Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Atauro	05 - Tangke Cementerio	1998	AusAID

Existing Condition:

Facility: Service reservoir
Structure: Concrete
Shape: Rectangular
Dimension: 2.5m x 3.5m x 2.3m
Capacity: 15m^3
Function: Storage
Source of Water: Tulai spring via Haronglerang Reservoir
Elevation (amsl):
Accessories:
Inlet: GSP 1.5-inch
Outlet: GSP 2-inch x 2

Photograph:

(Date: May 2000)

Evaluation:

In good working condition but the facility is not secured.

Rehabilitation Plan:

1) Basic Consideration:

The reservoir must be well-secured to minimize water contamination.

2) Civil Work:

Construction of security fence around the reservoir site.

3) Piping work:

Installation of flow meter 50mm

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$2,670		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Atauro	06 - Lebadoe Reservoir	1998	AusAID

Existing Condition:

Facility: Service Reservoir
Structure: Concrete
Shape: Rectangular
Dimension: 4.7m x 2.5m x 1.75m
Capacity: $20m^3$
Function: Storage
Source of Water: Tulai and Ehrutar water sources
Elevation (amsl):
Accessories:
Inlet: GSP 1-inch from Tulai via Tangke Cementerio
GSP 3/4-inch from Ehrutar
Outlet: Outlet: GSP 1-inch

Photograph:

(Date: May 2000)

Evaluation:

Not in operation because no supply from sources.
The reservoir site is not protected.

Rehabilitation Plan:

1) Basic Consideration:

The reservoir site must be securely fenced to minimize the risk of contamination

2) Civil Work:

Construction of security fence
Installation of flow control and measuring devices

3) Piping work: none

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous:

Installation of chlorine-dosing facilities

Estimated cost:	***Construction schedule:***	***Priority:***
US$5,847		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Atauro	07 - Proposed Lebadoe 2		

Existing Condition:

Photograph:

Evaluation:

With the proposed rehabilitation plan, the existing Lebadoe Reservoir will be insufficient for the Beloi service area.

Rehabilitation Plan:

1) Basic Consideration:

The construction of an additional reservoir will be necessary to augment the existing reservoir.

2) Civil Work:

Construction of concrete reservoir with volume = 30 m^3, including the necessary appurtenances
Construction of security fence.
Installation of water level gauge

3) Piping work:

Installation of pipeline (inlet & outlet) to interconnect with the existing, including flow control and measuring devices

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$14,069		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Atauro	08 - Transmission Main		

Existing Condition:

Facility: Transmission main
Diameter: GSP 2 inch x 1inch
Length: 5km
Function: water transmission from Tangke Cementerio to Lebadoe
Accessories: none

Photograph:

(Date:)

Evaluation:

The existing transmission main is insufficient.
The pipeline are not properly constructed resulting to damages.

Rehabilitation Plan:

1) Basic Consideration:

The existing transmission main must be upgraded or replaced with bigger diameter to carry the expected increase in water flow.
The pipeline must be properly constructed with adequate protection to minimize damage.

2) Civil Work:

Construction of pipe crossing and concrete abutments

3) Piping work:

Installation of 75mm x 4 km pipeline including the necessary appurtenances

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

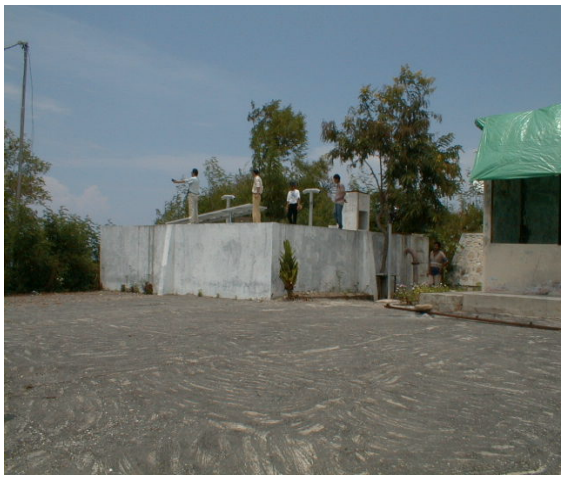
Estimated cost:	***Construction schedule:***	***Priority:***
US$73,010		B-1

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Manatuto	01 - Saututum Reservoir		

Existing Condition:

