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## 資料 1. 調査団員・氏名

### 1-1 基本設計調査団

|    | 氏 名   | 担 当             | 所 属                                |
|----|-------|-----------------|------------------------------------|
| 1. | 大村 良樹 | 総括              | 独立行政法人国際協力機構<br>国際協力専門員            |
| 2. | 池浦 弘  | 計画管理            | 独立行政法人国際協力機構<br>資金協力支援部準備室 事業調査第三課 |
| 3. | 森 建彦  | 業務主任／導水施設整備計画   | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第2部 顧問   |
| 4. | 高橋 徹  | 管路設計            | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第2部 課長   |
| 5. | 山川 精一 | 河川工学／落石・転石対策    | 有限会社アールディーアイ<br>開発部 主任研究員          |
| 6. | 駒田 文彦 | 環境社会配慮／運営維持管理計画 | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第2部 顧問   |
| 7. | 広田 浩介 | 施工・調達計画／積算      | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第1部 主幹   |

### 1-2 基本設計追加調査団

|    | 氏 名  | 担 当     | 所 属                              |
|----|------|---------|----------------------------------|
| 1. | 高橋 徹 | 施設計画    | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第2部 課長 |
| 2. | 千田 勉 | 土木構造物設計 | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第2部 顧問 |

### 1-3 基本設計概要説明調査団

|    | 氏 名   | 担 当      | 所 属                              |
|----|-------|----------|----------------------------------|
| 1. | 榎本 宏  | 総括       | 独立行政法人国際協力機構<br>東ティモール事務所長       |
| 2. | 池浦 弘  | 計画監理     | 独立行政法人国際協力機構<br>地球環境部 水資源第2課     |
| 3. | 駒田 文彦 | 業務主任（代理） | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第2部 顧問 |
| 4. | 高橋 徹  | 管路設計     | 株式会社三祐コンサルタンツ<br>海外事業本部 技術第2部 課長 |

