



# Document 521 PRE-ASSESSMENT REPORT

CHAPTER: [South Houston Professionals](#)  
COUNTRY: [Thailand](#)  
COMMUNITY: [Maejanoi](#)  
PROJECT: [Water Collection and Distribution](#)  
TRAVEL DATES: [November 1 - 15, 2014](#)

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Prepared By  
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Submittal Date  
[August 17, 2014](#)

ENGINEERS WITHOUT BORDERS-USA  
[www.ewb-usa.org](http://www.ewb-usa.org)

## Pre-Assessment Report Part 1 – Administrative Information

### 1.0 Contact Information

Project Title	Name	Email	Phone	Chapter Name or Organization Name
<b>Project Leads</b>	Giana Morini Tom Bryan	g.morini03@gmail.com treasurer@ewb-jsc.org	702-370-2564 832-633-6258	Central Houston South Houston
<b>President</b>	Michael Ewert	president@ewb-jsc.org		South Houston
<b>Responsible Engineer in Charge</b>	Giana Morini	g.morini03@gmail.com	702-370-2564	Central Houston
<b>Health and Safety Officer</b>	Mai Lee Chang	mai.l.chang@nasa.gov	920-203-9403	South Houston
<b>Assistant Health and Safety Officer</b>	Chris Rossi	rossi.chris.m@gmail.com	267-987-0336	South Houston
<b>Education Lead</b>	Mai Lee Chang	mai.l.chang@nasa.gov	920-203-9403	South Houston
<b>Planning, Monitoring, Evaluation and Learning (PMEL) Lead</b>	Giana Morini Tom Bryan	g.morini03@gmail.com treasurer@ewb-jsc.org	702-370-2564 832-633-6258	Central Houston South Houston
<b>NGO/Community Contact</b>	Johanna De Koning	leaf.thailand@gmail.com	02 279 8503	LEAF

### 2.0 Travel History

This is the first trip to the Maejanoi, Thailand community for the South Houston Professional chapter.

### 3.0 Travel Team (Should be 8 or fewer):

#	Name	E-mail	Phone	Chapter	Student or Professional
1	Giana Morini	grmorini@bechtel.com	702-370-2564	Central Houston	Professional
2	Tom Bryan	treasurer@ewb-jsc.org	832-633-6258	South Houston	Professional
3	Mai Lee Chang	mai.l.chang@nasa.gov	920-203-9403	South Houston	Professional
4	Chris Rossi	rossi.chris.m@gmail.com	267-987-0336	South Houston	Professional

### 4.0 Health and Safety

The travel team will follow the site-specific HASP that has been prepared for this specific trip and has been submitted as a standalone document along with this pre-trip report.

### 5.0 Planning, Monitoring, Evaluation and Learning

- 5.1 If this will be the first assessment trip for the program, is the Draft 901 – Program Plan and Baseline Study included with this report?  
 X Yes \_\_\_ No \_\_\_ Not the First Assessment trip

**5.2 This is not the first assessment trip and the travel team has reviewed the 901B – Program Impact Monitoring Report template and has assigned travel team members to complete this report during the upcoming trip. We acknowledge that the completed 901B is required with the eventual submittal of the 522 – Post-Assessment Trip Report. \_\_\_Yes X No**

## 6.0 Budget

### 6.1 Project Budget

Project ID: 11881

Type of Trip: A

Trip Expense Category	Estimated Expenses
<b>Direct Costs</b>	
<b>Travel</b>	
Airfare	6000
Gas	0
Rental Vehicle	0
Taxis/Drivers	1840
Misc.	100
<b>Travel Sub-Total</b>	<b>\$7940</b>
<b>Travel Logistics</b>	
Exit Fees/ Visas	0
Inoculations	0
Insurance	0
Licenses & Fees	0
Medical Exams	0
Passport Issuance	0
Misc.	200
<b>Travel Logistics Sub-Total</b>	<b>\$200</b>
<b>Food &amp; Lodging</b>	
Lodging	2800
Food & Beverage (Non-alcoholic)	0
Misc.	100
<b>Food &amp; Lodging Sub-Total</b>	<b>\$2900</b>
<b>Labor</b>	
In-Country logistical support	0

Local Skilled labor	0
Misc.	0
<b>Labor Sub-Total</b>	<b>\$0</b>
<b>EWB-USA</b>	
Program QA/QC (1) See below	\$1500
<b>EWB-USA Sub-Total</b>	<b>\$1500</b>
<b>Project Materials &amp; Equipment (Major Category Summary) add rows if needed</b>	
Coliform Bottle, 120mL, Sterile, White Cap	65
Petrifilm Aqua Coliform Count Plate	50
<b>Project Materials &amp; Equipment Sub-Total</b>	<b>\$105</b>
<b>Misc. (Major Category Summary)</b>	
Report Preparation	0
Advertising & Marketing	0
Postage & Delivery	0
Misc. Other	0
<b>Misc. Sub-Total</b>	<b>\$0</b>
<b>TOTAL</b>	<b>\$12645</b>