Facility: Service reservoir
Structure: Reinforced concrete
Shape: Rectangular
Dimension: 9m x 9m x 4.5m
Capacity: 200m^3
Function: Storage
Source of Water: Manatuto spring
Elevation (amsl):
Accessories:
Inlet: 6-inch from spring source
3-inch from abandoned well
Outlet: GSP 8-inch and 4-inch
Valves and ventilation
Chlorine-dosing equipment

Photograph:



(Date:)

Evaluation:

Not in operation due to the damages on the transmission main

Rehabilitation Plan:

1) Basic Consideration

The expected increase in water demand will make this reservoir insufficient to store water
An additional reservoir will be necessary

2) Civil Work:

Repair of the staff house

3) Piping work: none

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$3,000		C-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Manatuto	02 - Proposed Saututum 2		

Existing Condition:

Photograph:

Evaluation:

The storage capacity of the existing reservoir (Saututum) will be insufficient to meet the requirement in 2003.

Rehabilitation Plan:

1) Basic Consideration

Construction of this additional reservoir will be necessary to supplement the expected storage deficit in 2003.

It is viable to construct the proposed reservoir on the same location to allow gravity flow of water to the service area.

2) Civil Work:

Construction of a service reservoir with capacity of 330 m^3 including the necessary appurtenances.

3) Piping work:

Pipe realignment and interconnection of 200mm pipe to the existing distribution network and service reservoir.

Installation of flow meter and controller, air release valves and gate valves.

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$41,014		C-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Manatuto	03 - Distribution Main		

Existing Condition:

Facility: Distribution network
Diameter: PVC 2-inch
Length: 1.5 km
Function: To distribute water to the people living in the northern part of town
Accessories: Gate valves, air valves and blow-off

Photograph:

(Date:)

Evaluation:

The distribution pipes that conveys water to the northern part of town are heavily damaged.

Rehabilitation Plan:

1) Basic Consideration

Replacement of the whole pipeline will be the most viable alternative in order to distribute water effectively in that area.

2) Civil Work: none

3) Piping work:

Installation of 50mm x 1.5 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$16,500		C-1

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Baucau	01- Spring Intake & Pumping Station No.1@Wailia	Initially 1966-67	Portugal

Existing Condition:

Facility: Spring Intake & Pumping Station

Function: Pumps water to Wainiki Pumping Station and Lamegua Reservoir

Source of Water: Spring @ Wailia

Elevation (amsl):

Accessories:

Centrifugal pumps: 0.34m3/min x 84m - 15kw x 2 sets to the Reservoir No.1,
Centrifugal pumps: 0.75m3/min x 100m - 18.5kw x 2 sets to the Booster pumping station
Main Power Switch panel
Generator x 2
Fuel Tank
Pump Panel x 4

Photograph:

(Date: October 2000)

Evaluation:

The existing pumping facilities and generator sets appeared to had lapsed their economic life.
One of the generator sets is not operational.
Refurbishment of the pumping facilities is currently on-going.

Rehabilitation Plan:

1) Basic Consideration

Replacement of the existing pumping facilities and generator sets is the most viable alternative.

2) Civil Work:

Improvement of the intake facilities including the construction of the collection chamber and intak pipe.

3) Piping work: none

4) Mechanical work:

Installation of centrifugal pumps: 0.34m3/min x 84m - 15kw x 2 sets (1 duty & 1 standby)
Installation of centrifugal pumps: 0.75m3/min x 100m -18.5kw x 2 sets (1 duty & 1 standby)

5) Electrical work:

Watt-hour Meter Box x 1set
Main Power Switch Panel x 1set
Generator Set 75kVA x 1set
Fuel Tank 340L x 1set
Pump Control Board x 1set

6) Miscellaneous:

Chlorine dosage equipment: a mixing tank with mixer, dosing pumps
Provision of radio transceiver sets for operation

Estimated cost:	***Construction schedule:***	***Priority:***
US$143,091		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Baucau	02 - Pumping Station No.2 @Wainiki (Booster Pump)	1992	PRI

Existing Condition:

Function: Supplies water up to the main reservoir @ Adarai through booster pumps

Source of Water: Spring via Pumping Station No.1

Ground level (amsl):

Accessories:

Centrifugal pumps: 0.75m3/min x 100m - 18.5kw x 2 sets
Main Power Switch panel
Generator x 2
Fuel Tank
Pump Panel x 4

Photograph:

(Date: October 2000)

Evaluation:

Minor rehabilitation work is required on the intake structure. It is economically viable to replace the pumping and electrical facilities.

