	nos	1	1	0	100,634,600	100,634,600	100,634,600	0
4.18	Service and Repairing Slide Gate Work	set		2	2	68,250,000	0	136,500,000	136,500,000
4.19	Flap Gate, dia. 1,100 m/m	set		1	1	23,360,000	0	23,360,000	23,360,000
	Total of (4)						609,853,127	703,233,756	93,380,629

Table 6.2 Breakdown of Priced Bill of Quantities (3/3)

Item No.	Description	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment No.2	+/-		Original (Rp.)	Amendment No.2 (Rp.)	+/- (Rp.)
5	**PARAK KOPI BRIDGE**								
5.1	Re-erection of PC Girder	L/S	1	1	0	114,747,084	114,747,084	114,747,084	0
	Sub-total of (5.1)						114,747,084	114,747,084	0
5.2	Structure Works								
5.2.1	Concrete class B	cu.m	2	2	0	947,257	1,894,514	1,894,514	0
5.2.2	Form work	sq.m	8	8	0	301,994	2,415,952	2,415,952	0
5.2.3	Reinforcement steel bar D13-D25 (SD345)	kg	274	520	246	37,150	10,179,100	19,318,000	9,138,900
5.2.4	Reinforcement steel bar D29-D51 (SD345)	kg	226	0	-226	37,150	8,395,900	0	-8,395,900
5.2.5	Steel Bracket,Plate PL,SS400	kg	1,216	1,104	-112	62,601	76,122,816	69,111,504	-7,011,312
5.2.6	Steel Bracket,DB,NT,WS	kg	224	124	-100	54,000	12,096,000	6,696,000	-5,400,000
5.2.7	Anchor Drilling Hole Æ45,L=0.625 m	m	20	0	-20	1,369,636	27,392,720	0	-27,392,720
5.2.8	Anchor Drilling Hole Æ39,L=0.445 m	m	17	0	-17	1,097,000	18,649,000	0	-18,649,000
5.2.9	Anchor Drilling Hole Æ32,L=0.640 m	m	20	51	31	956,000	19,120,000	48,756,000	29,636,000
5.2.10	Weld (Filet Weld 7 mm)	m	39	54	15	200,000	7,800,000	10,800,000	3,000,000
5.2.11	Expansion Rubber,400x150x50(Polycholoropren)	sheet	2	2	0	1,000,000	2,000,000	2,000,000	0
5.2.12	Expansion Rubber,700x150x50(Polycholoropren)	sheet	2	2	0	1,500,000	3,000,000	3,000,000	0
5.2.13	Shoe, Rubber Bearing Pad 400x400x30	pcs	2	2	0	1,200,000	2,400,000	2,400,000	0
5.2.14	Stapling (13x22x200 cm)	cu.m	2	2	0	900,000	1,800,000	1,800,000	0
5.2.15	Chipping concrete	sq.m	9	8	-1	130,000	1,170,000	1,040,000	-130,000
5.2.16	Support	L/S	1	1	0	350,510	350,510	350,510	0
5.2.17	Scaffold work	L/S	1	1	0	2,500,000	2,500,000	2,500,000	0
	Sub-total of (5.2)						197,286,512	172,082,480	-25,204,032
	Total of (5)						312,033,596	286,829,564	-25,204,032
6	**INSPECTION ROAD**								
6.1	Embankment from borrow pit	cu.m	2,796	289	-2,507	103,151	288,410,196	29,810,639	-258,599,557
6.2	Subgrade	sq.m	1,398	2,191	793	28,757	40,202,286	63,006,587	22,804,301
6.3	Gravel pavement, t = 260 m/m	cu.m	365	0	-365	224,977	82,116,605	0	-82,116,605
6.4	Asphalt wearing surface, t = 5 cm	sq.m	1,398	1,615	217	115,000	160,770,000	185,725,000	24,955,000
6.5	Sodding	sq.m	2,551	1,287	-1,264	19,140	48,826,140	24,633,180	-24,192,960
6.6	Base Coarse, t = 260 m/m	cu.m		542	542	396,162	0	214,719,804	214,719,804
6.7	Asphalt wearing surface, t = 5 cm (for access road)	sq.m		573	573	147,913	0	84,754,149	84,754,149
	Total of (6)						620,325,227	602,649,359	-17,675,868
	Total of (1) - (6)						**9,269,808,958**	**9,103,861,335**	**-165,947,623**

