



RTC-TH Feb 2012 Update

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Community-based environmental education for the self-sufficiency and sustainability of small rural family farms

ชุมชนตามสิ่งแวดล้อมศึกษาเพื่อการพึ่งตัวเองและยั่งยืนชนบทขนาดเล็กครอบครัวฟาร์ม

You may post questions / comments to the Discussion area of our website

Gender Bias on Thai Farms

A long tradition of male dominance has created a mindset that marginalizes women. Modern society has created some opportunities for women to take leadership roles as village heads and in some government offices. But Thai society is still largely male dominant. Social reinforcement is nearly automatic as people see few if any female role models to buck tradition especially in rural areas.

In some cases of necessity, women have been thrust into roles as head of households. The death of the male head of household and crippling drug addiction among males in some hill tribe areas leave women as de facto heads of households. The RTC-TH demonstration farm survived the death Mr. Tang Suittisan, the only male in the founding family. Mrs. Umporn Suttisan and her 3 daughters (there were no sons in the family) operated and managed the farm for the past 30+ years since his passing. They have been recognized as the having the best farm in their district a few times. Aoi, the oldest daughter had the opportunity to get training from local agricultural organizations. But in general, most rural Thai women are not so fortunate.



Men operate the tractors and get higher pay.



Women typically do the manual transplanting.

For most Thai farm women, life is relegated to labor intensive and manual activities in addition to household work. Any income generating activities they conduct benefits their families with little going to their own personal pocket. Men tend to do work using technology and machinery and earning higher pay associated with the higher skills. With a clear mindset of men's work vs. women's work, opportunities in the family, village and all other levels of Thai society are "logically" stereo-typed. This social "logic" results in shaping a "reality" that becomes a catch 22 for rural women who try

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to improve themselves or the economics of their families. Women, especially rural women with little education face these challenges:

- Limited access to resources, knowledge, information, and training.
 - Government policies and programs are relatively oblivious to needs related to gender differences as the data collected does not involve gender segregated statistics.
 - Many government leaders and policies are falsely predicated on the assumption that men are the primary target group for agriculture and technology programs.
 - Education and training for women is often relegated to traditional household and care giving jobs and careers such as nursing and teaching.
 - The limited scope of education often prevents women from being exposed to technology or leadership / decision making roles readily available to men.
 - Access to financial resources can also be limited as banks tend to treat men differently than women when evaluation loan applications. This forces women to use informal sources for loans at usurious rates.
 - Both government and non-government organizations utilize the male head of household model. This helps to preserve gender bias and limits the decision making role women might play in their communities.
 - Women have limited access to opportunities to connect with the outside world beyond their village.
- [Note:** The following points are quoted directly from a UN FAO report "Gender Responsive Technology for Poverty Alleviation in Thailand":
- "Raised to obey rather than to express opinions, most village women - especially poor rural women with little education - lack the confidence to state their views, contact government officials or attend training courses held outside the village."
 - "Overwork and lack of time, intensified by the absence of suitable labor-saving technologies, limits the ability of most rural women to participate in meetings or attend training aimed at improving productivity."



The Internet: A beacon for the future; a window to the world and access to more knowledge.

encouraged to “teach back” to their parents and siblings as a means to make the world a better place for all.🌐

RAST Club Station HS0AC Destroyed

The flood of 2011 totally destroyed the RAST (Radio Amateur Society of Thailand) club station HS0AC at the Asian Institute of Technology (AIT) campus on the outskirts of Bangkok. The station had been underwater for about 5 weeks. You can see the full illustrated report on the station clean-up effort by visiting the RAST website at <http://www.gsl.net/rast/> (scroll down to the article title "The HS0AC horror story at AIT: The Post-flood Rescue Mission").

Here are a few photos from the RAST website to give you an idea of what could be one version of a ham's "worst nightmare."



The water level was almost ceiling high



Water-logged particle board furniture "melted" and collapsed under the load of the equipment.



The high shelves weren't high enough.



RAST is seeking donations to rebuild their club station. The threat of future flooding is looming with the coming of the 2012 SW monsoon season (May-Oct) which could be a very wet one due to the La Nina prevailing conditions. Hopefully the flood protection of the AIT campus will be improved along with better overall flood control and protection for the entire region. 🌐

Photos for the article from the Internet under the educational fair use clause.

Protect and Promote the Pollinators

Spring is around the corner. This is a good time to remind folks to get active and do something to protect and promote the care and nurturing of pollinators. Your very life may depend on it. Farms cannot produce food without the pollinators.