The pumping station is newly refurbished.

Rehabilitation Plan:

1) Basic Consideration

Replacement of the existing pumping facilities and generator set is the most viable alternative.

2) Civil Work:

Construction of the security fence.

3) Piping work: none

4) Mechanical work:

Repair of leak on the delivery main
Installation of centrifugal pumps: 0.75m3/min x 100m - 18.5kw x 2 sets

5) Electrical work:

Watt-hour Meter Box x 1set
Main Power Switch Panel x 1set
Generator Set 75kVA x 1set
Fuel Tank 340L x 1set
Pump Control Board x 1set

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$79,400		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Baucau	03 - Pumping Station No.3 and Reservoir @Lamegua	1988	

Existing Condition:

Facility: Pumping station and service reservoir
Elevation (amsl):
Source of Water: Spring via Pumping Station No. 1
Function: For storage and to supply water to high elevation including Tirilolo reservoir
Pumping Station:
Pumps: 0.34m3/min - 2 sets (missing)
Generator x 2: broken
Fuel Tank x 2
Pump Panel x 2
Service Reservoir:
Structure: Reinforced concrete
Volume: 50 m^3
Accessories:

Photograph:

(Date:)

Evaluation:

The pumping facilities were removed and the generator set heavily damaged
Water pumps into the reservoir is distributed by gravity

Rehabilitation Plan:

1) Basic Consideration:
The pumping facilities and generator set need to be replaced with new ones.

2) Civil Work:
Refurbishment of the pumping station to include doors, appropriate lighting, ventilation and security fence.
Installation of water level gauge

3) Piping work:
Installation of flow meter and control valves including appropriate pipe works.

4) Mechanical work:
Installation of submersible pumps: 0.34m3/min x 80m - 2 sets

5) Electrical work:
Main Power Switch Panel x 1set
Generator Set x 1set
Fuel Tank x 1set
Pump Control Board x 1set

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$89,233		B-1

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Baucau	04 - Main Reservoir @ Adarai	1992, 1995	PRI

Existing Condition:

Facility: Service Reservoir x 2 units
Structure: Reinforced concrete
Shape: R ectangular
Volume: 100 m^3 + 250 m^3 = 350 m^3
Function: For storage and to supply water by gravity to the reservoirs at Tirilolo and Samadiga
Source of Water: Spring via pumps @ Wailia and Wainiki
Elevation (amsl):
Accessories:
- Inlet: GSP 8-inch
- Outlet: GSP 6-inch
- Water level gauge
- Ventilation
- Drain and overflow

Photograph:

(Date:)

Evaluation:

- In working condition
- Lacks routine maintenance
- Needs flow meter and control valves

Rehabilitation Plan:

1) Basic Consideration

Chlorination is necessary prior to distribution of water.

2) Civil Work: none

3) Piping work:

Installation of flow meter and control vlaves dia. 6-inch

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous:

Installation of chlorine-dosing facilities x 2 sets

Estimated cost:	***Construction schedule:***	***Priority:***
US$10,822		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Baucau	05 - Tirilolo Reservoir and Transmission Main	1988	PRI

Existing Condition:

Facility: Service reservoir
Structure: Reinforced concrete
Shape: Rectangular
Dimension:
Capacity: 50m^3
Function: Storage
Source of Water: Lamegua Reservoir + Main reservoir
Ground level (amsl):
Accessories: inlet (3 inch GSP), outlet (3 inch GSP)
Inlet: GSP 4-inch + 3-inch
Outlet GSP 3-inch
Ventilation
Drain and overflow

Photograph:

(Date:)

Evaluation:

No supply of water from source
Transmission main installation from Lamegua not completed

Rehabilitation Plan:

1) Basic Consideration:
To activate this reservoir requires the completion of the transmission main from Lamegua.

2) Civil Work:
Installation of security fence

3) Piping work:
Installation of flow meter and control valves at outlet
Installation of 75mm x 1.0 km transmission main including gate valves, blow-off and air-release valves

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$21,951		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Baucau	06 - Samadiga Reservoir	1988	PRI

Existing Condition:

Facility: Service reservoir
Structure: Reinforced concrete
Shape: Rectangular
Dimension:
Capacity: 50m^3
Function: Storage
Source of Water: Main Reservoir @ Adarai
Elevation (amsl):
Accessories:
Inlet: GSP 3-inch
Outlet: GSP 3-inch

Photograph:

(Date:)

Evaluation:

Not in operation due to limited supply from source and damage of the transmission lines.

