Town:	No. & Facility:	Year of Construction	Financed by:
Dili	21- Taibesi Resevoir	1997-1998	

Existing Condition:

Structure: Reinforced Concrete
Shape: Rectangular
Dimension: 4.0m x 6.0m x 3.2m
Capacity: 30m^3
Function:
Source of Water: Kuluhun B
Ground level:
Accessories:
flow meter
washouts

Photograph:

(Date: June 2000)

Evaluation:

Inadequate size of washout is installed.
This reservoir has no overflow, no ventilation, and apparently with inadequate washout.

Rehabilitation Plan:

1) Basic Consideration:

2) Civil Work:

Installation of level gauge, ladder, manhole, ventilators

3) Piping work

Replacement of drain pipe by 6 inch GS pipe.

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$780		A-2

Town:	No. & Facility:	Year of Construction	Financed by:
Dili	22 - Becora Resevoir	1995-96	

Existing Condition:

Structure: Steel with Vinyl Coating
Shape: Circular
Dimension: Ø14.6m x 3m height
Capacity: 500m^3
Function:
Source of Water: Kuluhun A
Ground level:
Accessories:
- level gauge
- ventilation
- overflow pipes
- washouts
- 6 inch inlet and 8 inch outlet

Photograph:

(Date: June 2000)

Evaluation:

Manual chlorinator not in use.Level gauge not working.

Rehabilitation Plan:

1) Basic Calculation

Minor repair is required.

2) Civil Work:

Level gauge should be repaired.

3) Piping work

Installation of flow meter and controller

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$7,314		A-2

Town:	No. & Facility:	Year of Construction	Financed by:
Dili	23 - Bedoisi Resevoir	1998	Bia Hula

Existing Condition:

Structure: Reinforced Concrete
Shape: Rectangular
Dimension: 5.8m x 5.6m x 2.2m.
Capacity: 45m^3
Function:
Source of Water: Bedoisi well
Ground level:
Accessories:
overflow pipe
washouts

Photograph:

(Date: June 2000)

Evaluation:

No ventilation & level gauge.
Water leak was seen coming from the valve.

Rehabilitation Plan:

1) Basic Calculation

Reservoir is constructed close to private houses. For continuous use in the future, minor rehabilitation is required.

2) Civil Work:

Construction of securtiy fence

3) Piping work:

Installation of flow meter and controller

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous:

Installation of chlorine dosage devices

Estimated cost:	Construction schedule:	Priority:
US$7,379		A-2

Town:	No. & Facility:	Year of Construction	Financed by:
Dili	24 - Bidaumasau Resevoir	1996-1997	

Existing Condition:

Structure: Reinforced Concrete
Shape: Rectangular
Dimension: 5.0m x 5.0m x 2.0m
Capacity: 30m^3
Function:
Source of Water: Bidau No.1deep well
Ground level:
Accessories:
overflow
ventilation

Photograph:

(Date: June 2000)

Evaluation:

Reservoir not in use since the source of water is not in operation.

Rehabilitation Plan:

1) Basic Consideration:
Minor rehabilitation is required.

2) Civil Work:
Construction of security fence

3) Piping work
Installation of flow meter and controller

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous:
Installation of chlorine dosage equipment

Estimated cost:	Construction schedule:	Priority:
US$7,222		A-2

Town:	No. & Facility:	Year of Construction	Financed by:
Dili	25 - Proposed Transmission Main		

Background:

Dili service area is separated into 10 supply zones. This zoning system affects on fundamental change of water transmission. To this end, new mains are planned to be installed from the wells to reservoirs.

Photograph:

(Date:)

Evaluation:

Rehabilitation Plan:

1) Basic Consideration

Size of pipes required for water transmission is estimated from Hazen-William formula. Distance and ground level of each planned facilities are obtained from topographical map, or field surveys subsequently carried out.