Table 6.3 Breakdown of Priced Daywork

Item No.	Description	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment No.2	+/-		Original (Rp.)	Amendment No.2 (Rp.)	+/- (Rp.)
1	**Labour**								
1.1	Foreman	hrs	600	457	-143	9,750	5,850,000	4,455,750	-1,394,250
1.2	Skilled Labor	hrs	6,400	407	-5,993	8,250	52,800,000	3,357,750	-49,442,250
1.3	Common labor	hrs	800	2,086	1,286	6,750	5,400,000	14,080,500	8,680,500
1.4	Mason	hrs	2,000	312	-1,688	8,250	16,500,000	2,574,000	-13,926,000
1.5	Concrete worker	hrs	2,800	1,096	-1,704	6,750	18,900,000	7,398,000	-11,502,000
	Total of (1)						99,450,000	31,866,000	-67,584,000
2	**Materials**								
2.1	Sand bag including filling sand	pcs	250	0	-250	9,500	2,375,000	0	-2,375,000
2.2	Gravel	cu.m	60	46	-14	208,000	12,480,000	9,568,000	-2,912,000
2.3	Sand	cu.m	160	71	-89	162,500	26,000,000	11,537,500	-14,462,500
2.4	Cement (50 kg)	bag	1,400	626	-774	68,860	96,404,000	43,106,360	-53,297,640
2.5	Stone masonry	cu.m	220	93	-127	195,000	42,900,000	18,135,000	-24,765,000
2.6	Cobble stone (200 - 500 mm)	cu.m	200	0	-200	445,555	89,111,000	0	-89,111,000
2.7	Soil from borrow pit	cu.m	1,000	0	-1,000	62,000	62,000,000	0	-62,000,000
	Total of (2)						331,270,000	82,346,860	-248,923,140
3	**Constructional Plant**								
3.1	Giant breaker	hrs	18	5	-13	295,000	5,310,000	1,475,000	-3,835,000
3.2	Backhoe	hrs	90	18	-72	444,000	39,960,000	7,992,000	-31,968,000
3.3	Concrete mixer 0.3 cu.m	hrs	420	70	-350	13,400	5,628,000	938,000	-4,690,000
3.4	Concrete vibrator	hrs	420	11	-409	8,042	3,377,640	88,462	-3,289,178
	Su-total of (3)						54,275,640	10,493,462	-43,782,178
	Total of (1) - (3)						**484,995,640**	**124,706,322**	**-360,289,318**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (1/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
1	**GENERAL ITEMS**								
1.1	Progress photo and Survey works	L/S	1	1	0	12,500,000	12,500,000	12,500,000	0
1.2	Mobilization and Demobilization	L/S	1	1	0	45,305,000	45,305,000	45,305,000	0
	Total of (1)						**57,805,000**	**57,805,000**	**0**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (2/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
A.	**BK-R1 (Purus Outlet)**								
2	**PREPARATORY WORKS**								
2.1	Temporary coffering by steel sheet pile, including removal								
	- Type I (L=12m) :	m	40	30	-10	10,643,062	425,722,480	319,291,860	-106,430,620
2.2	Temporary coffering by sand bag, including removal	m	60	0	-60	964,837	57,890,220	0	-57,890,220
	- Purus Sluceway	m	20	0	-20	964,837	19,296,740	0	-19,296,740
	- around Purus	m	40	0	-40	964,837	38,593,480	0	-38,593,480
2.3	Demolishing of existing Slope Protection								
	including hauling of excavated material, L< 10 Km	cu.m	160	48	-112	81,785	13,085,600	3,925,680	-9,159,920
2.4	Temporary coffering by earth dam and sand bag,								
	including removal.	m		30	30	9,764,605	0	292,938,150	292,938,150
	Total of (2)						496,698,300	616,155,690	119,457,390
3	**SLOPE PROTECTION**								
3.1	Concrete cribe type								
3.1.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	503	245	-258	41,986	21,118,958	10,286,570	-10,832,388
3.1.2	Backfill from borrow pit	cu.m	503	245	-258	103,151	51,884,953	25,271,995	-26,612,958
3.1.3	Furnishing & driving Wooden pile, ø 150 m/m, L = 3.0m	nos	31	0	-31	61,930	1,919,830	0	-1,919,830
3.1.4	Concrete class B	cu.m	71	14	-57	947,257	67,255,247	13,261,598	-53,993,649
3.1.5	Concrete class C1	cu.m	4	2	-2	905,941	3,623,764	1,811,882	-1,811,882
3.1.6	Concrete class C2	cu.m	30	11	-19	905,941	27,178,230	9,965,351	-17,212,879
3.1.7	Lean concrete	cu.m	4	0	-4	817,608	3,270,432	0	-3,270,432
3.1.8	Reinforcement steel bar	kg	5042	1331	-3711	15,022	75,740,924	19,994,282	-55,746,642
3.1.9	Form work	sq.m	302	89	-213	301,994	91,202,188	26,877,466	-64,324,722
3.1.10	Elastic filler, t = 10 m/m	sq.m	8.0	5.0	-3.0	177,941	1,423,528	889,705	-533,823
3.1.11	Asphalt sealing	cu.m	0.10	0.02	-0.08	5,137,500	513,750	102,750	-411,000
3.1.12	Gravel backfill	cu.m	60	21	-39	156,593	9,395,580	3,288,453	-6,107,127
3.1.13	Cobble stone, dia. 150 m/m - 200 m/m								
	including filling concrete class C2	cu.m	59	20	-39	898,525	53,012,975	17,970,500	-35,042,475
3.1.14	Weep hole ø 50 m/m, L = 1.11 m	nos	32	0	-32	80,118	2,563,776	0	-2,563,776
3.1.15	Furnishing & driving steel sheet pile								
	- Furnishing	m		16	16	1,178,640	0	18,858,240	18,858,240
	- Driving	m		16	16	67,659	0	1,082,544	1,082,544
	Total of (3)						410,104,135	149,661,336	-260,442,799
4	**SLUICEWAY**								
4.5	Concrete class B	cu.m	9	2	-7	947,257	8,525,313	1,894,514	-6,630,799
4.7	Lean concrete	cu.m	2	0	-2	817,608	1,635,216	0	-1,635,216
4.8	Reinforcement steel bar	kg	652	144	-508	15,022	9,794,344	2,163,168	-7,631,176
4.9	Form work	sq.m	52	10	-42	301,994	15,703,688	3,019,940	-12,683,748
4.10	Elastic filler, t = 10 m/m	sq.m	2.0	0.0	-2.0	177,941	355,882	0	-355,882
4.11	Water stop w =300 m/m, t = 10 m/m	m	4.0	0.0	-4.0	239,420	957,680	0	-957,680
4.16	Steel ladder ø 19	kg	18	0	-18	44,600	802,800	0	-802,800
4.18	Service and Repairing Slide Gate Work	set		2	2	68,250,000	0	136,500,000	136,500,000
	Total of (4)						37,774,923	143,577,622	105,802,699
6	**INSPECTION ROAD**								
6.1	Embankment from borrow pit	cu.m	300	50	-250	103,151	30,945,300	5,157,550	-25,787,750
6.2	Subgrade	sq.m	150	277	127	28,757	4,313,550	7,965,689	3,652,139
6.3	Gravel pavement, t = 260 m/m	cu.m	39	0	-39	224,977	8,774,103	0	-8,774,103
6.4	Asphalt wearing surface, t = 5 cm	sq.m	150	277	127	115,000	17,250,000	31,855,000	14,605,000
6.5	Sodding	sq.m	274	0	-274	19,140	5,244,360	0	-5,244,360
6.6	Base Coarse class A, t = 260 m/ m	cu.m		45	45	396,162	0	17,827,290	17,827,290
	Total of (6)						66,527,313	62,805,529	-3,721,784
	TOTAL OF A. (BK-R1, Purus)						**1,011,104,671**	**972,200,177**	**-38,904,494**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (3/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
B.	**BK-R3 (Parak Kopi Footpath Bridge)**								
5	**PARAK KOPI BRIDGE**								
5.1	Re-erection of PC Girder	L/S	1	1	0	114,747,084	114,747,084	114,747,084	0
	Sub-total of (5.1)						114,747,084	114,747,084	0
5.2	Structure Works								
5.2.1	Concrete class B	cu.m	2	2	0	947,257	1,894,514	1,894,514	0
5.2.2	Form work	sq.m	8	8	0	301,994	2,415,952	2,415,952	0
5.2.3	Reinforcement steel bar D13-D25 (SD345)	kg	274	520	246	37,150	10,179,100	19,318,000	9,138,900
5.2.4	Reinforcement steel bar D29-D51 (SD345)	kg	226	0	-226	37,150	8,395,900	0	-8,395,900
5.2.5	Steel Bracket,Plate PL,SS400	kg	1216	1104	-112	62,601	76,122,816	69,111,504	-7,011,312
5.2.6	Steel Bracket,DB,NT,WS	kg	224	124	-100	54,000	12,096,000	6,696,000	-5,400,000
5.2.7	Anchor Drilling Hole Æ45,L=0.625 m	m	20	0	-20	1,369,636	27,392,720	0	-27,392,720
5.2.8	Anchor Drilling Hole Æ39,L=0.445 m	m	17	0	-17	1,097,000	18,649,000	0	-18,649,000
