



Document 901 PROGRAM PLAN AND BASELINE STUDY

CHAPTER: **South Houston Professional**
COUNTRY: **Thailand**
COMMUNITY: **Maejanoi**

Make sure to read the accompanying Instructions Document 901 for completion of this report.

Prepared By
Angela Cason
Giana Morini
Tom Bryan
Jake Mireles
Chris Rossi
Mai Lee Chang

Submittal Date
January 18, 2015

ENGINEERS WITHOUT BORDERS-USA
www.ewb-usa.org

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1.0 INTRODUCTION

1.1 Contact Information and Reporting History

Contact Information			
Current	Name	Email	Phone
PMEL Lead	Giana Morini Tom Bryan	g.morini03@gmail.com treasurer@ewb-jsc.org	702-370-2564 832-633-6258
Project Leads	Giana Morini Tom Bryan	g.morini03@gmail.com treasurer@ewb-jsc.org	702-370-2564 832-633-6258
Chapter President	Mike Ewert	president@ewb-jsc.org	281-326-1853
Professional Mentor	Alesha Downs	alesha.downs@nasa.gov	386-453-7624

Program Title	Water Collection and Distribution
Community	Yom Maejanoi
Country	Thailand
Date of 502 Approval	June 4, 2014
Date of First Assessment Trip	November 1-15, 2014

1.2 Program Summary

The scope of the program is to improve existing water storage and distribution in the community. Potential growth of the program may consist of water treatment, road development, building development, and crop irrigation.

The EWB-South Houston professional chapter has been in regular contact with the local NGO (LEAF) through email and teleconferences. LEAF has met in person with the community leaders and members as needed to obtain the information that has been requested. Communications have been coordinated and frequent when needed.

The PMEL leads on the assessment trip are Giana Morini and Tom Bryan. Giana has been involved with EWB-Central Houston professional chapter since 2013. She functions as one of the co-leads and as Design Engineer. She will also continue to serve as an interface with the NGO LEAF. In the past year she worked directly with LEAF (and indirectly Maejanoi via LEAF) helping the community to submit its 501 application. Giana has worked as a design engineer for Bechtel since 2006 with project experience including Nuclear Industry (Structural Design), Construction Management (Review of Subcontractor design for Federal Projects), Oil Gas & Chemical Processing Facilities (Design & Construction), and coordination across multiple functions (Transportation & Logistics, Engineering, Naval Architecture, Rigging, etc) including direct client

interaction. She holds her Professional Engineering License in the State of New Mexico (Civil/Structural).

Tom has been involved with the EWB-South Houston chapter since 2010 and has been active in project design for the alternative options of the year round dryer including the kitchen dryer and solar dryer for the Mugonero project under the Rwanda program. On the Thailand project he is one of the co-leads as well as the budget lead. In his professional work Tom coordinates projects across international boundaries as well as multiple NASA organizations.

2.0 PROGRAM PLAN

2.1 Community Context

The community is located in northwestern Thailand, approximately 950 km from Bangkok. The nearest major city is Chiang Mai, about 5 hours east. Maejanoi is 24 km south of the city of Mae Hong Son via a two-lane highway which runs past the village. A dirt road runs from the highway into the village. The surrounding terrain is rugged, hilly and heavily forested.

Maejanoi is a relatively new community of about 200 people. It is comprised of men, women, and children who have come down from the higher mountain areas in an effort to make a better living. The community consists of members of extended families. Most of them are Karen tribal people and many of them are related to each other, as many are intermarried. Some families live about 2 km from the center of the village. Electricity is provided by the Thai government and meters are used to monitor usage for billing. Water is provided by a distribution system that pipes water from a collection point on the mountain to each household. The piping and tanks in the distribution system were donated to the community. The community collects a small fee (10 baht/month) from each family to maintain the system within the village. Responsibility for the maintenance rotates between families on a monthly basis. The local Thai government is responsible for maintenance of the system in the mountain. Community members do not pay for the water usage but during the dry season when the supply is limited, the water is rationed from the tanks and there is not enough for the vegetable gardens.