(1) Program QA/QC (EWB-USA Headquarters Project Managers and Chapter Relations Managers)  
 Assessment = \$1,500  
 Implementation = \$3,700  
 Monitoring = \$1,150

**EWB-USA Headquarters use:**

<b>Indirect Costs</b>	
<b>EWB-USA</b>	
Program Infrastructure (2) See Below	\$500
<b>Sub-Total</b>	<b>\$500</b>
<b>TRIP GRAND TOTAL (Does not include Non-Budget Items)</b>	<b>\$13145</b>

(2) Program Infrastructure (EWB-USA Headquarters accounting, administration and fundraising)  
 Assessment = \$500  
 Implementation = \$1,200  
 Monitoring = \$350

**Non-Budget Items:**

<b>Additional Contributions to Project Costs</b>	
<b>Community</b>	
Labor	
Materials	
Logistics	
Cash	
Other	
<b>Community Sub-Total</b>	\$0
<b>EWB-USA Professional Service In-Kind</b>	
Professional Service Hours	
Hours converted to \$ (1 hour = \$100)	\$0
<b>Professional Service In-Kind Sub-Total</b>	\$0
<b>TRIP GRAND TOTAL (Includes Non-Budget Items)</b>	\$0

**Chapter Revenue**

<b>Funds Raised for Project by Source</b>	<b>Actual Raised to Date</b>
<b>Source and Amount (Expand as Needed)</b>	
Engineering Societies	
Corporations	
University	
Rotary	
Grants - Government	
Grants - Foundation/Trusts	
Grants - EWB-USA program	460
Other Nonprofits	
Individuals	39987
Special Events	
Misc.	
EWB-USA Program QA/QC Subsidy (3) See below	
<b>Total</b>	\$40447

<b>Remaining Funds Needed</b>	<b>\$0.00</b>
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(3) Program QA/QC & Infrastructure Subsidy:

Assessment = \$1450

Implementation = \$3,800

Monitoring = \$950

**7.0 Project Discipline(s): Check the specific project discipline(s) addressed in this report. Check all that apply.**

**Water Supply**

- Source Development
- Water Storage
- Water Distribution
- Water Treatment
- Water Pump

**Sanitation**

- Latrine
- Gray Water System
- Black Water System

**Structures**

- Bridge
- Building

**Civil Works**

- Roads
- Drainage
- Dams

**Energy**

- Fuel
- Electricity

**Agriculture**

- Irrigation Pump
- Irrigation Line
- Water Storage
- Soil Improvement
- Fish Farm
- Crop Processing Equipment

**Information Systems**

- Computer Service

**8.0 Project Location**

Latitude: N19.14.871  
Longitude: E97.99 272

**9.0 Project Impact**

Number of Persons directly affected: 100  
Number of Persons indirectly affected: 230

**10.0 Professional Mentor Resume**

***Giana Morini:***

Giana has been involved with EWB-Central Houston professional chapter for a year. She will be function as one of the co-leads and Design Engineer. She will also keep her involvement with the NGO interface. Over this past year, she was worked directly with LEAF (and indirectly Maejanoi via LEAF) in preparation of submitting the 501 application. Giana has worked as a design engineer for Bechtel for the past 8 years, 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) with client interface. She holds her Professional Engineering License in the State of New Mexico (Civil/Structural).

***Tom Bryan:***

Has been involved with EWB-JSC 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. In the Thailand project he will be one of the 2 co-leads as well as the budget lead. In his daily work life he coordinates projects across international boundaries as well as multiple NASA organizations.

## Pre-Assessment Report Part 2 – Technical Information

### 1.0 EXECUTIVE SUMMARY

The South Houston Professional Chapter requests approval to travel on an assessment trip to Maejanoi, Thailand, project number 11881, for a water collection and distribution system. The proposed travel dates are November 1 - 15, 2014

The goal and scope of this trip is to evaluate the current water system, including source location, water quality, containment, and distribution to homes.

The village currently collects runoff from the mountains, but these “streams” dry during the dry season. The village attempts to collect and retain the water in tanks, but the tanks are not sealed properly and water continually seeps out. PVC lines have been run from the tanks to the homes, but have been destroyed in the last two years due to brush fires and rebuilt/repared annually. PVC continues to be the only piping option because it is low cost.

