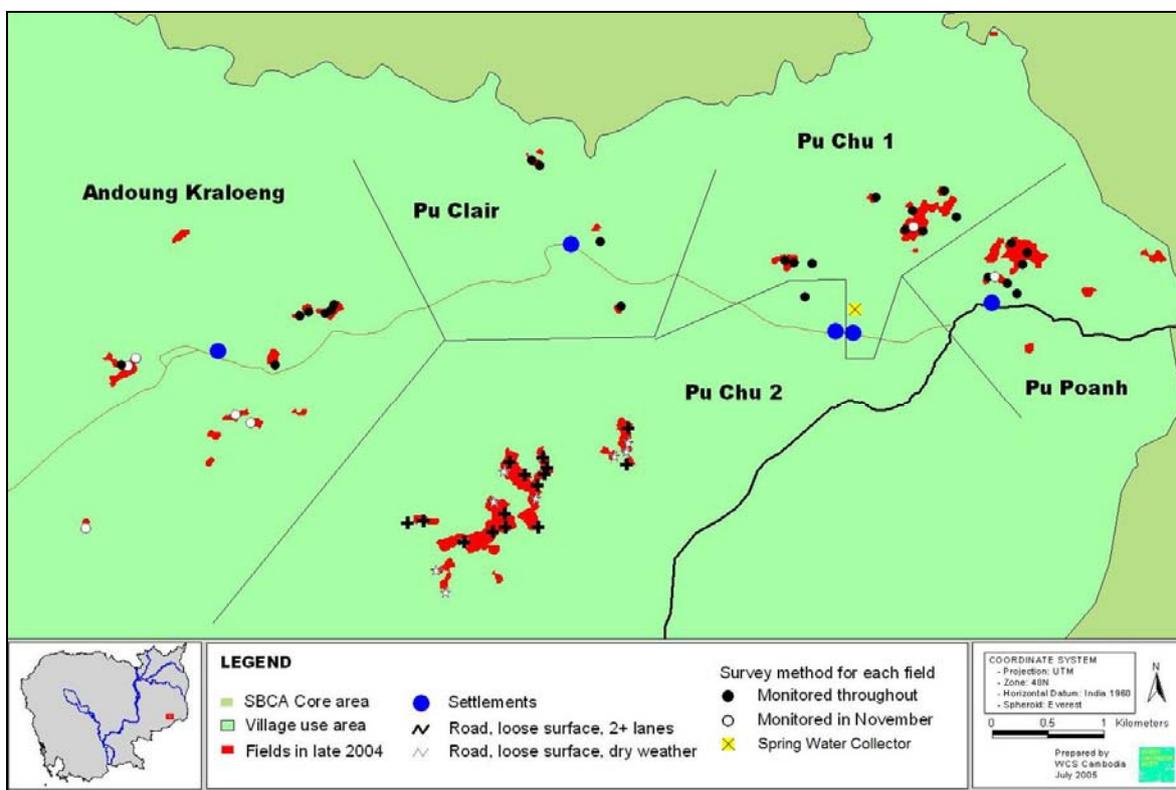


## Case Study: The Effects of Constructing a ‘Spring Water Collector’ within an Ethnic Phnong Hill Tribe Andong Kraloeng Village, Mondulkiri Province Cambodian Rural Development Team

### 1. Executive Summary

- 1.1 **Case Study** : The Effects of Constructing a “Spring Water Collector” in Andong Kraloeng Village in Mondulkiri
- 1.2 **Project** : CAM/MOA/05-010 EC/UNDP PTF SGP  
Rural Development and Sustainable Agriculture in support of PLUP Agreements and Biodiversity Conservation Project
- 1.3 **Agency** : Cambodian Rural Development Team (CRDT)
- 1.4 **Location** : Andong Kraloeng Village, Sen Monorom Commune, O Reang District, Mondulkiri Province
- 1.5 **Location Map** :



## 2. Background

Andong Kraloeng Village is located in the core zone of Seima Biodiversity Conservation Area (SBCA), in Sen Monorom Commune, O' Rieng District. There are 104 families with 72 households (approximately 460 people). The village itself is made up of 5 Kroms (settlement areas) which stretch out over 10 kilometers. These Kroms are: Pu Poanh, Pu Cu 1, Pu Chu 2, Pu Claire, and Andong Kraloeng. 99% of villagers living within Andong Kraloeng Village are indigenous Phnong people whom sustain their livelihoods primarily through upland rice cultivation and some secondary income generation activities such as 'resin tree tapping' and 'rattan harvesting' (to build furniture).

Geographically, the village is located within a mountainous area and the water table in the ground is very deep, thus making water collection a difficult task. In the past, there have been some attempts by villagers to dig wells in order to access ground water levels. The most notable of such wells is in Pu Claire Group where an open-well was excavated to an impressive 40 meters by hand. The two largest Kroms (in which the majority of Andong Kraloeng's population lives) are Pu Chu 1 and Pu Chu 2 located adjacent to each other. Traditionally, people from these Kroms collect their water during the dry season from a natural spring approximately 150 meters north of the main access road to the village (see above map). This natural spring seeps out of a hillside and drains into a small valley located in a 'Phnong Spirit Forest'.