## 資料 2. 調査行程

### 2-1. 基本設計現地調査時

| 基本設計現地調査時 |       |    | コンサルタント調査団員                                             |                                        |                              |                                  |                         |                    |                     |         |
|-----------|-------|----|---------------------------------------------------------|----------------------------------------|------------------------------|----------------------------------|-------------------------|--------------------|---------------------|---------|
| 日順        | 日付    | 曜日 | 官調査団員<br>(総括、計画管理)                                      | 業務主任／導水管整備計画                           | 管路設計                         | 河川工学／<br>落石・転石対策                 | 環境社会配慮／<br>運営維持管理計画     | 施工・調達計画／積算         |                     |         |
| 1         | 6月5日  | 木  |                                                         | 移動:名古屋→デンバサール                          | 移動:成田→デンバサール                 |                                  | 移動:名古屋→デンバサール           |                    |                     |         |
| 2         | 6月6日  | 金  |                                                         | 移動:デンバサール→ディリ<br>JICA事務所訪問、DNSAS訪問     |                              |                                  |                         |                    |                     |         |
| 3         | 6月7日  | 土  |                                                         | 現地調査(ベモス川取水堰・導水管)                      |                              |                                  |                         |                    |                     |         |
| 4         | 6月8日  | 日  |                                                         | 収集資料整理                                 |                              |                                  |                         |                    |                     |         |
| 5         | 6月9日  | 月  |                                                         | DNSAS協議<br>(インセプション・レポート説明、質問票依頼、CP紹介) |                              | 備人調達準備作業<br>(地形測量、路線測<br>量、試掘調査) | 備人調達準備作業<br>(ベースライン調査)  |                    |                     |         |
| 6         | 6月10日 | 火  |                                                         | 類似案件および他ドナー<br>・機関の援助動向調査              | 既設構造物の<br>設計資料収集             | 〃                                | 〃                       |                    |                     |         |
| 7         | 6月11日 | 水  |                                                         | DNSASの実施能力調査                           | 〃                            | 既存施設の<br>修理記録調査                  | DNSAS本部の<br>維持管理体制調査    |                    |                     |         |
| 8         | 6月12日 | 木  |                                                         | 〃                                      | サイト状況調査<br>(路線測量:<br>ベモス川区間) | 〃                                | ベースライン調査                |                    |                     |         |
| 9         | 6月13日 | 金  |                                                         | 水需要調査                                  | サイト状況調査<br>(路線測量:<br>コモロ川区間) | 落石調査・<br>既往最大洪水水位確認<br>(ベモス川沿い)  |                         |                    | 〃                   |         |
| 10        | 6月14日 | 土  |                                                         | 〃                                      | 施設計画調査<br>(ベモス川取水堰)          | 〃                                |                         |                    | 〃                   |         |
| 11        | 6月15日 | 日  |                                                         | 収集資料整理                                 |                              |                                  |                         |                    | 移動:成田→デンバサール        |         |
| 12        | 6月16日 | 月  |                                                         | 〃                                      | 施設計画調査<br>(ベモス川取水堰)          | 既存構造物の確認                         | ベースライン調査                |                    | 移動:デンバサール→ディリ       |         |
| 13        | 6月17日 | 火  | 移動:成田→デンバサール                                            | 水源状況調査                                 | 施設・機材計画調査<br>(導水管)           | 〃                                | 環境社会配慮調査                | 見積調査               |                     |         |
| 14        | 6月18日 | 水  | 移動:デンバサール→ディリ<br>JICA事務所訪問、大使館表<br>敬                    | JICA事務所訪問、大使館表敬                        |                              | 落石対策工調査<br>(ベモス川取水堰)             | 〃                       | 〃                  |                     |         |
| 15        | 6月19日 | 木  | 財務省国際協力局表敬、経済開発省環境局表敬、<br>M/D協議(DNSAS) インフラストラクチャー省大臣表敬 |                                        |                              |                                  |                         | 〃                  | 〃                   |         |
| 16        | 6月20日 | 金  | 現地視察(ベモス取水堰→ベモス導水管)、M/D協議(DNSAS)                        |                                        |                              |                                  |                         |                    | 運営・維持管理調査<br>(取水施設) | 〃       |
| 17        | 6月21日 | 土  | 現地視察(浄水場)                                               |                                        |                              | 施設・機材計画調査<br>(導水管)               | 落石対策工調査<br>(導水管沿い)      | 〃                  | 〃                   |         |
| 18        | 6月22日 | 日  | 中間打合せ                                                   | 収集資料整理                                 |                              |                                  |                         |                    |                     |         |
| 19        | 6月23日 | 月  | M/D協議(DNSAS)、現地調査(ベモス浄水場)、中間打ち合わせ                       |                                        |                              |                                  |                         | 落石対策工調査<br>(導水管沿い) | 運営・維持管理調査<br>(取水施設) | サイト状況調査 |
| 20        | 6月24日 | 火  | M/D調印、JICA事務所報告、大使館報告                                   |                                        |                              |                                  |                         | 護岸工調査<br>(コモロ川沿い)  | 運営・維持管理調査<br>(導水管)  | 〃       |
| 21        | 6月25日 | 水  | 経済開発省環境局打合せ<br>移動:ディリ→デンバサール                            | 経済開発省環境局打合せ、<br>土地財産局打ち合わせ             |                              | 〃                                | 〃                       | 〃                  | 調達事情調査              |         |
| 22        | 6月26日 | 木  | 移動:デンバサール→成田                                            | 無償資金協力の妥当性、範<br>囲、基本構想の検討              | 施設・機材計画調査<br>(河川横断工)         | 落石・転石対策工検討                       | 運営・維持管理調査<br>(伏越工・調整水槽) | 〃                  |                     |         |
| 23        | 6月27日 | 金  |                                                         | 〃                                      | 〃                            | 〃                                | 運営・維持管理調査<br>(ベモス浄水場)   | 施工計画調査             |                     |         |
| 24        | 6月28日 | 土  |                                                         | 先方負担事項確認調査                             | 施設・機材計画調査<br>(導水管)           | 〃                                | 運営・維持管理調査<br>(ディリ浄水場)   | 〃                  |                     |         |
| 25        | 6月29日 | 日  |                                                         | 収集資料整理                                 |                              |                                  |                         |                    | 見積調査                |         |
| 26        | 6月30日 | 月  |                                                         | 〃                                      | 水道法・設計基準<br>・水質基準等の入手        | 護岸工・蛇籠工検討                        | 水道料金体系<br>・料金徴収体制調査     |                    |                     |         |
| 27        | 7月1日  | 火  |                                                         | 無償事業の効果に係る調査                           | 〃                            | 沈砂池用地立会調査                        |                         |                    |                     |         |
| 28        | 7月2日  | 水  |                                                         | 現地調査結果概要作成                             |                              |                                  |                         |                    | 移動:デンバサール→成田        |         |
| 29        | 7月3日  | 木  |                                                         | JICA事務所報告、DNSAS報告                      |                              |                                  |                         |                    |                     |         |
| 30        | 7月4日  | 金  |                                                         | 移動:ディリ→デンバサール                          |                              |                                  |                         |                    |                     |         |
| 31        | 7月5日  | 土  |                                                         | 移動:デンバサール→名古屋                          | 移動:デンバサール→成田                 |                                  | 移動:デンバサール→名古屋           | 移動:デンバサール→成田       |                     |         |