5.2.9	Anchor Drilling Hole Æ32,L=0.640 m	m	20	51	31	956,000	19,120,000	48,756,000	29,636,000
5.2.10	Weld (Filet Weld 7 mm)	m	39	54	15	200,000	7,800,000	10,800,000	3,000,000
5.2.11	Expansion Rubber,400x150x50(Polycholoropren)	sheet	2	2	0	1,000,000	2,000,000	2,000,000	0
5.2.12	Expansion Rubber,700x150x50(Polycholoropren)	sheet	2	2	0	1,500,000	3,000,000	3,000,000	0
5.2.13	Shoe, Rubber Bearing Pad 400x400x30	pcs	2	2	0	1,200,000	2,400,000	2,400,000	0
5.2.14	Stapling (13x22x200 cm)	cu.m	2	2	0	900,000	1,800,000	1,800,000	0
5.2.15	Chipping concrete	sq.m	9	8	-1	130,000	1,170,000	1,040,000	-130,000
5.2.16	Support	L/S	1	1	0	350,510	350,510	350,510	0
5.2.17	Scaffold work	L/S	1	1	0	2,500,000	2,500,000	2,500,000	0
	Sub-total of (5.2)						197,286,512	172,082,480	-25,204,032
	Total of (5)						312,033,596	286,829,564	-25,204,032
	TOTAL OF B. (Parak Kopi Footpath Bridge)						**312,033,596**	**286,829,564**	**-25,204,032**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (4/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
C.	**KR-R1 (Near Confluence of Balimbing, Left)**								
2	**PREPARATORY WORKS**								
2.1	Temporary coffering by steel sheet pile, including removal								
	- Type I (L=12m)	m	32	32	0	10,643,062	340,577,984	340,577,984	0
2.2	Temporary coffering by sand bag, including removal	m	10	10	0	964,837	9,648,370	9,648,370	0
2.3	Demolishing of existing Slope Protection								
	including hauling of excavated material, L< 10 Km	cu.m	187	188	1	81,785	15,293,795	15,375,580	81,785
	Total of (2)						365,520,149	365,601,934	81,785
3	**SLOPE PROTECTION**								
3.2	Wet masonry type								
3.2.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	520	545	25	41,986	21,832,720	22,882,370	1,049,650
3.2.2	Backfill from borrow pit	cu.m	520	545	25	103,151	53,638,520	56,217,295	2,578,775
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	26	23	-3	61,930	1,610,180	1,424,390	-185,790
3.2.4	Concrete class B	cu.m	14	14	0	947,257	13,261,598	13,261,598	0
3.2.5	Concrete class C1	cu.m	6	18	12	905,941	5,435,646	16,306,938	10,871,292
3.2.6	Concrete class C2	cu.m	32	28	-4	905,941	28,990,112	25,366,348	-3,623,764
3.2.7	Lean concrete	cu.m	34	32	-2	817,608	27,798,672	26,163,456	-1,635,216
3.2.8	Reinforcement steel bar	kg	1292	1301	9	15,022	19,408,424	19,543,622	135,198
3.2.9	Form work	sq.m	134	103	-31	301,994	40,467,196	31,105,382	-9,361,814
3.2.10	Elastic filler, t = 10 m/m	sq.m	19.0	11.3	-7.7	177,941	3,380,879	2,010,734	-1,370,145
3.2.11	Asphalt sealing	cu.m	0.20	0.10	-0.10	5,137,500	1,027,500	513,750	-513,750
3.2.12	Wet Masonry	cu.m	63	56	-7	669,907	42,204,141	37,514,792	-4,689,349
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	34	30	-4	80,118	2,724,012	2,403,540	-320,472
3.2.14	Geotextile	sq.m	258	193	-65	29,622	7,642,476	5,717,046	-1,925,430
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	137	138	1	445,555	61,041,035	61,486,590	445,555
	Total of (3)						330,463,111	321,917,851	-8,545,260
4	**SLUICEWAY**								
4.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	76	66	-10	41,986	3,190,936	2,771,076	-419,860
4.2	Backfill from borrow pit	cu.m	76	66	-10	103,151	7,839,476	6,807,966	-1,031,510
4.3	Furnishing & driving wooden pile ø 150 m/m, L = 4.0 m	nos	69	69	0	82,573	5,697,537	5,697,537	0
4.4	Furnishing & driving steel sheet pile (YSP II, L = 2.0 m)								
	- Furnishing	m	38	38	0	1,178,640	44,788,320	44,788,320	0
	- Driving	m	38	38	0	67,659	2,571,042	2,571,042	0
4.5	Concrete class B	cu.m	77	75	-2	947,257	72,938,789	71,044,275	-1,894,514
4.6	Later stage concrete, class B	cu.m	2	1	-1	947,257	1,894,514	947,257	-947,257
4.7	Lean concrete	cu.m	13	9	-4	817,608	10,628,904	7,358,472	-3,270,432
4.8	Reinforcement steel bar	kg	8337	7860	-477	15,022	125,238,414	118,072,920	-7,165,494
4.9	Form work	sq.m	255	233	-22	301,994	77,008,470	70,364,602	-6,643,868
4.10	Elastic filler, t = 10 m/m	sq.m	4.0	0.0	-4.0	177,941	711,764	0	-711,764
4.11	Water stop w =300 m/m, t = 10 m/m	m	11.0	10.3	-0.7	239,420	2,633,620	2,466,026	-167,594
4.12	Wet masonry	cu.m	62	77	15	669,907	41,534,234	51,582,839	10,048,605
4.13	Gravel backfill	cu.m	458	314	-144	156,593	71,719,594	49,170,202	-22,549,392
4.14	Weep hole ø 50m/m, L = 0.60m	nos	5	0	-5	80,118	400,590	0	-400,590
4.15	Hand rail, SGP 50	m	4	3	-1	450,000	1,800,000	1,350,000	-450,000
4.16	Steel ladder ø 19	kg	19	15	-4	44,600	847,400	669,000	-178,400
4.17	Slide gate, 2.5m x 2.0m	nos	1	1	0	100,634,600	100,634,600	100,634,600	0
4.19	Flap Gate, dia. 1,100 m/m	set		1	1	23,360,000	0	23,360,000	23,360,000
	Total of (4)						572,078,204	559,656,134	-12,422,070
6	**INSPECTION ROAD**								
6.1	Embankment from borrow pit	cu.m	252	52	-200	103,151	25,994,052	5,363,852	-20,630,200
6.2	Subgrade	sq.m	126	174	48	28,757	3,623,382	5,003,718	1,380,336
6.3	Gravel pavement, t = 260 m/m	cu.m	33	0	-33	224,977	7,424,241	0	-7,424,241
6.4	Asphalt wearing surface, t = 5 cm	sq.m	126	174	48	115,000	14,490,000	20,010,000	5,520,000
6.5	Sodding	sq.m	230	181	-49	19,140	4,402,200	3,464,340	-937,860
6.6	Base Coarse class A, t = 260 m/ m	cu.m		45	45	396,162	0	17,827,290	17,827,290
	Total of (6)						55,933,875	51,669,200	-4,264,675
	TOTAL OF C. (near Confluence of Balimbing, Left)						**1,323,995,339**	**1,298,845,119**	**-25,150,220**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (5/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
D.	**KR-R2 (D/S Nanggalo Bridge, Right)**								
2	**PREPARATORY WORKS**								
2.1	Temporary coffering by steel sheet pile, including removal								
	- Type II (L=8m)	m	90	90	0	7,307,628	657,686,520	657,686,520	0
2.2	Temporary coffering by sand bag, including removal	m	10	10	0	964,837	9,648,370	9,648,370	0
2.3	Demolishing of existing Slope Protection								
	including hauling of excavated material, L< 10 Km	cu.m	370	606	236	81,785	30,260,450	49,561,710	19,301,260
	Total of (2)						697,595,340	716,896,600	19,301,260
3	**SLOPE PROTECTION**								
3.2	Wet masonry type								
3.2.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	1561	1641	80	41,986	65,540,146	68,899,026	3,358,880
3.2.2	Backfill from borrow pit	cu.m	1561	1641	80	103,151	161,018,711	169,270,791	8,252,080
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	69	63	-6	61,930	4,273,170	3,901,590	-371,580
3.2.4	Concrete class B	cu.m	40	40	0	947,257	37,890,280	37,890,280	0
3.2.5	Concrete class C1	cu.m	16	14	-2	905,941	14,495,056	12,683,174	-1,811,882
3.2.6	Concrete class C2	cu.m	106	99	-7	905,941	96,029,746	89,688,159	-6,341,587
3.2.7	Lean concrete	cu.m	114	109	-5	817,608	93,207,312	89,119,272	-4,088,040
3.2.8	Reinforcement steel bar	kg	3934	4172	238	15,022	59,096,548	62,671,784	3,575,236
3.2.9	Form work	sq.m	392	329	-63	301,994	118,381,648	99,356,026	-19,025,622