The brush fires occur due to burning of the fields/crops annually. This past year, a “firewall” was built, which limited the damage. Because this is an agricultural area, and chemicals are used for pesticides, there is a concern of water quality. The assessment team will sample and test water on site, as well as prepare samples to be brought back to the Houston to be tested.

The village of Maejanoi is located in the Northwest region of Thailand. The community consists of extended families and most are members of the Karen Tribe. The partnering NGO is Life Encounter Asia Foundation (LEAF).

This is the first project of the program which began in July 2014 when EWB-USA approved the South Houston professional chapter for the program. Conversations and correspondence with LEAF and the community lead have made it clear that the water project is the first priority. During this assessment trip, the team will meet with the community and prioritize the projects listed on the 501

The tasks of this trip can be categorized into three groups: cultural, technical, and community data.

The cultural tasks will help the community and the assessment team familiarize themselves with each other and understand priorities of the people, the mission of Engineers Without Borders (EWB) and how it relates specifically to these projects, and the NGO, Community Board, and EWB partnership.

The technical tasks will aid in the team’s assessment of the project’s feasibility, sustainability, and ultimate success. These include items such as scouting the water source, testing of water, calculating supply and demand, and evaluating the current system.

The community data tasks will focus on documenting physical boundaries of Maejanoi, gathering information pertaining to land ownership, and resource availability.

After the assessment trip, the South Houston professionals will complete a full review of the data collected by the assessment team and decide on the forward plan for design and implementation. The data provided will provide the program with a clear scope, size, and required technical information to begin design and to create implementation plans.

## **2.0 INTRODUCTION**

The South Houston Professional chapter has taken on the Maejanoi, Thailand program number 11881. An assessment trip to the community is planned for fall 2014 to gather additional data on the communities' current water situation. The collected data will assist in the development of an appropriate system to be implemented in the community for water collection and distribution.

During the assessment trip, the team will gather required data needed to move into a design phase. The most important information will be to understand the water source and to ensure the quality of the water meets standards for human consumption. Samples will be taken from various locations (source, stream, tanks, and homes) and tested onsite, as well as samples prepared for transport back to Houston for additional testing.

GPS data will be collected to map the sources and natural distribution (coordinates & elevations). Location of tanks, community boundaries, homes, and current water distribution system will also be captured.

This document presents the assessment trip plan to be implemented during a 14 day trip from November 1-15, 2014.

## **3.0 PROGRAM BACKGROUND**

Maejanoi is a relatively new community 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.

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 and distribution. It will result in improved relationships and cooperation with the community.

The community is in need of water collection and containment. The water source currently comes from a mountain source into a storage tanks, which have continuously leaked. The community currently uses PVC piping to direct the water from the mountain to the village, but this system is damaged annually due to brush fire and is continually rebuilt.

## **4.0 PROJECT DESCRIPTION**

This assessment trip is meant to establish a relationship between the Maejanoi community members and leaders with the EWB South Houston professionals. The assessment trip's goals are to map the community and to assess their water quality, distribution system, and storage.

## **5.0 OBJECTIVES OF SITE ASSESSMENT TRIP**

The objectives of this assessment trip are to meet with the community board, NGO, and members to establish a relationship and come to consensus of the partnership agreement.

The condition of the water source, tanks, and distribution system will be assessed. Additionally water quality will be tested at the source, tanks, and in the homes of the members of the community. Also, accurate mapping of the community and water source will be completed to assist in the development of the design for the future implementation trip.

Finally the travel team will identify materials at local sources to potentially be used in the system design.

## **6.0 COMMUNITY INFORMATION**

### **6.1 Description of the Community**

The community of Yom Maejanoi is located in Northern Thailand, approximately 950 km from Bangkok. The nearest major city is Chiang Mai. It is 24 km from the city of Maehongson, and is reached via an unpaved dirt road. The community consists of Karen tribal people. In Maejanoi there are about 100 people.

Maejanoi is a relatively new community comprised of men, women, and children who have come down from the higher mountain areas in an effort to make a better living than where they came from. The community consists of members of extended families. Some families live about 2 km from the center of the village.

### **6.2 Community and Partnering Organization/NGO Resources and Constraints**

The partnering NGO is Life Encounter Asia Foundation (LEAF), which has been in Thailand since 1996. The LEAF Foundation Board has 4 counselors, one psychiatrist and one lawyer who are located in Bangkok and travel to the community as needed. LEAF has helped set up community boards and have coached the community through visits and phone calls with advice about finances, farming, and raising children.