## 2-2. 基本設計追加調査時

| 日順 | 日付     | 曜日 | コンサルタント調査団員                                 |                            |
|----|--------|----|---------------------------------------------|----------------------------|
|    |        |    | 施設計画                                        | 土木構造物設計                    |
| 1  | 10月14日 | 火  | 移動：成田→デンバサール                                |                            |
| 2  | 10月15日 | 水  | 移動：デンバサール→ディリ JICA事務所訪問、DNSAS打ち合わせ          |                            |
| 3  | 10月16日 | 木  | ベモス浄水場配水池利用状況調査、測量作業手配、安全器具手配               |                            |
| 4  | 10月17日 | 金  | 過去の設計・施工資料収集、漏水状況聞き取り調査                     | ベモス浄水場下部配水池 弁室内目視調査        |
| 5  | 10月18日 | 土  | 現在の配管・計装系統の確認、周辺地形等の確認                      | ベモス浄水場下部配水池および弁室 たわみ・変形量調査 |
| 6  | 10月19日 | 日  | ベモス浄水場内測量作業立会、第1週調査結果の整理・検討                 |                            |
| 7  | 10月20日 | 月  | ベモス浄水場下部配水池 弁室壁 シュミットハンマーによるコンクリート強度調査      |                            |
| 8  | 10月21日 | 火  | ベモス浄水場下部配水池内部の目視確認、クラック・鉄筋露出の状況調査           |                            |
| 9  | 10月22日 | 水  | ベモス浄水場下部配水池湛水水位観測、ディリ中央浄水場配水池調査             |                            |
| 10 | 10月23日 | 木  | ベモス浄水場上部配水池外部の目視調査、既存施設評価と対処方法に関するDNSASとの協議 |                            |
| 11 | 10月24日 | 金  | 測量成果現場照査、追加作業指示、大使館報告                       |                            |
| 12 | 10月25日 | 土  | 現地調査結果とりまとめ、現地協議結果とりまとめ                     |                            |
| 13 | 10月26日 | 日  | 測量最終成果確認、導水管調査補足                            |                            |
| 14 | 10月27日 | 月  | DNSAS、JICA事務所へ報告、移動：ディリ→デンバサール              |                            |
| 15 | 10月28日 | 火  | 移動：デンバサール→成田                                |                            |

## 2-3. 基本設計概要説明調査時

|    |       |    | 官調査団員                                              |                              | コンサルタント調査団員                     |                  |
|----|-------|----|----------------------------------------------------|------------------------------|---------------------------------|------------------|
| 日順 | 日付    | 曜日 | 総括                                                 | 計画管理                         | 業務主任(代理)                        | 管路設計             |
| 1  | 1月25日 | 日  |                                                    |                              | 移動：成田→デンバサール                    |                  |
| 2  | 1月26日 | 月  | JICA事務所打合せ                                         |                              | 移動：デンバサール→ディリ<br>JICA事務所打合せ     |                  |
| 3  | 1月27日 | 火  | インフラ省大臣表敬、国際支援局表敬<br>技協チームとの意見交換、基本設計概要説明（DNSAS）   |                              |                                 |                  |
| 4  | 1月28日 | 水  | 現地調査(導水管宙吊り箇所)<br>M/D協議（DNSAS）                     |                              |                                 |                  |
| 5  | 1月29日 | 木  | 最終M/D協議（DNSAS）<br>インフラ大臣と調査団長によるM/D調印<br>JICA事務所報告 |                              |                                 |                  |
| 6  | 1月30日 | 金  | 日本大使館報告                                            | 日本大使館報告<br>移動：ディリ<br>→デンバサール | 日本大使館報告<br>ベモス浄水場下部配水池および弁室現地調査 |                  |
| 7  | 1月31日 | 土  |                                                    | 移動：デンバサール<br>→成田             | 工事費積算にかかる現地調査                   |                  |
| 8  | 2月1日  | 日  |                                                    |                              | 移動：ディリ→デンバサール                   |                  |
| 9  | 2月2日  | 月  |                                                    |                              | 移動：デンバサール<br>→名古屋               | 移動：デンバサール<br>→成田 |