3.2.10	Elastic filler, t = 10 m/m	sq.m	64.0	42.1	-21.9	177,941	11,388,224	7,491,316	-3,896,908
3.2.11	Asphalt sealing	cu.m	0.40	0.37	-0.03	5,137,500	2,055,000	1,900,875	-154,125
3.2.12	Wet Masonry	cu.m	212	193	-19	669,907	142,020,284	129,292,051	-12,728,233
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	95	120	25	80,118	7,611,210	9,614,160	2,002,950
3.2.14	Geotextile	sq.m	615	497	-118	29,622	18,217,530	14,722,134	-3,495,396
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	361	354	-7	445,555	160,845,355	157,726,470	-3,118,885
	Total of (3)						992,070,220	954,227,108	-37,843,112
6	**INSPECTION ROAD**								
6.1	Embankment from borrow pit	cu.m	600	68	-532	103,151	61,890,600	7,014,268	-54,876,332
6.2	Subgrade	sq.m	300	336	36	28,757	8,627,100	9,662,352	1,035,252
6.3	Gravel pavement, t = 260 m/m	cu.m	78	0	-78	224,977	17,548,206	0	-17,548,206
6.4	Asphalt wearing surface, t = 5 cm	sq.m	300	336	36	115,000	34,500,000	38,640,000	4,140,000
6.5	Sodding	sq.m	547	209	-338	19,140	10,469,580	4,000,260	-6,469,320
6.6	Base Coarse class A, t = 260 m/m	cu.m		87	87	396,162	0	34,466,094	34,466,094
	Total of (6)						133,035,486	93,782,974	-39,252,512
	TOTAL OF D. (D/S of Nanggalo Bridge, Right)						**1,822,701,046**	**1,764,906,682**	**-57,794,364**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (6/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
E.	**KR-R4 (U/S Nanggalo Bridge, Left - 1)**								
2	**PREPARATORY WORKS**								
2.1	Temporary coffering by steel sheet pile, including removal								
	- Type II (L=8m)	m	88	88	0	7,307,628	643,071,264	643,071,264	0
2.2	Temporary coffering by sand bag, including removal	m	8	8	0	964,837	7,718,696	7,718,696	0
2.3	Demolishing of existing Slope Protection								
	including hauling of excavated material, L< 10 Km	cu.m	299	333	34	81,785	24,453,715	27,234,405	2,780,690
	Total of (2)						675,243,675	678,024,365	2,780,690
3	**SLOPE PROTECTION**								
3.2	Wet masonry type								
3.2.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	1422	1645	223	41,986	59,704,092	69,066,970	9,362,878
3.2.2	Backfill from borrow pit	cu.m	1422	1645	223	103,151	146,680,722	169,683,395	23,002,673
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	79	56	-23	61,930	4,892,470	3,468,080	-1,424,390
3.2.4	Concrete class B	cu.m	39	36	-3	947,257	36,943,023	34,101,252	-2,841,771
3.2.5	Concrete class C1	cu.m	15	14	-1	905,941	13,589,115	12,683,174	-905,941
3.2.6	Concrete class C2	cu.m	86	99	13	905,941	77,910,926	89,688,159	11,777,233
3.2.7	Lean concrete	cu.m	93	109	16	817,608	76,037,544	89,119,272	13,081,728
3.2.8	Reinforcement steel bar	kg	3209	3527	318	15,022	48,205,598	52,982,594	4,776,996
3.2.9	Form work	sq.m	353	282	-71	301,994	106,603,882	85,162,308	-21,441,574
3.2.10	Elastic filler, t = 10 m/m	sq.m	43.0	30.0	-13.0	177,941	7,651,463	5,338,230	-2,313,233
3.2.11	Asphalt sealing	cu.m	0.30	0.24	-0.06	5,137,500	1,541,250	1,233,000	-308,250
3.2.12	Wet Masonry	cu.m	171	198	27	669,907	114,554,097	132,641,586	18,087,489
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	92	70	-22	80,118	7,370,856	5,608,260	-1,762,596
3.2.14	Geotextile	sq.m	593	479	-114	29,622	17,565,846	14,188,938	-3,376,908
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	375	341	-34	445,555	167,083,125	151,934,255	-15,148,870
	Total of (3)						886,334,009	916,899,473	30,565,464
6	**INSPECTION ROAD**								
6.1	Embankment from borrow pit	cu.m	582	44	-538	103,151	60,033,882	4,538,644	-55,495,238
6.2	Subgrade	sq.m	291	289	-2	28,757	8,368,287	8,310,773	-57,514
6.3	Gravel pavement, t = 260 m/m	cu.m	76	0	-76	224,977	17,098,252	0	-17,098,252
6.4	Asphalt wearing surface, t = 5 cm	sq.m	291	289	-2	115,000	33,465,000	33,235,000	-230,000
6.5	Sodding	sq.m	531	291	-240	19,140	10,163,340	5,569,740	-4,593,600
6.6	Base Coarse class A, t = 260 m/m	cu.m		75	75	396,162	0	29,712,150	29,712,150
	Total of (6)						129,128,761	81,366,307	-47,762,454
	TOTAL OF E (U/S Nanggalo Bridge, Left - 1)						**1,690,706,445**	**1,676,290,145**	**-14,416,300**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (7/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
F.	**KR-R5 (U/S Nanggalo Bridge, Left - 2)**								
2	**PREPARATORY WORKS**								
2.1	Temporary coffering by steel sheet pile, including removal								
	- Type II (L=8m)	m	16	13	-3	7,307,628	116,922,048	94,999,164	-21,922,884
2.2	Temporary coffering by sand bag, including removal	m	8	16	8	964,837	7,718,696	15,437,392	7,718,696
2.3	Demolishing of existing Slope Protection								
	including hauling of excavated material, L< 10 Km	cu.m	53	58	5	81,785	4,334,605	4,743,530	408,925
	Total of (2)						128,975,349	115,180,086	-13,795,263
3	**SLOPE PROTECTION**								
3.2	Wet masonry type								
3.2.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	251	287	36	41,986	10,538,486	12,049,982	1,511,496
3.2.2	Backfill from borrow pit	cu.m	251	235	-16	103,151	25,890,901	24,240,485	-1,650,416
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	16	0	-16	61,930	990,880	0	-990,880
3.2.4	Concrete class B	cu.m	7	10	3	947,257	6,630,799	9,472,570	2,841,771
3.2.5	Concrete class C1	cu.m	3	2	-1	905,941	2,717,823	1,811,882	-905,941
3.2.6	Concrete class C2	cu.m	16	12	-4	905,941	14,495,056	10,871,292	-3,623,764
3.2.7	Lean concrete	cu.m	17	12	-5	817,608	13,899,336	9,811,296	-4,088,040
3.2.8	Reinforcement steel bar	kg	566	473	-93	15,022	8,502,452	7,105,406	-1,397,046
3.2.9	Form work	sq.m	63	54	-9	301,994	19,025,622	16,307,676	-2,717,946
3.2.10	Elastic filler, t = 10 m/m	sq.m	8.0	10.0	2.0	177,941	1,423,528	1,779,410	355,882
3.2.11	Asphalt sealing	cu.m	0.10	0.09	-0.01	5,137,500	513,750	462,375	-51,375
3.2.12	Wet Masonry	cu.m	31	23	-8	669,907	20,767,117	15,407,861	-5,359,256
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	17	8	-9	80,118	1,362,006	640,944	-721,062
3.2.14	Geotextile	sq.m	105	86	-19	29,622	3,110,310	2,547,492	-562,818
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	67	61	-6	445,555	29,852,185	27,178,855	-2,673,330
	Total of (3)						159,720,251	139,687,526	-20,032,725
6	**INSPECTION ROAD**								
6.1	Embankment from borrow pit	cu.m	150	21	-129	103,151	15,472,650	2,166,171	-13,306,479
6.2	Subgrade	sq.m	75	638	563	28,757	2,156,775	18,346,966	16,190,191
6.3	Gravel pavement, t = 260 m/m	cu.m	20	0	-20	224,977	4,499,540	0	-4,499,540
6.4	Asphalt wearing surface, t = 5 cm	sq.m	75	65	-10	115,000	8,625,000	7,475,000	-1,150,000
6.5	Sodding	sq.m	137	181	44	19,140	2,622,180	3,464,340	842,160
6.6	Base Coarse class A, t = 260 m/m	cu.m		166	166	396,162	0	65,762,892	65,762,892
6.7	Asphalt wearing surface, t = 5 cm (new)	sq.m		573	573	147,913	0	84,754,149	84,754,149
	Total of (6)						33,376,145	181,969,518	148,593,373
	TOTAL OF F (U/S Nanggalo Bridge, Left - 2)						**322,071,745**	**436,837,130**	**114,765,385**