In October of 2005, CRDT was invited by Wildlife Conservation Society (WCS) to begin a 'Needs Assessment' of Andong Kraloeng Village to determine what development activities were required in the village to assist an impending "Participatory Land Use Planning Agreement". The PLUP Agreement was to be negotiated between WCS, the FA (Forest Administration), and local villagers in order to protect forest land resources within the SBCA. It was immediately apparent to CRDT that water security was the greatest issue facing the people in the village. During this time, CRDT was able to assess water resources in each Krom, including the natural spring north of Pu Chu 1 and Pu Chu 2. When the Team arrived, the spring pool used by some 50 families was filthy and unsanitary with a very low rate of water flow. Garbage was littered all over the site, livestock, such as buffalo, came to the spring to drink and small children were relieving themselves within the immediate area, yet people were using the same water for consumption and washing their clothes. It was clear that something needed to be done to alleviate the situation.



*The Natural Spring Site north of Pu Chu 1 and Pu Chu 2 when located by the CRDT Field Team in October 2005.*

## 3. Activities

In order to address the identified water security problems at the natural spring site, CRDT, in close cooperation with WCS, contracted Mr. Heng Bunthoeurn, a private Water Engineer Consultant, to survey the site and assess whether or not a structure could be constructed to collect water from the spring, while protecting the natural area around the site. In consultation with community members and CRDT, the concept of a 'Spring Water Collector' was developed using the natural terrain and the force of gravity to fill a water tank.



*Mr. Heng Bunthoeurn with CRDT and Community members surveying the Natural Spring Site.*

The developed structure was to be placed 20 meters downstream from the natural spring opening. This location is at a lower elevation from the spring opening and allows for the forces of gravity to fill the container naturally without the use any machinery. The 'Spring Water Collector' consists of several sections, including: a 5m x .5m shallow concrete pool which collects water flowing from the spring head; at the end of this shallow pool is a filtration box which the water flows through; after the water is filtered, it is then contained in a 3m x 2m x 1.5m concrete tank capable of storing 9000 liters of clean water. Villagers are then able to access this water through 3 taps installed on one wall of the tank.

Construction of the superstructure began in January of 2006 and was funded by the EC/UNDP PTF Small Grant Programme. CRDT was able to purchase all materials and hire a skilled tradesman to lead construction activities. The rest of the labor was provided by the villagers themselves whom were very enthusiastic about the project as they were able to see the daily progress of the 'Spring Water Collector' activities. In addition to the construction of the superstructure, a stairway was built to ensure villagers were able to gain access without hurting themselves walking down the slope of the valley, as well as, a wooden fence surrounding the site to prevent livestock from contaminating the water. The cost of the unit was approximately \$2,000 USD and was completed in April of 2006.



*Spring Water Collector under construction with great participation from community.*

#### **4. Outcomes**

Once the 'Spring Water Collector' was completed, the villagers within Pu Chu 1 and Pu Chu 2 began to use the facilities immediately. In order to ensure the quality of water and the long-term use of the unit, CRDT implemented several activities. First, the Field Team coordinated a clean-up of the surrounding area with the villagers removing all garbage from the site and disposing of it in an appropriate manner away from the site. Second, CRDT held a training course to inform villagers of the importance of hygiene and sanitation for good health, how to keep the water source clean, and how to dispose of garbage in an appropriate manner. Finally, CRDT was able to assist with the establishment of a "Spring Water Collector Maintenance Committee" to ensure the structure is well maintained and repaired should any damage occur.



***CRDT field staff, Hean Pheap, conducting general and primary health at Spring Water Storage.***

As stated by Mr. Klev Ngoch, of the ‘Spring Water Management Committee’, “We are very glad since having the Spring Water Collector. We have saved much time to collect water for daily use compared to before having it. Before, we had to wait for long time to collect water from a small spring pool of 1 square meter and a half meter depth with its capacity of 200 liters. Before, the spring would run out of water when many people came at the same time and some people needed to wait until the water filled up the spring pool which was very murky. They could only get one 30 liter bucket of water at a time. Now, no one needs to wait to get water even when many people come at the same time, as there is a lot of water in the container with 3 taps. We spend less then one minute to get a bucket of water. Also, people of all ages can take shower and wash themselves easily by only turning on the valves, and not many children have diarrhea like before”.

Today, most of the villagers from Pu Chu 1 and Pu Chu 2 (as well as many villagers from Pu Poanh) collect their household water from the “Spring Water Collector” on a daily basis during the dry season. This represents some 250 people that now have access to clean drinking water. The area surrounding the spring head has been naturally rehabilitated with vegetation growth from the surrounding jungle and is no longer recognizable from what CRDT first encountered in 2005. The structure itself is kept clean as villagers generally make an effort to clean up their waste and place it in a rubbish bin at the site. The “Spring Water Collector Maintenance Committee” meets regularly to discuss any issues with the structure and is currently planning to collect donations from village users for any repairs and maintenance needed.

Clearly, the provision of water security through the construction of this Spring Water Collector has dramatically changed the daily living situation in Pu Chu 1 and Pu Chu 2. This structure demonstrates how a rural community can come together to meet a common goal in order to alleviate hardships of poverty while developing a sense of pride and accomplishment through working in trust and partnership with each other and with CRDT.



***A view of the Spring Water Collector completed.***



***Children filling up bottles of water from the completed Spring Water Collector.***



*Members of the community repairing the fence surrounding the Spring Water Collector*