### 資料 3. 関係者（面会者）リスト

| No.                                                                                                | 名 前                                | 所 属                                                           |
|----------------------------------------------------------------------------------------------------|------------------------------------|---------------------------------------------------------------|
| <b>Ministry of Infrastructure</b>                                                                  |                                    |                                                               |
| 1.                                                                                                 | Mr. Pedro Lay Da Silva             | Minister                                                      |
| 2.                                                                                                 | Mr. Domingos Dos Santos Caeiro     | Secretary of State, Public Works                              |
| 3.                                                                                                 | Mr. Arq. Januario da Costa Pereira | Secretary of State on Electricity, Water and Urbanization     |
| <b>National Directorate of Water and Sanitation Services (DNSAS), Ministry of Infrastructure</b>   |                                    |                                                               |
| 1.                                                                                                 | Mr. Joao Pereira Jeronimo          | Director                                                      |
| 2.                                                                                                 | Mr. Rui De Sousa                   | Chief, Planning and Development Division                      |
| 3.                                                                                                 | Mr. Mario Abel Sequeira            | Planning and Development Division                             |
| 4.                                                                                                 | Mr. Celso A. S. Pereira            | Dill Water Supply Department                                  |
| 5.                                                                                                 | Mr. Fransisco X. Pereira           | Dili Operation and Management Division                        |
| 6.                                                                                                 | Mr. Elias Pereira Moniz            | Chief, Water supply and Sanitation Department                 |
| 7.                                                                                                 | Mr. Pascoal Ribeiro                | Production Section                                            |
| 8.                                                                                                 | Mr. Benny                          | Bemos Water treatment plant                                   |
| <b>National Directorate for Planning and External Assistance Coordination, Ministry of Finance</b> |                                    |                                                               |
| 1.                                                                                                 | Mr. Eusebio Da Cost Jeronimo       | Director                                                      |
| 2.                                                                                                 | Mr. Helder da Costa                | Coordinatr Aid effectiveness &National Priorities Secretariat |
| 3.                                                                                                 | 山西 宏明                              | Aid Coordination Advisor                                      |
| <b>National Directorate for Environmental Servises (DNES), Ministry of Economy and Development</b> |                                    |                                                               |
| 1.                                                                                                 | Mr. Carlos Lopes Ximenes           | Director                                                      |
| 2.                                                                                                 | Mr. Antnio Lelo Taci               | Coordinator, Department of Environmental Impact Assessment    |
| 3.                                                                                                 | Mr. Carlos Conseicao               | Environmental Pollution Control coordinator                   |
| <b>National Directorate of Land and Property and Cadastral Services, Ministry of Justice</b>       |                                    |                                                               |
| 1.                                                                                                 | Mr. Paulino Da Cruz                | Head of Cadastral and Land Information                        |
| <b>在東ティモール日本大使館</b>                                                                                |                                    |                                                               |
| 1.                                                                                                 | 清水 健司                              | 特命全権大使（基本設計調査時）                                               |
| 2.                                                                                                 | 北原 巖男                              | 特命全権大使（基本設計概要説明調査時）                                           |
| 3.                                                                                                 | 山口 忍                               | 一等書記官                                                         |
| 4.                                                                                                 | 林 泰子                               | 二等書記官                                                         |
| <b>JICA東ティモール駐在員事務所</b>                                                                            |                                    |                                                               |
| 1.                                                                                                 | 上條 哲也                              | 所長（基本設計調査時）                                                   |
| 2.                                                                                                 | 榎本 宏                               | 所長（追加調査時、基本設計概要説明調査時）                                         |
| 3.                                                                                                 | 和田 泰一                              | 所員（基本設計調査時）                                                   |
| 4.                                                                                                 | 奥村 将巳                              | 所員（追加調査時、基本設計概要説明調査時）                                         |
| <b>技術協力プロジェクト</b>                                                                                  |                                    |                                                               |
| 1.                                                                                                 | 萩原 充道                              | 水道局能力向上プロジェクト専門家                                              |
| 2.                                                                                                 | 丹下 孝之                              | 水道局能力向上プロジェクト専門家                                              |
| 3.                                                                                                 | 東野 英昭                              | 水道局能力向上プロジェクト専門家                                              |
| <b>Asian Develpment Bank, Special Office in Timor-Leste</b>                                        |                                    |                                                               |
| 1.                                                                                                 | Mr. Brigido de Sousa               | Finance and Administrative Officer                            |
| <b>Oxfam (NGO)</b>                                                                                 |                                    |                                                               |
| 1.                                                                                                 | Mr. Jesse Shapiro                  | Advisor in DINSAS for water supply to IDP camp                |

## 資料 4. 討議議事録 (M/D)

4-1 基本設計現地調査時 ..... A4-2

4-2 基本設計概要説明時 ..... A4-7

MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
OF THE PROJECT FOR URGENT IMPROVEMENT OF RAW WATER MAIN IN DILI  
THE DEMOCRATIC REPUBLIC OF TIMOR-LESTE

In response to a request from the Government of the Democratic Republic of Timor-Leste (hereinafter referred to as "Timor-Leste"), the Government of Japan decided to conduct a Basic Design Study of the Project for Urgent Improvement of Raw Water Main in Dili, in Timor-Leste (hereinafter referred to as "the Project") and entrusted the Study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Timor-Leste the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshiki OMURA, Senior Advisor, JICA, and is scheduled to stay in the country from 6<sup>th</sup> June 2008 to 4<sup>th</sup> July 2008.

The Team held a series of discussions with the officials concerned of the Government of Timor-Leste and conducted a field survey in the Project area.

In the course of discussions and field survey, both parties have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Dili, 24<sup>th</sup> June 2008



Mr. Yoshiki OMURA  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency



Mr. Pedro Lay da Silva  
Minister  
Ministry of Infrastructure  
Democratic Republic of Timor-Leste

Witnessed by



Ms. Emilia Pires  
Minister  
Ministry of Finance  
Democratic Republic of Timor-Leste

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to secure safe and stable water supply in Dili by improvement of the raw water main from the Bemós River.

### 2. Project site (s)

The site of the Project is as shown in Annex-1.

### 3. Responsible and Implementing Organization

The Responsible and Implementing Organization is the National Directorate of Water and Sanitation Services under the Ministry of Infrastructure (hereinafter referred to as "DNSAS").