Table 6.4 Breakdown of Priced Bill of Quantities for Each Site (8/8)

ITEM NO.	DESCRIPTION	Unit	Quantity			Unit Price (Rp.)	Amount		
			Original	Amendment	+/-		Original (Rp.)	Amendment (Rp.)	+/- (Rp.)
G.	**BL-R1 (D/S Tunggul Titam Bridge, Right)**								
2	**PREPARATORY WORKS**								
2.1	Temporary coffering by steel sheet pile, including removal								
	- Type II (L=8m)	m	142	142	0	7,307,628	1,037,683,176	1,037,683,176	0
2.2	Temporary coffering by sand bag, including removal	m	8	8	0	964,837	7,718,696	7,718,696	0
2.3	Demolishing of existing Slope Protection								
	including hauling of excavated material, L< 10 Km	cu.m	420	450	30	81,785	34,349,700	36,803,250	2,453,550
	Total of (2)						1,079,751,572	1,082,205,122	2,453,550
3	**SLOPE PROTECTION**								
3.2	Wet masonry type								
3.2.1	Structural excavation including hauling of								
	excavated material, L < 10 Km	cu.m	2,410	1,770	-640	41,986	101,186,260	74,315,220	-26,871,040
3.2.2	Backfill from borrow pit	cu.m	2,410	2,760	350	103,151	248,593,910	284,696,760	36,102,850
3.2.3	Furnishing & driving wooden pile ø 150 m/m, L = 3.0 m	nos	107	99	-8	61,930	6,626,510	6,131,070	-495,440
3.2.4	Concrete class B	cu.m	63	59	-4	947,257	59,677,191	55,888,163	-3,789,028
3.2.5	Concrete class C1	cu.m	24	23	-1	905,941	21,742,584	20,836,643	-905,941
3.2.6	Concrete class C2	cu.m	121	133	12	905,941	109,618,861	120,490,153	10,871,292
3.2.7	Lean concrete	cu.m	132	147	15	817,608	107,924,256	120,188,376	12,264,120
3.2.8	Reinforcement steel bar	kg	5,837	6,112	275	15,022	87,683,414	91,814,464	4,131,050
3.2.9	Form work	sq.m	579	476	-103	301,994	174,854,526	143,749,144	-31,105,382
3.2.10	Elastic filler, t = 10 m/m	sq.m	72.0	48.1	-23.9	177,941	12,811,752	8,558,962	-4,252,790
3.2.11	Asphalt sealing	cu.m	0.50	0.37	-0.13	5,137,500	2,568,750	1,900,875	-667,875
3.2.12	Wet Masonry	cu.m	241	263	22	669,907	161,447,587	176,185,541	14,737,954
3.2.13	Weep hole ø 50 m/m, L = 1.11 m	nos	150	142	-8	80,118	12,017,700	11,376,756	-640,944
3.2.14	Geotextile	sq.m	968	784	-184	29,622	28,674,096	23,223,648	-5,450,448
3.2.15	Riprap of cobble stone (200 - 500 mm)	cu.m	700	578	-122	445,555	311,888,500	257,530,790	-54,357,710
	Total of (3)						1,447,315,897	1,396,886,565	-50,429,332
6	**INSPECTION ROAD**								
6.1	Embankment from borrow pit	cu.m	912	54	-858	103,151	94,073,712	5,570,154	-88,503,558
6.2	Subgrade	sq.m	456	477	21	28,757	13,113,192	13,717,089	603,897
6.3	Gravel pavement, t = 260 m/m	cu.m	119	0	-119	224,977	26,772,263	0	-26,772,263
6.4	Asphalt wearing surface, t = 5 cm	sq.m	456	474	18	115,000	52,440,000	54,510,000	2,070,000
6.5	Sodding	sq.m	832	425	-407	19,140	15,924,480	8,134,500	-7,789,980
6.6	Base Coarse class A, t = 260 m/m	cu.m		124	124	396,162	0	49,124,088	49,124,088
	Total of (6)						202,323,647	131,055,831	-71,267,816
	TOTAL OF G (D/S Tunggul Hitam Bridge, Right)						**2,729,391,116**	**2,610,147,518**	**-119,243,598**
	Total of (A) - (G)						**9,212,003,958**	**9,046,056,335**	**-165,947,623**