Rehabilitation Plan:

1) Basic Consideration:

To activate this reservoir requires repair of the transmission lines.
The reservoir must be securely fenced.

2) Civil Work:

Installation of security fence
Installation of water level gauge

3) Piping work:

Flow meter and controller installation

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$5,251		B-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Baucau	07 - Proposed Reservoir + Transmission Main		

Existing Condition:	***Photograph:***

Evaluation:

The existing reservoir will be insufficient for the year 2003

Rehabilitation Plan:

1) Basic Consideration:

The storage deficit will be rectified by the construction of additional reservoir including transmission and distribution pipelines.

2) Civil Work:

Construction of storage reservoir with the capacity of 100 m^3 including the necessary appurtenances.

Construction of security fence

3) Piping work:

Flow meter and controller installation

Installation of transmission main 150mm x 0.5km, partly from the proposed reservoir to Samadiga Res.

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$24,622		B-1

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Los Palos	01 - Pumping Station # 1 @ Kauto (along the main road)	1986	PRI

Existing Condition:

Facility: Pumping Station
Function: Pumps untreated water to the service area
Pump capacity: 0.6m^3/min x 15kw - 2 sets
Type of pump: centrifugal
Ground level (amsl):
Accessories:
- Generator x 2
- Fuel Tank
- Pump Panel
- Water collection chamber

Photograph:

(Date: May 2000)

Evaluation:

The pumps and generator although operational had lapsed their economic life.

Rehabilitation Plan:

1) Basic Consideration:

This pumping station will serve as stand-by once the WTP and elevated water reservoir becomes operational
It is economically viable to replace the existing facilities with new one.

2) Civil Work: none

3) Piping work:

Installation of flow meter and control valve

4) Mechanical work:

Pump replacement with the following specifications:
Type: Centrifugal
Capacity: 1.0m^3/min x H40m x 16kw - 2 sets

5) Electrical work:

Watt-hour Meter Box x1set
Main Power Switch Panel x1set
Generator Set 62.5kVA x1set
Fuel Tank 280L x1set
Pump Control Board x1set

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$74,912		A-2

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Los Palos	02 - Pumping Station No.2 (Papapa WTP site)	1998	PRI

Existing Condition:

Facility: Raw and treated water pumping station

Function: To pump raw water to the WTP for treatment
To pump treated water to elevated reservoir

Type of pump: Centrifugal

Ground level (amsl):

Source of Water:

Raw water: Spring water to WTP

Treated water: WTP water to elevated reservoir

Accessories:

Generator set - show traces of removal

Control panel - show traces of removal

Photograph:

(Date: Oct 2000)

Evaluation:

This pumping station is heavily damaged.
The pump motors and generator set were removed and only traces are left for other equipment.
It requires total replacement of the mechanical and electrical facilities and refurbishment of the pump house.

Rehabilitation Plan:

1) Basic Consideration:

It is technically and economically viable to install new pumping facilities and generator set.
The pump house needs to be refurbished.

2) Civil Work/Architectural:

Refurbishment of the pump house.
Construction of the security fence

3) Piping work:

Installation of water meter and control valves including the necessary pipeline

4) Mechanical work:

Installation of the following pumping facilities:
Raw water: 1.4 m^3/min x H 4.0 m x 20 kW - 2 sets
Treated water: 2.1 m^3/min x H 48 m x 30 kW - 2 sets

5) Electrical work:

Watt-hour Meter Box x1set
Main Power Switch Panel x1set
Generator Set 150kVA x1set
Fuel Tank 650L x1set
Pump Control Board x1set

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$158,049		A-1

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Los Palos	03 - WTP and Proposed Ground Reservoir		

Existing Condition:

Facility: Water treatment plant
Production capacity: 15 L/s in total
Process: Slow sand filter
Dimension: 9 m x 16 m - 2 basins
Design filtration rate: 4.5 m/day
Source of water: Spring
Elevation (amsl):
Accessories:
Inlet: GSP 8-inch
Outlet: GSP 8-inch

Photograph:

(Date:)

Evaluation:

Not in operation because of the extensive damage to the pumping facilities that supply raw water
Lacks routine maintenance
Require additional SSF unit and ground reservoir for treated water

Rehabilitation Plan:

1) Basic Consideration

Expansion of the slow sand filter unit (7.5L/sec) and new ground reservoir to meet the required water demand in 2003.
Treated water collected into the ground reservoir will be pumped into the elevated reservoir.
The ground reservoir will also serve as storage to augment the deficit.