### 4. Items requested by the Government of Timor-Leste

After discussions with the Team, the items described in Annex-2 were finally requested by the Government of Timor-Leste. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

### 5. Japan's Grant Aid Scheme

The Government of Timor-Leste understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Timor-Leste as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both parties on 22<sup>nd</sup> January 2008.

### 6. Schedule of the Study

6-1. Consultant members will proceed to further studies in Timor-Leste until 4<sup>th</sup> July 2008.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in September 2008.

6-3. In case that the contents of the report is accepted in principle by the Government of Timor-Leste, JICA will finalize the report and send it to the Government of Timor-Leste by December 2008.

### 7. Other relevant issues

#### 7-1. Concept of the Project

The Team explained to DNSAS about the concept of the Project as below (1) and (2).

- (1) The existing raw water transmission system of the Bemós River should be utilized with proper improvement as much as practicable. Re-routing of pipeline should be limited to



minimum extent.

- (2) The improvement of pipeline shall be designed to enable DNSAS to maintain and repair easily, considering the natural conditions, constrain of supply and procurement of material /equipment and skills of workers.

DNSAS accepted the concepts.

#### 7-2. Water intake facilities

The Team explained DNSAS of a plan to construct a grit chamber approximately 100m downstream of the intake. In this regard, the Team requested and DNSAS agreed to negotiate with the landowner of the proposed location of grit chamber for transferring the land ownership to DNSAS and to submit JICA an evidence of land acquisition by the middle of October 2008.

#### 7-3. Environmental and social considerations

The Team explained DNSAS that DNSAS has to have the Environmental Management Plan (hereinafter referred to as "EMP") approved by the National Directorate of Environmental Service, Ministry of Economic and Development by the end of October 2008. The Team proposed to support DNSAS in preparing EMP and to provide the necessary information in the beginning of September. DNSAS assured to secure the above mentioned approval.

Annex-1 Project Site

Annex-2 Items requested by the Government of Timor-Leste

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Items Requested by the Government of Timor-Leste

I. Rehabilitation and Improvement of Bemós Raw Water Main

- Replacement of parts of the 250mm and 300mm diameter steel pipe to avoid and minimize possible damage thereto by the torrential runoff after heavy rain,
- Repair of pipe supports and bank protection damaged by the flood,
- Construction of additional concrete supports, protection walls, groyne, concrete blocks, foot protection and other measures to protect the raw water main, as required,
- Reinforcement of the pipe protection particularly at the river crossings, and construction of a pipe bridge(s) when considered cost-effective and appropriate,
- Installation of additional air valves and wash-outs including isolation valves with necessary appurtenances as required,
- Installation of a flow controller on the raw water main to regulate water flow, when required, and
- Other necessary work, as required.

II. Rehabilitation and improvement of the intake

- Rehabilitation of weir to recover erosion and increase stability, and
- Rehabilitation of the intake chamber by providing screens and any other devices to minimize entrance of foreign matters like gravels, sand, silt, and leaves into the chamber.

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MINUTES OF DISCUSSIONS  
ON  
THE BASIC DESIGN STUDY  
OF  
THE PROJECT FOR URGENT IMPROVEMENT OF RAW WATER MAIN IN DILI  
THE DEMOCRATIC REPUBLIC OF TIMOR-LESTE  
(EXPLANATION on DRAFT report)

In June 2008, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Urgent Improvement of Raw Water Main in Dili (hereinafter referred to as "the Project") to the Government of the Democratic Republic of Timor-Leste (hereinafter referred to as "Timor-Leste") and through discussion, field survey and technical evaluation of the results in Japan, JICA prepared a draft report of the study.

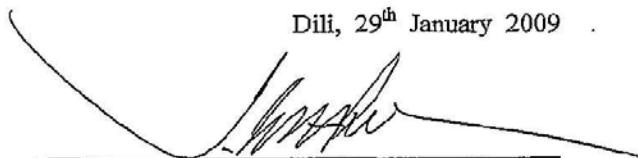
In order to explain and consult with the Government of Timor-Leste on the components of the draft report, JICA sent to Timor-Leste the Draft Report Explanation Team (hereinafter referred to as "the Team"), which was headed by Mr. Hiroshi Enomoto, Chief Representative, JICA Timor-Leste Office, from 26<sup>th</sup> to 30<sup>th</sup> January 2009.

As a result of discussions, both parties confirmed the main items described in the attached sheets.

Dili, 29<sup>th</sup> January 2009



Mr. Hiroshi Enomoto  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency  
Japan



Arch. Januario da Costa Pereira  
Secretary of State  
for Electricity, Water and Urbanization  
Ministry of Infrastructure  
The Democratic Republic of Timor-Leste

Witnessed by

Ms. Emilia Pires  
Minister  
Ministry of Finance  
The Democratic Republic of Timor-Leste

## ATTACHMENT

### 1 Components of the Draft Report

The Timor-Leste side agreed and accepted in principle the components of the Draft Basic Design Study Report explained by the Team. The Timor-Leste side also understood that JICA would commence procedures for project implementation subject to submission of an official request for additional components of reconstruction of the Lower Service Reservoir and the Valve Chamber, which were not included in the original request of January 2006. The project components are shown in Annex-1 and 2.