6.2 Disbursement

Payment of the Works was made based on the statement of performance certified by the Employer. Contract amount and payment are summarized below:

Table 6.5 Disbursement Record of the Works

Item	Amount of progress from previous request (Rp.)	Reimbursement of Advance Payment (Rp.)	Deduction for Retention (Rp.)	Payment Request (Rp.)
Original Contract	-	-	-	9,754,804,598
Amendment No.2	-	-	-	9,228,567,657
Advance Payment (on 31/May/2010)	-	-	-	1,950,960,920
1st Progress Payment (up to 17/Oct/2010): on 18/Oct/2010	3,153,034,566	788,258,642	157,651,728	2,207,124,196
2nd Progress payment up to 12/Dec/2010): on 14/Dec/2010	2,864,392,287	716,098,072	143,219,614	2,005,074,601
3rd Progress payment (up to 12/Feb/2011): on 18/Feb/2011	3,211,140,804	446,604,206	160,557,041	2,603,979,557
Repayment of half of total amount retained: on 18/Feb/2011				230,714,191
Final Payment: on 12/Aug/2011	-	-	-	230,714,192
Total of Payment	9,228,567,657	1950,960,920	461,428,383	9,228,567,657

Half the total amount retained was repaid on completion of the Works and the remaining half will be repaid in August 2011 after the Defects Notice Period in accordance with the contract.

7. GUIDANCE OF OPERATION AND MAINTENANCE OF RIVER FACILITIES

In order to maintain the function of water resources facilities, proper operation and maintenance (O & M) of the facilities are indispensable. All of the documents and data of the rehabilitation works were transferred to the agencies concerned through members of the Project Working Group as the reference for the O & M activities. Further, repair works for minor damages of the facilities were planned and conducted with the members of the Project Working Group during the rehabilitation works by using the daywork of the construction contract, in order to guide the repair works of the O & M of the facilities.

In addition to the above, the JICA Consultant Team summarized the present condition of rivers and recommendation on the O & M of the rivers as described below:

7.1 Present Condition of Rivers and River Structures

The present rivers in Padang City were improved during a period from 1990 to 2002. After the improvement, the river conditions were changed. Based on the visual inspection results, the present riverbed conditions of rivers are summarized in Figure 7.1 and the present conditions of rivers and river structures are described hereunder:

(1) Arau River

River channel and river structures are maintained in good condition. The river bed might be lowered at about 0.0 to 0.3 m. There are many mooring boats around river mouth. Abandoned mooring boats might be a problem on O & M.

(2) Jirak River

The river bed seemed to be lowered from the design elevation with about 0.5 to 1.0m in the stretches from the confluence with the Arau River to the railway bridge. Due to this riverbed degradation, the slope protection works were damaged partially.

(3) Flood Relief Channel

The riverbed from the river mouth to the Andalas II dropstructure is slightly lowered with about 0.0 to 0.5m. The structures in this stretch are in good condition, except the structures damaged by the earthquake around river mouth.
The riverbed from Andalas II dropstructure to the Diversion weir is lowered with about 0.5 to 1.0m. The structures of this stretch are in good condition. However, minor damages can be seen in slope protection works.
There are some illegal garbage dumps along the inspection road.

