



**FINAL REPORT**  
**30 APR 2009**

<b>Program Name</b>	Atauro Clinic Safe Water Project
<b>Country/Region/ Province/ Specific Location</b>	Timor-Leste, Dili District, Atauro Sub-District
<b>Program Timing:</b>  <b>Start-up Date</b> <b>Finish Date</b> <b>Project Duration</b>	  1 Feb 2009 30 Apr 2009 3 Months
<b>Organisations Name</b>	Australian Aid International



*Atauro CHC*

# 1.0 Project Area of Operations: Sub-District

Atauro Sub-District, Villa Sucu (Township)



## 2.0 Background

Atauro Island is located 30 kilometres off the coast of Dili, Timor Leste. The island is home to approximately 10,000 inhabitants, the majority of whom are farmers or fishermen. Atauro is quite isolated, with ferry service between the island and the capitol city of Dili operating only once per week.



*The remote Atauro Island*

The Community Health Centre (CHC) is the only provider of health services for the population of Atauro Island. The CHC is located in the town of Villa, and began in 1991 under the direction of the Indonesian government. The clinic contains nine inpatient beds, a laboratory, and a pharmacy and is staffed by occasionally one Cuban doctor, eight nurses, three midwives, and one lab technician. The CHC is supervised by the Health Coordinator, Senor Lucas, who is also a registered nurse and began working at the CHC in 1999.



*The Community Health Centre*

Australian Aid International (AAI) has been working in conjunction with the Ministry of Health to support and supervise programs at the Atauro CHC since 2006. AAI currently provides outreach and mobile medical clinical services to clinics on Atauro Island. AAI are also working with the WHO to capacity build local healthcare staff and by providing training and support to remote area nurses. Many of AAI's health services to rural communities are only accessible by boat. AAI assists in transporting severely ill patients from their rural communities to the CHC in Villa.



*AAI treating patients at rural clinics*

### **3.0 Beneficiaries**

The CHC holds open clinic hours Monday to Saturday and the clinic consults to more than 700 patients per week. The clinic also serves as an inpatient facility and has many patients, patient families and staff members staying on location. The CHC is the island's only provider of emergency health services, and is often forced to coordinate helicopter evacuations for critically ill patients. Primary health care is a top priority for the CHC and it provides a variety of services to the local population, such as childhood immunizations, pre-natal care and child delivery. The clinic also attends to those seeking diagnosis and treatment for the most serious health problems facing the country such as malaria, tuberculosis, dengue fever, and leprosy. The CHC, in partnership with AAI, participates in many mobile clinics in remote and often-neglected areas, and receives patients from all over the island.

Inadequate hygiene within the local population and a lack of clean water are leading factors in water related diseases such as diarrhoea, pneumonia and skin infections.

### **4.0 Existing Water System**

Historically the residents of Atauro Island relied on deep bore wells for their supply of water. Recently, the Timorese government installed an intricate water pipeline which is fed from a series of fresh water springs and lakes in the mountains. The water that is fed to the CHC comes from two sources. The main source is an underground freshwater spring that is located approximately 1.6 kilometres away and is 300 meters of elevation above the clinic. There are significant numbers of people and animals living in the area of the source, and undoubtedly contaminating the water. The secondary source is a large lake that is located approximately 20 kilometres away from the CHC.

The water is gravity fed from its source through a series of storage tanks, and delivered to various towns on the island. The CHC gets its water from the pipeline, but the water must be boiled before drinking to avoid illness. The water that gets to the CHC from the pipeline is stored in a reserve tank at the clinic. Due to the location and small size of the reserve tank, the clinic water pressure is not adequate, and often the clinic runs out of usable water. The lack of available water frequently prohibits the clinic lab from functioning. A larger reserve tank, mounted at a greater height would increase the quantity of water available and would allow the water to be delivered with greater pressure.



*(CHC open water source)*



*(Site of proposed SkyHydrant project)*

## **5.0 Safe Water Project**

The most sustainable solution was to install a water filtration unit at the clinic in the location of the existing CHC reserve tank, making it easy to feed the filtered water into the existing piping for the clinic. A water tower was constructed above the existing reserve tank, and a new 1000 litre plastic water tank was placed on top. Water from the header tank now gravity feeds through the SkyHydrant filter and into a new 3300 litre plastic filtration tank that has been mounted on top of a concrete water tank. This system now supplies the clinic with a supply of clean water.