2) Civil Work: Expansion of SSF and construction of the ground reservoir

SSF:	Ground reservoir:
Size: 9m x 16m - one basin	Storage: 450 m^3
Production capacity: 7.5 L/s	Size: 15m x 12m x 2.5m
	Accessories: level gauge, flow meter

Construction of the security fence to secure the entire WTP, reservoir and intake facilities

3) Piping work:

Installation of 200mm inlet and interconnection with the existing

4) Mechanical work: none (included in the rehabilitation of Pumping Station No. 2)

5) Electrical work: none (included in the rehabilitation of Pumping Station No. 2)

6) Miscellaneous:

Land Acquisition Area = 2,000m^2

Estimated cost:	***Construction schedule:***	***Priority:***
US$140,972		A-2

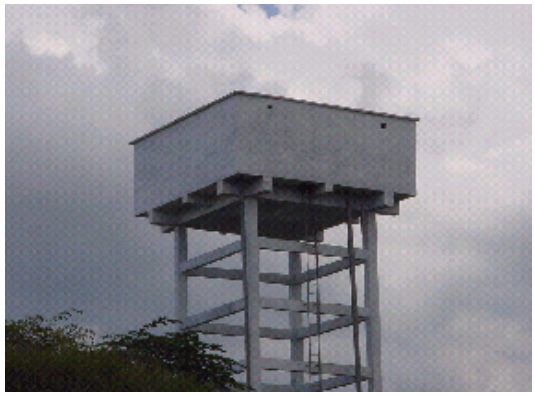
Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Los Palos	04 - Elevated Tank	1998	PRI

Existing Condition:

Facility: Service reservoir
Structure: Reinforced concrete
Shape: Rectangular
Dimension: 8.0m x 9.0m x 3.0m
Capacity: 210 m^3
Function: Storage
Source of Water: WTP via Pumping Station No. 2
Tank height: 15m above the ground
Accessories:
- Inlet: GSP 8-inch
- Outlet: 10-inch
- Overflow & drain: GSP 8-inch
- Ventilation & ladder

Ground Elevation (amsl):

Photograph:



(Date: Oct 2000)

Evaluation:

The tank is structurally safe and could be activated once the WTP and Pumping Station No. 2 becomes operational
Routine maintenance should be carried out prior to activation

Rehabilitation Plan:

1) Basic Consideration:

2) Civil Work: none
Installation of water level gauge

3) Piping work:
Flow meter and controller installation

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:***
Los Palos	05 - Proposed Distribution Main		

Existing Condition:	***Photograph:***

Evaluation:

The existing distribution main will be insufficient for the design year 2003.

Rehabilitation Plan:

1) Basic Consideration

The existing distribution main needs to be augmented to meet the increase in water production and water demand

2) Civil Work:

Construction of 1pipe crossing including concrete abutments.

3) Piping work:

Installation of 250mm x 500 m; 200mm x 4.5 km including the necessary valves, air release, and blow-offs.

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$350,010		A-1

Town	***No. & Facility:***	***Year of Construction***	***Financed by:***
Viqueque	01 - Loihunu Spring (Builua)	Initally 1967	Portugal

Existing Condition:

Facility: Intake structures - Raw water channel (stone masonry) and collecting chamber (concrete)
Dimension:
Capacity: 30L/sec - 40 L/sec
Function: Raw water intake
Source of Water: Loihunu spring
Ground level (amsl):
Accessories:
Intake: GSP 3-inch
Outlet: GSP 6-inch

Photograph:

(Date: April 2000)

Evaluation:

Lacks routine maintenance
The risk of possible water contamination is high

Rehabilitation Plan:

1) Basic Consideration:

Routine maintenance on this facility must be enhanced to maintain the water quality
The entire intake area must be well protected by the construction of security fence to restrict human and animal entry.

2) Civil Work:

Construction of security fence

3) Piping work:

Installation of flow meters and controllers 150mm

4) Mechanical work: none

5) Electrical work: none

6) Miscellaneous: none

Estimated cost:	***Construction schedule:***	***Priority:***
US$6,622		B-2