The village is represented by the Phu Yai Ban. The Phu Yai Ban leads five local villages, of which Maejanoi is one. He was recently elected at around 30 years old and will serve until retirement around age 60-65 years. There are also committees within the village, including the water system committee. This committee is made up of members of the village, consisting of the church leader (Mr. Sanay), community leader (Phu Yai Ban), Be Pitanee, treasurer (Mr. Sanay's wife – Pansee), and two others from the village. Since about 80% of the community are Christians, most of the inhabitants of Maejanoi participate in the Karen Church. About 20% of the community are Buddhist, including the Phu Yai Ban. The community is committed to working together to improve their water supply system. The community has started saving money for the 5% EWB

contribution requirement and has saved approximately 2000 Baht (\$60 USD) in the first 8 months. The community members tend to live day-to-day without much long-term planning.

The partnering NGO is Life Encounter Asia Foundation (LEAF) which was founded in 2012 by Johanna and Dick De Koning. However, they have been in Thailand since 1986 working with refugees. In Maejanoi, they have helped set up community boards and have coached the community through visits and phone calls with advice about finances, farming, and child rearing.

The local government maintains the water piping system on the mountain across the highway from Maejanoi. The government also donated a water pump for use with the dry season water source, however this pump often does not work.

2.2 Community Goal Statement

The community has been looking for ways to improve their circumstances but does not have the funds to begin development on their own. It is hoped this project will be used as a model to teach neighboring communities about improved water management, distribution, and ecological farming. It will result in improved relationships and cooperation with neighboring communities so that more people in the area will benefit. With the help of EWB, Maejanoi community members wish to improve their water supply and quality so that safe, clean water is available year-round for both household use and village farming.

2.3 Community-Identified Problems to Address through This Program

The community is in need of water collection, storage, management and regulation. The community currently uses PVC piping to direct the water from a mountain source to the village, but this system is damaged annually due to brush fires and fallen trees and is continually rebuilt. This water source is limited in the dry season – drinking water is rationed, and there is not enough supply for the village vegetable gardens. The community is concerned about the quality of the water due to contamination.

After this has been achieved, future needs include improvement of the dirt road leading into the village. Currently travel between Maejanoi and Mae Hong Son is difficult during the rainy season due to the challenge of reaching the paved highway from the village.

Additional scope of the program may include development of a community facility to house various community driven activities.

The initial assessment trip was devoted to gathering information about the current status of the water source, storage tanks, water quality, and mapping of the community and water systems.

2.4 Program Mission

Aid in development of Maejanoi to strengthen community's quality of life, structure, and self sustainability.

2.5 Identified Changes This Program Seeks to Support

EWB-USA Change Element	Through Which Project Type*	Chapter Influence is Direct (D) or Indirect (I)
Change in public health	Water Supply	D
Change in environmental health	Water Supply	D
Change in behavior	Water Supply	I
Change in access to services	Water Supply	D
Change in technical knowledge related to projects	Water Supply	D
Change in community organization	Water Supply	I
Change in community self-advocacy	Water Supply	I

* You may only specify: Water Supply, Sanitation, Civil Works, Structures, Energy, Agriculture or Information Systems. More than one project type can support a single element of change.

2.6 Community Engagement

EWB-South Houston professional chapter has been working with this community via the NGO, LEAF, for the past year helping the community to prepare and submit the 501 application and a relationship has been built. Additional teleconferences and emails have been ongoing since the South Houston professional chapter was awarded the program.

2.7 Local Partner Information

The partnering NGO is Life Encounter Asia Foundation (LEAF), which was founded in 2012 by Johanna and Dick De Koning. However, they have been in Thailand since 1986 working with refugees. The LEAF Foundation Board has 4 counselors, one psychiatrist and one lawyer who are located in Bangkok. LEAF travels to the community on an as needed basis and is available to obtain the necessary data that EWB-South Houston professionals will need to ensure a successful program. LEAF is very familiar with this region. They have worked directly with the community leaders to set up a community board, finance committee, and ensure community involvement.

The LEAF Foundation counselors are actively involved in the guidance and coaching of members of the Maejanoi community. This coaching is provided through visits and regular phone calls to give advice about finances, farming and raising children. A seminar on financial management, budgeting, and saving plans was presented in the village on February 22, 2014. The Community Based Organization "Maejanoi Boek

Baan" (meaning 'Maejanoi is beginning to bloom') and LEAF have met to discuss and prioritize needs.

3.0 PROGRAM BASELINE STUDY

This baseline study will form the essential step of the EWB-South Houston professional chapter in the program reporting process to study the impact of the chapter's work with Maejanoi.