2) Civil Work: none

3) Piping work

Following pipes are to be installed:

Zone	from	to	Dia.(mm)	Length (m)	Remark
Comoro DE	Comoro D	Comoro Res			- Existing 200mm x 1,405 main
	Comoro E	Comoro Res	200	1,035	
Comoro B	Comoro B	Aspal Goreng Re	200	100	- Existing 200mm x 2,160 main
Bemos	-	-	-	-	
Central	Comoro A	Dili WTP	250	100	- Existing 250mm x 5,290 main
			250	200	
Lahane	-	-	-	-	
Kuluhun C	Kuluhun C	Taibesi Res	150	500	
Kuluhun B	Kuluhun B	Becusi Res.	200	1,290	
Kuluhun A	-	-	-	-	- Existing 150mm x 2,500 main
Benemauk	-	-	-	-	
Bidau 1&3	Bidau 3	Bidau 2	150	500	- Existing 150mm x 350 main

4) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$350,000		A-1

Town:	No. & Facility:	Year of Construction	Financed by:
Dili	26 - Proposed Distribution Main		

Background:

Dili service area is separated into 10 supply zones, resulting in fundamental change of water distribution. To this end, new distribution mains are to be installed from the reservoirs to supply zones..

Photograph:

(Date:)

Evaluation:

Rehabilitation Plan:

1) Basic Consideration:

Size of pipes required for water distribution is based on computerized distribution pipe network analysis. Distance and ground level of each planned facilities are obtained from topographical map, or field surveys subsequently carried out.

2) Civil Work: none

3) Piping work

Zone	from	to	Dia.(mm)	Length (m)	Remarks
Comoro DE	-	-	-	-	
Comoro B	Aspal Goreng Re	Existing main	200	120	
Bemos	-	-	-	-	
Central	Central Res	Existing main	250	40	
			300	200	
Lahane	-	-	-	-	
Kuluhun C	Taibesi Res	Existing main	150	50	
Kuluhun B	Becusi Res.	Existing main	200	220	
Kuluhun A	-	-	-	-	Existing Dia150 x 2,500m
Benemauk	-	-	-	-	
Bidau 1&3	Bidau 1	Bidaumasau	-	-	Existing Dia150 x 350m

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$70,200		A-1

Town	No. & Facility:	Year of Construction	Financed by:
Dili	27 - Proposed Pipe Reticulation		

Existing Condition:

Facility: Water distribution and supply to the consmrs.

Materials: AS, GS for old pipes, and GS, PVC, DCI, HDPE for new pipes

Length: Approximately 350 km length of pipes installed in total including those of 2 inch diameter or above

Accessories:

Gate valves, air release valves, blow-off valves

Photograph:

(Date:)

Evaluation:

Many leakage from joints, valves and tapping points. Old deteriorated AC pipes should be replaced by new GS, HDPE or PVC pipes. In the west Dili, pipe reticulation is not sufficient to supply water to the consumers.

Rehabilitation Plan:

1) Basic Consideration

Service area is separated into 10 supply zones. To assess the conveyance capacity and propose the future water supply planning, computerised pipe network analysis is carried out.

2) Civil Work: none

3) Piping work:

Piping work includes installation of necessary appurtenances including air release valves, gate valves, blow-offs, etc. Total length of pipelines required is 28.7km.

1)Pipelines required for zoning of the service area and supplying water to unserved area:

Comoro:	100mm GS x 3,820m to supply to the new customers
Bairo Pite:	100mm GS x 1,100m to supply to the new customers
	150mm GS x 400m to supply to the new customers
	250mm DIP x 1,300m to replace the existing old distribution main
Colmera:	150mm GS x 950m to supply to the new customers
	200mm GS x 350m as distribution main
Caicoli:	150mm GS x 900m to supply to the new customers
Becora:	100mm GS x 1,450m to supply to the new customers
Bidau Santana:	100mm GS x 1,700m to supply to the new customers
Bidaumasau	150mm GS x 2,350m to supply to the new customers
Vila Verde	200mm GS x 1,200m to replace the existing distribution main

2) Replacement of the existing AC pipes by GS:

200mm GS pipes of 7,000m for replacement of the existing 200mm main
150mm GS pipes of 2,500m for replacement of the existing 150mm main
100mm GS pipes of 2,600m for replacement of the existing 125mm main
100mm GS pipes of 1,100m for replacement of the existing 80mm main

4) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$1,267,500		A-1

Town:	No. & Facility:	Year of Construction	Financed by:
Dili	28 - Hera A, B, C		

Existing Condition:

Structure:
Shape:
Dimension:
Capacity: Hera A (5 L/s), B (3L/sec), C (5L/sec)
Function:
Drilled depth: Hera A (95m), B (75m), C (85m)
Ground level:
Accessories:

Photograph:

Hera A

Hera B

Hera C

(Date: May 2000)

Evaluation:

Hera A, abandoned but equipped with reservoir and pipe installations. Hera B, abandoned because of decreased production. During the post referendum violence, the submersible pump in the well was demolished. Hera C, presently out of use but can be put back into operation if power supply becomes available.

Rehabilitation Plan:

1) Basic Calculation

In the course of 2000 JICA project, rehabilitation of the well was successfully carried out. Hence no repair and rehabilitation is required.

2) Civil Work: none

3) Piping work: none

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
None		-

Town	No. & Facility:	Year of Construction	Financed by:
Dili	29 - Proposed Transmission Main (Hera A - Res.)	1984	

Existing Condition:

Facility: Water transmission from Hera A pumping station to Hera A reservoir
Diameter: GS 4-inch
Length: 0.5 km
Function: To convey pumped water to Hera reserv

Accessories: Gate valves

Photograph:

6 inch GS Inlet to Hera A Reservoir

(Date: Dec 2000)

Evaluation:

After stoppage of the deep well pump operation, the transmission main are demolished.

Rehabilitation Plan:

1) Basic Consideration

Installation of the new transmission main will be required in order to distribute water effectively to the consumers via the service reservoir.

2) Civil Work: none

3) Piping work:

Installation of 100mm x 0.5 km including gate valves, air release valves and blow-off.

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$19,463		A-1

Town:	No. & Facility:	Year of Construction	Financed by:
Dili	30 - Hera A Service Reservoir	1984	

Existing Condition:

Structure: Reinforced concrete
Shape: Rectangular
Dimension: 5.3m x 6.2m x 3.0mH
Storage Capacity: 66m3
Function: storage
Source of Water: Hera A deep well
Ground level:
Accessories:

A valve chamber, two manholes, one ventilator, 4 inch GS inlet, 4 inch GS outlet with overflow and drain pipes

Photograph:

(Date: Dec 2000)

Evaluation:

After pump breakage at Hera A deep well, this service reservoir has not been working. Door to the valve chamber, demolished. Structure and concrete works are assessed normal.

Rehabilitation Plan:

1) Basic Consideration

Minor rehabilitation is required, including repair of the demolished door, installation of chlorine dosage equipment, security fence, and construction of access road.

2) Civil Work:

Construction of access road (100m length), security fence, and installation of door with air gallery

3) Piping work: none

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: installation of chlorine dosage equipment

Estimated cost:	Construction schedule:	Priority:
US$7,100		A-2

Town	No. & Facility:	Year of Construction	Financed by:
Dili	31 - Proposed Raw Water Main		

Background:

There are two alternatives proposed. Alternative A is raw water intake at the existing intake site, while Alternative B is to abstract riverbed water at 1.8km downstream of the Bemos river. Further study and survey is required.

Photograph:

Evaluation:

Rehabilitation Plan:

1) Basic Consideration

Alternative A : from existing intake to Dili WTP

Alternative B : from new intake point (1.8km down from existing intake, infiltration gallery) to Dili WTP

2) Civil Work:

Alternative A:
Rehabilitation of the existing intake to increase inflow rate, and construction of grit chamber
Alternative B:
Construction of collecting well, pump house,

3) Piping work

Alternative A:
Installation of transmission main from the intake to Dili WTP with a length 10.8km, 300mm in dia. of GS pipe