### 2 Japan's Grant Aid Scheme

The Timor-Leste side understood the Japan's Grant Aid Scheme and the necessary measures to be taken by the Timor-Leste side as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both parties on 22<sup>nd</sup> January 2008.

### 3 Responsible and Implementing Agency

The Responsible and Implementing Organization is the National Directorate of Water and Sanitation Services (hereinafter referred to as "DNSAS") under the Ministry of Infrastructure (hereinafter referred to as "MOI").

### 4 Schedule of the Study

JICA will complete the final report in accordance with the confirmed item and send it to the Government of Timor-Leste by April 2009.

### 5 Other Relevant Issues

#### 5.1 Submission of an Additional Request

The Team explained and the Timor-Leste side understood that JICA would be able to commence project implementation procedures only after submission of an additional request from the responsible agency for reconstruction of the Lower Service Reservoir and the Valve Chamber by 15 February 2009.

#### 5.2 Title of the Project

In response to an additional component of reconstruction of the Lower Service Reservoir and the Valve Chamber in Bemos Water Treatment Plant, the Team proposed that the title of



the Project be changed as "the Project for Urgent Improvement of Water Supply System in Bemós-Dili". The Timor-Leste side accepted the new project title.

### 5.3 Undertakings of the Timor-Leste side

The Team requested the Government of Timor-Leste to abide by the following undertakings of the Timor-Leste side in addition to major understandings described in Annex-4 of the Minutes of Discussions signed by both parties on 22<sup>nd</sup> January 2008. The Timor-Leste side agreed to do so.

- 1) To complete land acquisition required for construction of the Grit Chamber at the downstream of the Bemós Intake by the end of February 2009 and to submit evidence to JICA Timor-Leste office.
- 2) To bear the necessary pump operation cost required for transfer of filtered water to the Upper Service Reservoir for about 6 months during reconstruction work of the Lower Service Reservoir and Valve Chamber in the Bemós Water Treatment Plant.
- 3) To keep water users informed of scheduled interruptions of water supply due to the improvement work of the Raw Water Main through meetings, newspapers and advertising boards.
- 4) To explain the project details to the municipalities and communities in and around the project sites, and to obtain their consents.
- 5) To make emergency measures and rehabilitate the facilities by the government own budget in case the raw water main would have been damaged before implementation of Japan's grant aid project.
- 6) To provide the fence around the Bemós intake and the Grit Chamber by the government of Timor-Leste.
- 7) To operate and maintain the facilities to be improved by the Project sustainably.

### 5.4 Permissions for Excavation of River Stone/Sand

The Team requested the Timor-Leste side to make arrangement to obtain the documents for permission concerning excavation of river stone/sand necessary for the project by a Japanese contractor without paying fee, tax or royalty. The Timor-Leste side explained following two permissions are necessary.

- 1) Permission with regard to environmental aspect from the National Directorate for Environmental Services (hereinafter referred to as "NDES"), Ministry of Economic and Development.
- 2) Permission with regard to excavation of stone/sand from Secretary of State for Natural Resources.

The Timor-Leste side also explained to the Team that the Timor-Leste side already submitted an application of categorization on this project to NDES and obtained the permission by 08 July 2009 which was including excavation of river stone/sand. Moreover the Timor-Leste side explained that the period of permission will be extended to March 2011. The Team requested and the Timor-Leste side agreed to submit evidence of extension of period to the JICA Timor-Leste office by the end of February 2009.

Regarding excavation of stone/soil, detail information and plan of construction to be submitted from the constructor are necessary as attachment of application. The Team requested and the Timor-Leste side agreed that the Timor-Leste side will apply for Secretary of State for Natural Resources after the contract with constructor immediately.

#### 5.5 Temporary Protection

In considering commencement timing of construction work, the Team recommended the Timor-Leste side to provide temporary protection to the pipeline, the exposed and the hanged sections, in particular, and to take immediate actions to rehabilitate any damages occurred to the pipeline until commencement of the project.

#### 5.6 Project Cost Estimate

The Team explained to the Timor-Leste side the Project cost estimate as described in Annex-3. Both sides confirmed that this cost estimate was provisional and would be examined further by the Government of Japan for its approval as the Grant.