The local community board has 4 members and is fairly new. The committee is made up of members of the village, consisting of the church leader - Mr. Sanay, community leader - Srichan Piyasakmetakul (Mrs. Bee), and two others from the village. The church has 80 members and is the center of the community, as most of the inhabitants of Maejanoi participate in the Karen Church.

### **6.3 Community Relations**

The South Houston Professional chapter has been in contact with the community through email and teleconferences with LEAF.

### **6.4 Community Priorities**

The community is in need of water collection, containment, management and regulation. The water source currently comes from a mountain source into a 'tank', which continuously runs into the ground. Previously the community used PVC piping to direct

the water from the mountain to the village, this system was damaged in a brush fire and has been rebuilt.

One of the tasks for the travel team is to review the communities' priorities other than the water distribution during the assessment trip.

## 7.0 DATA COLLECTION AND ANALYSIS

### 7.1 Site Mapping

The travel team will map the community area, including the location of homes, roads, water tanks and sources, and edges of the community.

### 7.2 Technical Data Collection

The travel team will collect data on the size (dimensions and volume), construction (materials), and condition of the water storage tanks. Water will be sampled at the source, storage tanks, and at the output in homes. Testing will include turbidity and coliform testing. Labeled samples from the various sources will also be returned for testing in Houston to validate the in country testing.

### 7.3 Material Cost Information

The travel team will collect information on the availability and cost of local materials that may be useful in the system design.

## 8.0 PROJECT PARTNERSHIP AGREEMENT

This is the first trip to the Maejanoi, Thailand project number 11881. The travel team has drafted a project partnership agreement that is provided with this 521. The final signed version will be provided in the post-assessment document, 522, submittal.

## 9.0 SCHEDULE OF TASKS

**Thailand Assessment Trip Task List**

Task #	Task	# of Travelers Needed
<b>1</b>	Meet with village board	All
	Full list of potential projects	
	Rank projects in order of need	
	Review and sign community partnership agreement (after review with LEAF)	
<b>2</b>	Meet with village members	All
	Discuss what EWB is making no promises	
	Discuss times of year when water levels are low or not available	
<b>3</b>	Determine number of people in village and approximate household size	
	Review with LEAF community partnership agreement	1 or 2 (should include PL)
<b>4</b>	Community Area	1 or 2

	Map out the community area including basic location of homes, tanks, and edges of community	
	Pictures of key areas	
<b>5</b>	Go to water source, document location, take pictures, collect water samples, and test water	2
	Document location of source (GPS)	
	Pictures of source and surrounding area	
	Test source water	
	Take samples of water at source	
<b>6</b>	Visit community water locations (tanks) and document	2 per tank
	Document location of source (GPS)	
	Pictures of source and surrounding area	
	Examine tank and distribution system for damage or areas of concern	
	Measure dimensions of tanks	
	Test tank water	
	Take samples of water at tank	
	Map location of tanks	
	Map houses fed from each tank	
<b>7</b>	PVC distribution system	
	PVC size	
	Condition of PVC	
	Pictures of damaged or areas of concern	
<b>8</b>	Water output in home	2 per home
	Calculate water pressure output at home	
	Test home water	
	Take samples of water at home	
<b>9</b>	Meet with village leader and government if needed for discussions on land ownership	All
<b>10</b>	Scout possible materials for implementation	All

## 10.0 PROJECT FEASIBILITY

The South Houston professional chapter will review the community and water source mapping, water quality testing data, as well as local materials sourcing to determine if a viable system can be designed for the community utilizing the expertise of the chapter members.

## 11.0 PROFESSIONAL MENTOR ASSESSMENT

### 11.1 Professional Mentor Name and Role

The professional mentor for the South Houston professionals assessment trip is one of the project leads, Giana Morini.

### 11.2 Professional Mentor Assessment

This will be the first assessment trip of the program. In discussion with the NGO, LEAF, and from the community's input via the 501 application, the first priority of the program is

water containment and distribution. The task list for the assessment trip has been developed accordingly. These tasks will enable the assessment team to gather further information, both cultural and technical, and make a decision on feasibility to implement a successful project.

Pre-trip training for water quality testing will occur so that all members of the travel team are educated and qualified to carry out the water testing portion of the task list.

All four members of the travel team contributed to development of required documentation for the assessment trip, including this document, HASP, 901, and 905. Through this process the team members have familiarized themselves with the community, the partnering NGO, the list of projects, and the overall goal/mission of this program.

### **11.3 Professional Mentor Affirmation**

As Technical Lead for this project, I attest to my involvement in the development of the assessment trip plan and acknowledge and accept responsibility for the course of this project.