Alternative B:
Installation of perforated laterals, water collectors, 400mm x 200m - 2lines
Installation of transmission main from the pump house to Dili WTP, with a length 9.0km, 300mm in dia. of GS pipe

Necessary appurtenances, including air release valves. blow-off valves, pipe bridges, pipe protection and access road

6) Miscellaneous:

Estimated cost:	Construction schedule:	Priority:
Atlernative A : US$2,959,900 Atlernative B : US$2,369,100		A-1

Town	No. & Facility:	Year of Construction	Financed by:
Dili	32 - DILI WTP		

Background:

The proposed WTP with a production capacity 6,000 m3/day, is to be constructed to supply treated water to consumers particularly in Central Zone by the year 2003.

Photograph:

Evaluation:

Rehabilitation Plan:

1) Basic Consideration

Treatment process assessment should be based on water quality analysis of the raw water at the planned water sources. Hence, the treatment process proposed in the present study is a provisional one, to be confirmed in the later stage of the project development.

2) Civil Work:

Construction of water treatment plant consisting of receiving well, rapid mixing chamber. flocculation basin, sedimentation basin, filter basin, chemical dosing equipment, and storage reservoir.

3) Piping work

Interconnections, flow meters, controllers, drains at the designated points

4) Mechanical work:

5) Electrical work:

6) Miscellaneous:

Administrative Building
Land acquisition
Land scaping with fence, access road

Estimated cost:	Construction schedule:	Priority:
US$2,769,100		A-1

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Dili	33 - Central Res.		

Background:

It is proposed in the Study that this reservoir is to be constructed at an elevation of 70m and supply to Central Zone by the year 2003.

Photograph:

Evaluation:

Rehabilitation Plan:

1) Basic Consideration

Construction of new service reservoir with a storage, 3,000m3 is considered necessary in the same premises of Dili WTP.

2) Civil Work:

Construction of service reservoir with necessary appurtenances including ventilator, manhole, and level gauge.

3) Piping work

Installation of inlet, outlet, overflow, drain, flow meters, controller, and air release valves

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
included in new WTP		A-2

Town	No. & Facility:	Year of Construction	Financed by:
Dili	34 - Proposed Aspal Goreng Res.		

Background:

This reservoir is to be constructed at an elevation of 40m and supply to Comoro B Zone in 2003.

Photograph:

Evaluation:

Rehabilitation Plan:

1) Basic Consideration

From the computation of the ratio of the required storage to the water demand in the supply zone, it is obtained that construction of new service reservoir with a storage, 1,000m3 is required.

2) Civil Work:

Construction of service reservoir with necessary appurtenances including ventilator, manhole, and level gauge.

3) Piping work

Installation of inlet, outlet, overflow, drain, flow meters, controller, and air release valves

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$190,000		A-2

Town	No. & Facility:	Year of Construction	Financed by:
Dili	35 - Proposed Becusi Res.		

Background:

It is proposed that this reservoir should be constructed at an elevation of 60m and supply to Kuluhun B Zone in 2003.

Photograph:

Evaluation:

Rehabilitation Plan:

1) Basic Consideration

From the computation of the ratio of the required storage to the water demand in the Kuluhun B zone, it is obtained that construction of new service reservoir with a storage, 600m3, is required.

2) Civil Work:

Construction of service reservoir with necessary appurtenances including ventilator, manhole, and level gauge.

3) Piping work

Installation of inlet, outlet, overflow, drain, flow meters, controller, and air release valves

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$151,800		A-2

Town	No. & Facility:	Year of Construction	Financed by:
Dili	36 - Bidaumasau2 Res.		

Design Background:

As the existing Bidaumasau reservoir is not sufficient to meet fluctuation of the water demand in the Kuluhun B area, construction of new service reservoir at an elevation of 50m is considered necessary.

Photograph:

Evaluation:

Rehabilitation Plan:

1) Basic Consideration

It is considered necessary to construct new service reservoir with a storage, 200m3 close to the existing reservoir.

2) Civil Work:

Construction of service reservoir with necessary appurtenances including ventilator, manhole, and level gauge.