(4) Kuranji River

The riverbed of the Kuranji River is lowered in the whole stretches. The degradation of the riverbed from the design riverbed elevation is at about 0.0 to 0.5 m from river mouth to the confluence of the Balimbing River, at about 0.5 to 1.0 m from the confluence to the PDAM Weir, and at more than 1.0m in the upper reaches of the PDAM Weir. Local scouring happens at the outer bend of the meandering.
Due to the remarkable riverbed degradation, the facilities of the Kuranji river suffered the

damages by the off Padang earthquake. Severely damaged facilities were rehabilitated the Project. However, minor damages of the facilities still remain.
Although the material extraction activities was reduced compared to the past, some activities still remain in the upper reaches of the Kuranji River.
In addition, there are some illegal garbage dumps along the inspection road.

(5) Balimbing River

The riverbed of the Balimbing River is rather stable at present. However, the river facilities suffered the damages by the earthquake. Before the improvement, the Balimbing River had many meanderings and those meanderings were corrected by the river improvement. Such correction works might affect damages by the earthquake. Severely damaged facilities were rehabilitated by the Project. However, minor damages of the facilities still remain.

(6) Air Dingin River.

The riverbed degradation is remarkable in the upper stretches. The rivebed from the railway bridge to the end of slope protection works is lowered with about 0.5 to 1.0 m. Upper stretches are lowered with more than 1.0m.
There are few structure damages by the earthquake. However, structural damages due to the riverbed degradation can be seen along the river.

(7) Drainage Channels

Drainage channels in Padang City were also improved during the Padang Area Flood Control Project (I) and (II). Those channels and facilities are in good condition except sedimentation and damages by the earthquake. The dike around the Ulak Karang and Ujung Gurun and Baung collecting ponds are severely damaged by the earthquake.

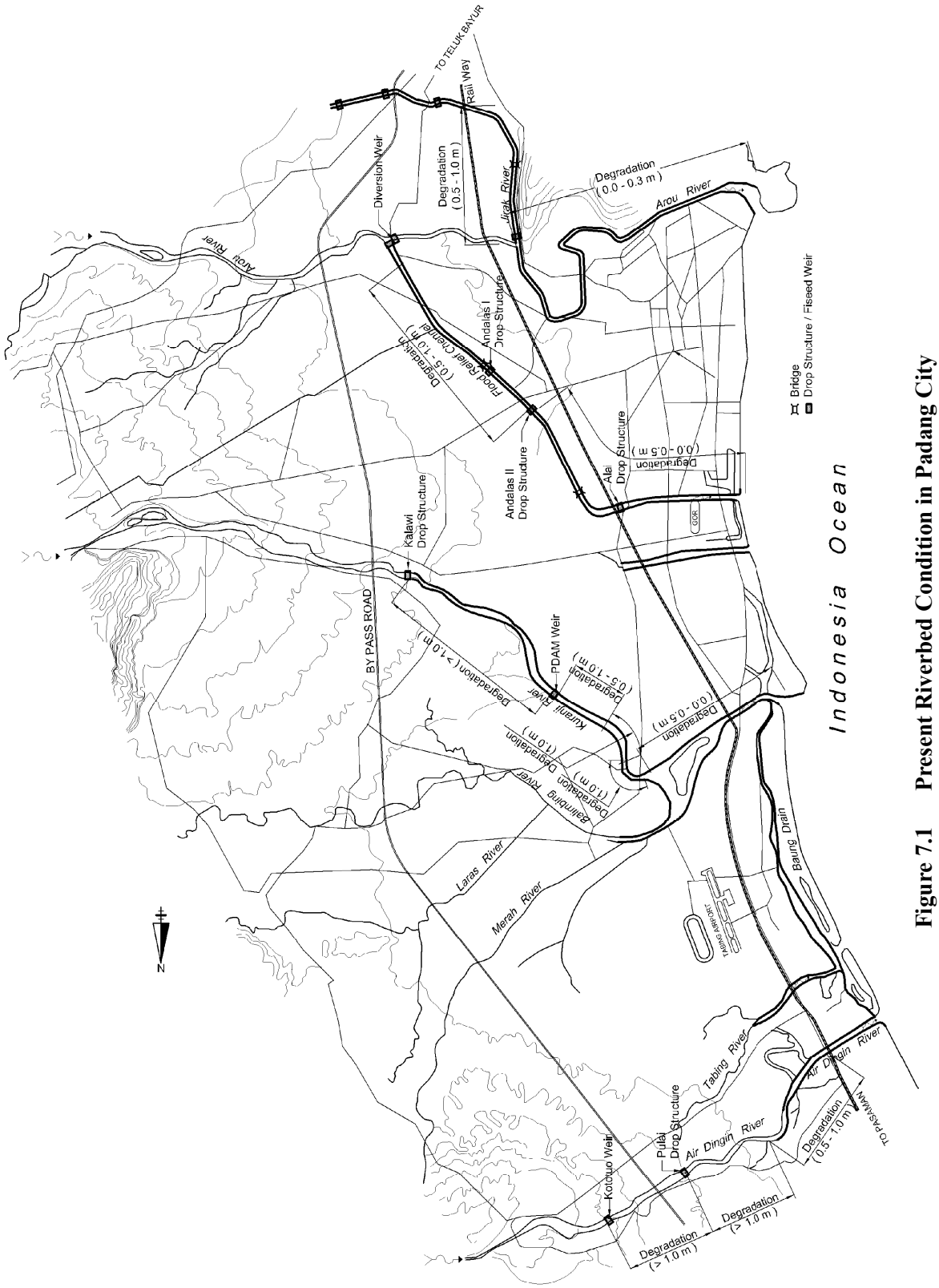


Figure 7.1 Present Riverbed Condition in Padang City

7.2 Recommendation on Operation and Maintenance

Based on the present condition of rivers and river structures and the experiences of this rehabilitation works, it is recommended that special attention during the inspection shall be paid to the structures shown in Figure 7.2. Background of the recommendation is described as follows:

Table 7.1 Structure to be paid Attention during Inspection (1/2)

River	Arau River
Structure/ Condition	Structure: Diversion weir Condition: Special attention shall be paid to the diversion weir, especially to the stilling basin. If the diversion weir is broken, the all flood discharge will flow into the Arau River.
River	Jirak River
Structure/ Condition	Structure: Dike/slope protection work/dropstructure between the confluence with the Arau River and railway bridge Condition: Due to the riverbed degradation and the earthquake, the structures in this stretch have the minor damages. Among them, the dropstructure at the confluence is the trunk facility of the river. If dropstructure flush away, the other structures will be also damaged seriously.
River	Flood Relief Channel
Structure/ Condition	Structure: Dike/slope protection/sluice around river mouth Condition: Due to the soil condition around river mouth, the structures have weakness of the earthquake. If there is damage after flood or earthquake, temporary works should be done by use of sand bags, cobble stones, etc. Structure: Dike/slope protection/dropstructure around Alai dropstructure Condition: The stilling basin of the Alai dropstructure has damage slightly. In addition, there is local scouring at the outer bend of stream. Structure: Dike/slope protection/dropstructure from Andalas Dropstructure II to diversion weir Condition: The riverbed degradation is remarkable in this stretch.