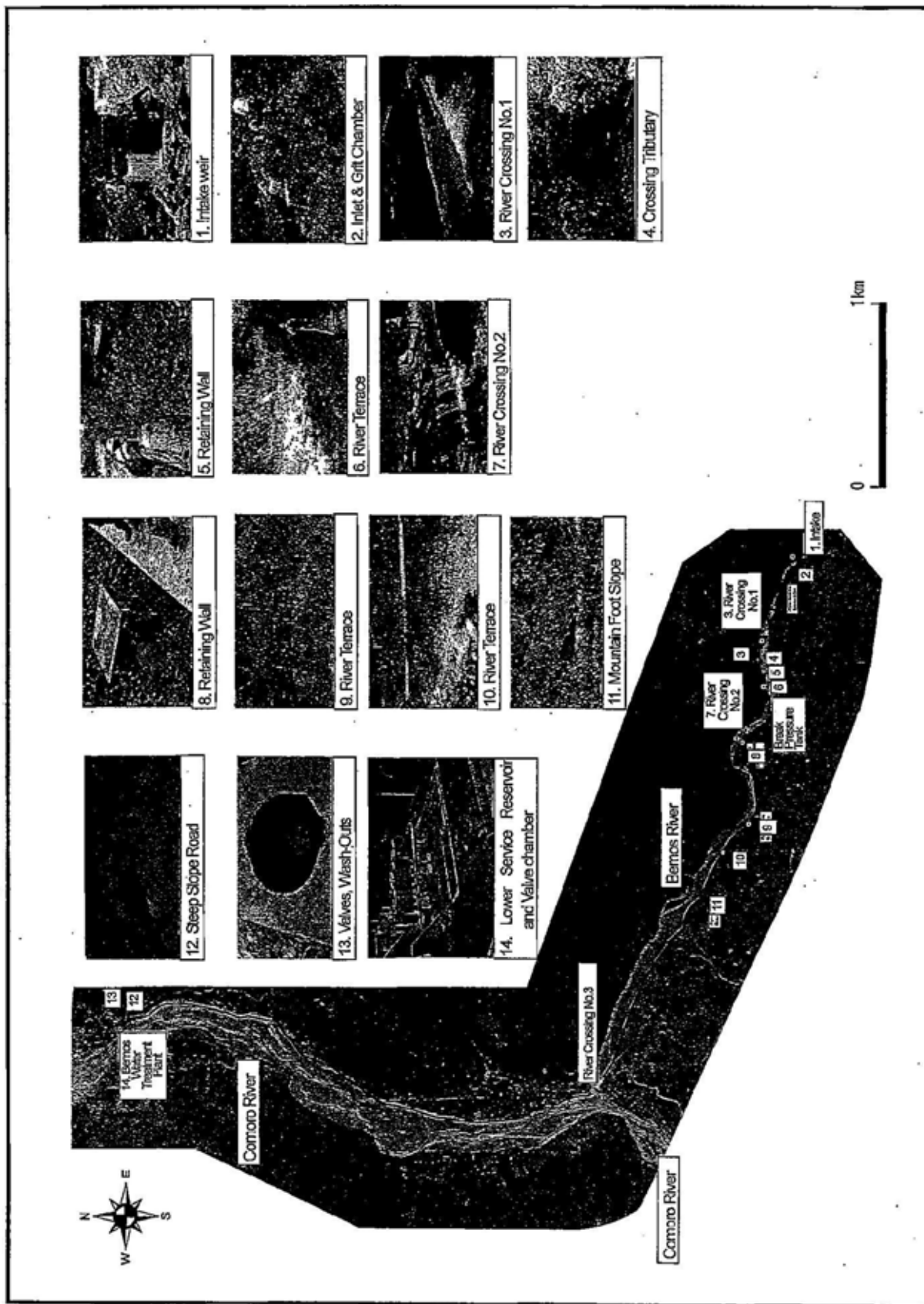
Furthermore, both sides confirmed that this cost estimate should never be duplicated in any form nor released to any other party(s) until relevant contracts are awarded by executing agency. This embargo is for securing fairness of tender procedure.