3) Piping work

Installation of inlet, outlet, overflow, drain, flow meters, controller, and air release valves

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	Construction schedule:	Priority:
US$76,400		A-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Atauro	01 - Tulai Spring	Initialy1969	Portugal

Existing Condition:

Facility: Spring intake structure
Description: 3 spring outcrops are collected by 1 inlet pipes and flows into 2 collecting chambers with grit removal facility.
Structure: Reinforced concrete
Observed flow: 3-4 L/sec in Oct. 2000
Function: Water collection and grit removal
Elevation (amsl):
Accessories:

Photograph:

(Date: May, 2000)

Evaluation:

The water collection chamber is not properly covered resulting to the entry of foreign matters.
The spring site is not properly fenced allowing the free entry of human and animals.

Rehabilitation Plan:

1) Basic Consideration:

The water source and the collection chamber must secured and covered to minimize the risk of water contamination.

2) Civil Work:

Installation of concrete covers: 2m x 2m x 0.2m and 4m x 5m x 0.25m
Construction of security fence: approximately 150 m length

3) Piping work:

The earth channel constructed for collecting spring water shall be replaced by uPVC 75mm x 20 m

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$6,201		B-2

Town	**No. & Facility:**	**Year of Construction**	**Financed by:**
Atauro	02 - Haronglerang	1973	Portugal

Existing Condition:

Structure: Concrete made
Shape: Rectangular
Dimension: 4m x 3.5m x 1.9m
Capacity: 28m^3
Function: Storage
Source of Water: Tulai Spring
Elevation (amsl):
Accessories:
Inlet: GSP 2-inch
Outlet: GSP 2 x 2-inch
Overflow: GSP 2 x 2-inch

Photograph:

(Date: May, 2000)

Evaluation:

In good working condition but needs fence and flow control equipment.

Rehabilitation Plan:

1) Basic Consideration:

The water source must be properly secured to minimize the risk of contamination.

2) Civil Work:

Construction of security fence: approximately 15m^2
Installation of water level gauge

3) Piping work:

Installation of 50mm flow controllers, flow meters and air valves

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous:

Installation of chlorine-dosing facilities

Estimated cost:	**Construction schedule:**	**Priority:**
US$8,524		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Atauro	03 - Tolelona 1	1984	Indonesia

Existing Condition:

Facility: Service reservoir
Structure: Concrete with tin roof
Shape: Rectangular
Dimension: 5m x 5m x 1.5m
Capacity: 37.50m^3
Function: Storage
Source of Water: Tulai Intake
Elevation (amsl):
Accessories:
inlet: GSP 2-inch x 2 from Tulai and Tolelona 2
outlet: GSP 2-inch x 4 and GSP 1-inch x 1

Photograph:

(Date: May, 2000)

Evaluation:

In good working condition but requires fence to avoid human and animal entry

Rehabilitation Plan:

1) Basic Consideration :
The reservoir area must be secured to avoid possible contamination of the water supply.

2) Civil Work:
Construction of the security fence.
Installation of water level gauge

3) Piping work:
Rearrangement of the pipeline by the installation of 1 main outlet with water meter

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$4,581		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Atauro	04 - Tolelona 2	1989	Indonesia

Existing Condition:

Facility: Service reservoir
Structure: Concrete with galvanized sheets roofing
Shape: rectangular
Dimension: 5m x 5.5m x 1.5m
Capacity: 41.25m^3
Function: Water storage
Source of Water: Tulai spring
Elevation (amsl):
Accessories:
Inlet: GSP 2-inch
Outlets: GSP 2-inch x 4

Photograph:

(Date: May, 2000)

Evaluation:

In good working condition but no fence
Some portion of the roof was damaged and require replacement

Rehabilitation Plan:

1) Basic Consideration:
This reservoir must be well-protected to minimize the risk of contamination.

2) Civil Work:
Construction of the security fence around the reservoir site
Installation of water level gauge

3) Piping work:
Pipe rearrangement is necessary to combine into 1 outlet with 1 flow meter and control valve

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$4,758		B-2