Table 7.1 Structure to be paid Attention during Inspection (2/2)

River	Kuranji River
Structure/ Condition	Structure: Dike/slope protection/sluice from river mouth to confluence of Balimbing River Condition: Many structures have minor damages caused by the earthquake. In addition, riverbed degradation in the upstream reaches will progress to the downstream. Structure: Dike/slope protection/weir from the confluence of the Balimbing River to PDAM weir Condition: Riverbed degradation is remarkable in this stretch. Special attention shall be paid to the bank at the outer bend and to the downstream side of the PDAM weir. Structure: Kalawi dropstructure Condition: Riverbed degradation at the downstream side of the dropstructure is remarkable. If the dropstructure is washed away, the bridges at the upper reaches will be also washed out.
River	Balimbing River
Structure/ Condition	Structure: Dike/slope protection around Tunggul Hitam Bridge Condition: Due to the geological condition, the structures might be affected by the earthquake. Therefore, special attention shall be paid.
River	Air Dingin River
Structure/ Condition	Structure: Dike/slope protection from the railway bridge to end of slope protection work Condition: Due to the riverbed degradation, the strutures are in instable condition. In addition, the structure has minor damaged cause by the earthquake. Structure: Pulai Dropstructure Condition: The dropstructure has damages partly due to the riverbed degradation. Repair and installation of the stilling basin will be required near future. If the dropstrucure is washed out, the Bypass bridge will be washed out. Structure: Koto Tuo weir Condition: The weir are newly rehabilitated by the Padang City. However, the riverbed degradation at the downstream side is progressing rapidly. Special attention to this structure is required.

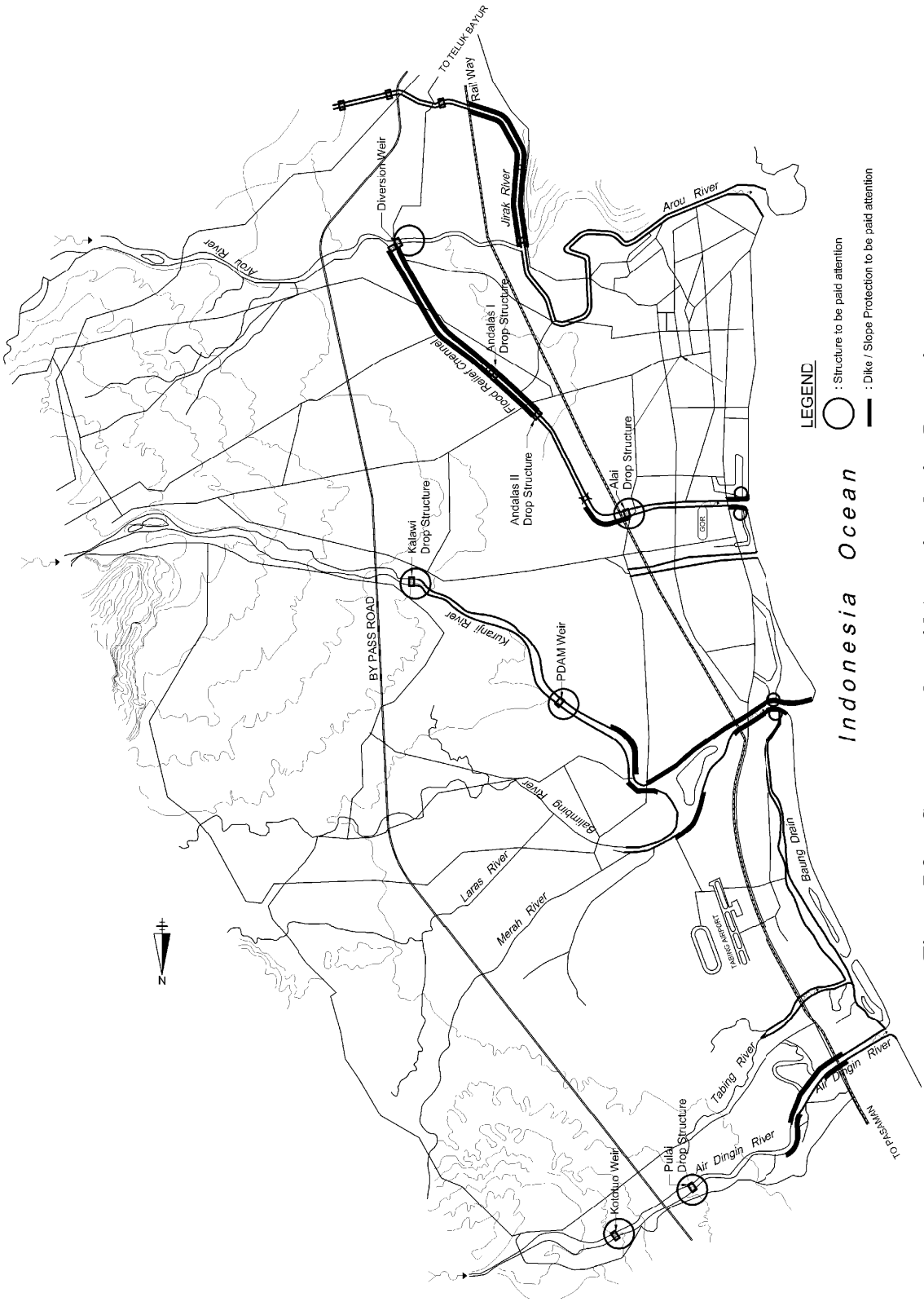


Figure 7.2 Structure to be paid Attention during Inspection