3.1 Methodology for Collecting Baseline Information

The initial assessment trip mapped the community, including homes, roads, water sources and storage tanks. We also gathered information about the current water system, water quality, living conditions, materials and supplies prices, and cultural norms. EWB-South Houston professional chapter will be in regular contact with the NGO and community and can request additional information from them.

3.2 Baseline Situation Regarding Planned Changes

Change Element (from Section 2.5 table)	Situation at Program Inception
Change in public health	The travel team found E. coli and coliform from water samples taken throughout the system, including the source, storage tanks, and homes. Villagers reported an oily residue from the water. Some villagers suffer from bladder stones, and one family reported diarrhea.
Change in environmental health	The government's primary concern is deforestation, and they encourage the village to take care of the forest and avoid cutting trees. Many villagers use chemicals for farming, though it is discouraged by the government and could be a source of contamination for water.
Change in behavior	Villagers tend to live day-to-day with little long-term planning.
Change in access to services	Currently water is distributed via pipes to every home. During the dry season, drinking water is rationed, and there is not enough supply for vegetable gardens. In the dry season villagers sometimes have to carry water in buckets twice a day. The dirt road in the village is difficult to use in the rainy season, restricting access to the highway and other towns.
Change in technical knowledge related to projects	Community has built PVC pipes for water system, but have been damaged by brush fires and falling trees and have been repaired/replaced by the community with PVC. There are gaps in the pipe system, and sometimes smaller pipes flow into larger ones. Some of the storage tanks are not well covered. Excess water in the rainy season is not stored. A few households have tanks at their homes which they regularly clean. Banana and bamboo trees have been planted near the source to retain water. Villagers clear leaves around the pipes to protect them from fires. Some households boil their drinking water due to contamination fears.

Change in community organization	The community currently has a water board, a savings plan for this project, and rotating maintenance responsibility (including fee collection) for the current pipe system.
Change in community self-advocacy	The community applied for outside help through EWB and is enthusiastic about this partnership and project. The community is aware of their lack of technical knowledge and funding.

3.3 Potential Barriers to Program Success (up to 3)

Land ownership is a potential barrier that could affect the ability to implement and maintain a system. All land in and around the village is owned by the Thai government. The community is allowed to live on and use the land as long as they do not harm the land. The land is divided among the community members and they “unofficially” own certain areas of the land. For instance, one family inherited land from their parents who have been living in the area longer than them. There are strict policies against deforestation, which must be followed by the EWB team in any implementation. Although the government appeared amenable to development of a water distribution system in Maejanoi and no paperwork is required, the government ultimately has the final say over use of the land. The highest ranking local official, the OBT (subdistrict level), is elected on a short-term basis and is subject to change.

A second potential barrier may be the cultural attitude toward planning and maintenance. Based on conversations with LEAF and evidence seen in the community, the culture does not emphasize maintaining property or planning ahead. Equipment is often not well taken care of and villagers live on a day-to-day basis. LEAF has encouraged financial planning on the community, resulting in the successful start of a savings fund for EWB projects.

Local farming practices provide a third potential barrier to success. Farmers in the region use burning techniques to clear their fields, which sometimes results in forest fires that damage piping in the water distribution system. Also, farmers use chemicals to improve crop yield. They are often uneducated about the use of these chemicals and tend to overuse. The chemicals may infiltrate the water supply, resulting in water unsafe to drink and wash with.

3.4 Potential Facilitators of Program Success (up to 3)

An education program could teach the community how the implemented system works, so they can use it as designed, and maintain or repair the system to ensure continuity of service.

The Phu Yai Ban is a potential ally and facilitator of program success. Recently elected around age 30 and highly respected in the community, he will serve until retirement and

therefore lead through the lifecycle of the EWB program in Maejanoi. The travel team met with the Phu Yai Ban on several occasions and received a positive reception and assurances of a commitment on the part of the community to contribute to the success of the project. The Phu Yai Ban also leads four other local villages, so solutions implemented in Maejanoi may provide inspiration for other local water systems. The local government also appears supportive of the EWB effort, emphasizing the need for engineers in the area.

Since the village already has a maintenance system for the current water system, this is a facilitator of program success. They already have experience collecting fees, rotating maintenance responsibility, planting banana trees and bamboo to retain water, and clearing leaves around pipes to reduce damages to the pipes during a fire. This existing infrastructure will help ensure continuity of the EWB project.

4.0 APPENDIX A – PROGRAM LOGICAL FRAMEWORK (Document 905)