AAI's Community Engagement process and the use of SkyHydrant™ water filtration units, SkyHydrants™ are installed and maintained by the community to provide the beneficiaries with a safe and clean water supply even though the central supply system remains contaminated.

The SkyHydrant™ water filtration unit utilises a unique low cost Australian design (manufactured in Sydney) that delivers safe potable water which exceeds WHO safe water standards. SkyHydrants™ are economical, compact, robust, easy to transport and ideal for remote locations. The filtration process does not require chemicals or power and there are no moving parts during the filtration process – therefore there are virtually no ongoing costs. Notionally, the SkyHydrant will produce up to 1000 litres of safe water per hour depending upon the feed water, which will be abundant for the communities' requirements.



*Tank stand and collection tank on the right and tank stand and distribution tank on left*



*Tank stands and tanks with water filtration unit*

## **6.0 Outcomes**

The Safe Water Project now supplies not only the CHC but also the surrounding community with safe potable water. Access to safe potable water will dramatically reduce the incidence of water borne illnesses and respiratory related problems within the CHC.

AAI participated with the community to develop a community action plan to provide safe water to selected villages. The community select a water management committee in the village. The committee are now trained by AAI staff in the installation, operation and maintenance of the SkyHydrant™ water filtration unit. With this Community Engagement process, the water management committee are now able to maintain the system. Adequate maintenance in accordance with the manufacturer's instructions will ensure that the SkyHydrant™ will operate efficiently for the optimum period of up to 10 years.

This simple process of providing SkyHydrant™ water filtration, with an accompanying Community Engagement initiative, provides a sustainable water solution to many families and offers safe water to communities who are currently living without the benefits of access to a safe and sustainable water supply.

## **7.0 Program Variations:**

AAI requested an extension of one month to complete the project. There were two major areas of concern that held up the project.

1. The water supply to the clinic, from the water source, had been damaged and insufficient water was available to commence final water output testing and subsequent ordering of appropriate materials. The water supply was repaired at the end of March by the community and an adequate supply of water was available to complete operations.
2. The ferry to Atauro was fully booked for cargo during the month of February. AAI were not able to get water supplies onto the Island until March therefore causing delays of the initial water system construction. The majority of materials were then sent over later in March to begin construction. However, further delays caused by the ferry being unserviceable to go to Atauro held up construction again and the system was finally completed and functioning at the end of April 09.
3. Due to the better than expected water flow rates coming from the water source a solar panel and pump system have not been required. The water filtration system is now operating totally by water gravity and no mechanical equipment is needed to operate the system. Therefore, the system is fully sustainable without the use of power.

## **5.0 Effectiveness Of Program:**

### **Lesson Learnt 1**

Due to the remote location of Atauro Island and the difficulties of transport there were significant delays in transporting materials to the Island and sending staff over to supervise the project. At times when a piece of equipment was not available there further delays due to having to go back to Dili and waiting for available boats to transport staff and equipment back again to the Island.

### **Course of Action**

There must be a sufficient amount of time available due to delays in transport and this must be detailed in the project plan. Working on Atauro is a special case situation and lengthy delays can be expected. Therefore, adequate planning is required.

### **Lesson Learnt 2**

Construction of the water filtration system is difficult to undertake in remote locations. Equipment for the construction must be well prepared in advance. There were a number of times when additional supplies were required to complete the construction of the system and these supplies were not available on the Island. Therefore, further delays occurred while waiting for these supplies to come from Dili.

### **Course of Action**

It would be appropriate to fully construct the system as much as possible on the mainland first so that most of the components of the system can be tested and additional parts ordered or replaced before taking the complete system to a remote location. This would reduce the amount of delays that were experienced sourcing some of the supply components required to operate the system.

## **6.0 Activity Documentation and Reports:**

Refer to Attachments – Financial Report and copies of original receipts.



*First community members to drink safe clean water from the new filtration system*

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