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## Project Components

| Work items |                                                                                                        | Length | Rehabilitation / Improvement manner                                                                                                                                                                                                                                                          |
|------------|--------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | Intake weir                                                                                            | -      | <ul style="list-style-type: none"> <li>• Construction of sand sluiceway</li> <li>• Improvement of apron and river bed protection</li> <li>• Repair of crest and abutment</li> </ul>                                                                                                          |
| 2          | Inlet and Grit chamber                                                                                 | 17 m   | <ul style="list-style-type: none"> <li>• Improvement of inlet</li> <li>• A part of pipeline be changed to connecting canal</li> <li>• Construction of grit chamber</li> <li>• Construction of Sand Sluice canal</li> </ul>                                                                   |
| 3          | 0+495 ~ 0+545<br>River crossing No.1                                                                   | 50 m   | <ul style="list-style-type: none"> <li>• Concrete reinforcement on existing pipeline protection</li> <li>• Construction of ground sill and river bed protection at lower stream reach</li> <li>• Scouring Protection Revetment on both banks</li> <li>• Construction of wash-out</li> </ul>  |
| 4          | 0+584 ~ 0+742<br>Right bank river terrace, crossing with tributary and existing wing of retaining wall | 200 m  | <ul style="list-style-type: none"> <li>• Change of pipeline route and tributary crossing by aqueduct</li> <li>• Construction of Flow Path at the tributary crossing</li> <li>• Construction of Wash-out</li> </ul>                                                                           |
| 5          | 0+787 ~ 0+876<br>Existing upstream concrete retaining wall                                             | 80 m   | <ul style="list-style-type: none"> <li>• In between the retaining wall and upright rise around the pipe be re-filled with sand and gravel and covered by gabion</li> <li>• Retaining wall heightening (partially)</li> <li>• A part of pipeline be shifted</li> </ul>                        |
| 6          | 0+876 ~ 0+947<br>Right bank river terrace                                                              | 100 m  | <ul style="list-style-type: none"> <li>• Revetment on river terrace</li> </ul>                                                                                                                                                                                                               |
| 7          | 1+142 ~ 1+220<br>River crossing No.2                                                                   | 80 m   | <ul style="list-style-type: none"> <li>• Concrete reinforcement on concrete river bed protection</li> <li>• Construction of ground sill and river bed protection at lower stream reach</li> <li>• Scouring protection revetment on both banks</li> <li>• Construction of wash-out</li> </ul> |
| 8          | IP34 / IP36 (1+420 ~ 1+530)<br>Existing downstream concrete retaining wall                             | 59 m   | <ul style="list-style-type: none"> <li>• In between the retaining wall and upright rise around the pipe be re-filled with sand and gravel</li> <li>• Heightening of retaining wall (partially)</li> <li>• Foot protection works for foundation of retaining wall</li> </ul>                  |
| 9          | IP42 (1+938)<br>Left bank terrace of Bemros river                                                      | 50 m   | <ul style="list-style-type: none"> <li>• Protection of existing pipeline by revetment and re-filling by sand and gravel</li> </ul>                                                                                                                                                           |
| 10         | 2+094 ~ 2+200<br>Left bank terrace of Bemros river<br>(Pipeline hanging in the air)                    | 100 m  | <ul style="list-style-type: none"> <li>• Route change and embedding the pipe in river bed</li> <li>• Encasement by concrete</li> <li>• River bed protection</li> </ul>                                                                                                                       |
| 11         | 2+365 ~ 2+570<br>Mountain foot slope of left bank of Bemros river                                      | 179 m  | <ul style="list-style-type: none"> <li>• (Pipeline exposed section as per design, but many rock fall and strike the pipeline, so that)</li> <li>• Shifting of pipeline route and embedding</li> </ul>                                                                                        |
| 12         | 7+000 ~ 7+053<br>Cornoro river right bank<br>Steep slope road section                                  | 70 m   | <ul style="list-style-type: none"> <li>• Construction of dual purpose road and drain (concrete pavement with wheel guard)</li> <li>• Construction of road side protection works including pipe supports</li> </ul>                                                                           |
| 13         | Isolating valve, wash-outs                                                                             | -      | <ul style="list-style-type: none"> <li>• Allocate as required for easier O&amp;M</li> </ul>                                                                                                                                                                                                  |
| 14         | Bemros Water Treatment Plant lower service reservoir & valve chamber                                   | -      | <ul style="list-style-type: none"> <li>• Renovate the facilities to have the same capacity and function with the existing ones</li> </ul>                                                                                                                                                    |

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Location Map of the Facilities to be Improved

## Project Cost Estimation

## 1. Japan's Grant Aid

| Description                                              | Amount (JPY) |
|----------------------------------------------------------|--------------|
| Improvement of raw water main                            | 725,700,000  |
| Improvement of lower service reservoir and valve chamber |              |
| Detail Design, Construction Supervision                  |              |
| Technical Assistance                                     | 0            |
| Total                                                    | 725,700,000  |

Time of estimation : July, 2008

Exchange rate : 1US\$=105.89JPY

## 2. Obligation of the Government of Timor-Leste

## (1) Project cost

| Item of Cost                                            | Amount (US\$) |
|---------------------------------------------------------|---------------|
| Land acquisition for grit chamber                       | -             |
| Temporary pump operation in Bemos Water Treatment Plant | 5,000         |
| Land lease and Cutting tree for temporary road          | -             |
| Fence around intake and Grit Chamber                    | 1,000         |
| Support for Raw Water Main at the exposed section       | 1,500         |
| Charge for Banking Arrangement                          | 8,000         |
| Total                                                   | 15,500        |

## (2) Operation and Maintenance (O&amp;M) Cost

| Description                 | Amount (US\$/year)                       |
|-----------------------------|------------------------------------------|
| Bemos Raw Water Main        | Soil covering for the newly exposed pipe |
|                             | Cleaning and check for intake and valves |
|                             | Sub total                                |
| Bemos Water Treatment Plant | Power                                    |
|                             | Chemicals                                |
|                             | Plant operation                          |
|                             | Sub total                                |
| Repair work and Spare parts |                                          |
| Total                       |                                          |