There is an outstanding film clip about pollinators we saw a while ago. But a friend sent this to us again recently and it seemed good timing for Spring. Look at this wondrous film and be inspired to do your part. The following is a direct quote from <http://blog.ted.com/2011/05/06/the-hidden-beauty-of-pollination-louie-schwartzberg-on-ted-com/>.

[“The hidden beauty of pollination: Louie Schwartzberg on TED.com](http://blog.ted.com/2011/05/06/the-hidden-beauty-of-pollination-louie-schwartzberg-on-ted-com/) Pollination: it’s vital to life on Earth, but largely unseen by the human eye. Filmmaker Louie Schwartzberg shows us [the intricate world of pollen and pollinators](#) with gorgeous high-speed images from his film “Wings of Life,” inspired by the vanishing of one of nature’s primary pollinators, the honeybee. (Recorded at TED2011, March 2011, in Long Beach, CA. Duration: 7:40)”



You can do your part by planting for pollinators in your yard, on your balcony, or in a window box. For ideas on how to get started, check out the National Wildlife Federation website (the listed link below).

When we were in LA with ESSI (Earth Systems Science, Inc.) we trained folks to create backyard wildlife habitats using the NWF program.

The appearance of the NWF website has changed, but the program continues. Officially joining is not as critical as it is to get out and do something positive to help protect and promote the pollinators. <http://www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife.aspx>



Photos for the article from the Internet under the educational fair use clause.

RTC-TH EmComm Litmus Test Questions

The recent floods in Thailand and conversations with Mark (N7YLA) during a recent antenna project brought our attention to the lowest common denominator of EmComm: the individual radio operator's ability to function on their own, solo, with no EmComm team physically present to assist. The other features of the "worst case" scenario for the litmus test are: no AC line power, no phone service, no road access, and the status of emergency responders are unknown as is the overall extent of the emergency.

Personal Status Check:

1. Are you physically/mentally able to function?
2. Account for all family members and their physical/mental condition as they affect your ability to function.
3. Are emergency supplies available and secure to support you and your family? (Determine how long these will last under the current conditions.)
4. Are your facilities / equipment OK?. (Determine the decision point to stay or go. If "going", do you know where to go and how long it takes to get there? Once there, how long will it take you to securely settle your family?)
5. Are your EmComm facilities / equipment OK?. (If OK, can you operate and for how long?)



EmComm readiness often rests on a web of interconnected factors not directly related to radios.

Personal Status Assessment: the answers to the questions above should make it clear if you have time available to help others as an EmComm operator. A key point to remember is that **if you and your family are not safe and secure, your ability to help others during an emergency is reduced and may not be effective.** If you have any doubts, be very careful NOT to over commit. During an emergency, folks confronted with life/death situations may be counting on you. You don't want to fail them because you bit off more than you can chew. When you commit to help, you must be ready to perform more than 100%.

EmComm Reality Check:

1. **Getting on the Air:** Can you get on the air in less than 60 minutes once you completed your Personal Status Check? Do you know the band / frequencies to use? If you must leave your operating site, do you have an alternative site with known / proven operating parameters (e.g. azimuths and distances to other stations, effective operating range using what radio / antenna system, etc.)?
2. **Antennas:** If your main station antenna is destroyed or damaged, do you have an emergency antenna that can be quickly put into service? Do you know the



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azimuth and distance to various contact stations and if time / date differences exist?

3. **Batteries fully charged?** How long can you operate before you need to recharge them? Do you have a way to recharge without main AC power?
4. **Operating Duration:** Do you know long you can operate (e.g. hours per day, number of days, etc.) based on your power supply and water / food supplies? Do you have a plan for getting re-supplied? Do you know what you will need / day?
5. **Location / Access:** Can you give the precise location data for your main operating position and alternative operating positions in various formats (e.g. latitude/longitude, street address, etc.)? If the primary route to your location is blocked, do you know various alternative routes to use?
6. **Communications Alternatives:** Most aircraft do not have equipment to communication with ham EmComm operators. Do you have alternative ground-to-air communication methods to signal aircraft? Many truckers use CB radios. Do you have a CB radio to communicate with relief trucks coming to your area?

It Happens When It Happens

Many natural disasters give little or no warning when they will occur. Weather related disasters can give you a few days to almost no warning. Accidents can be random occurrences; they are hard to plan for or schedule.

Rest assured that no matter how well you may plan, once the emergency begins, all of your plans may go out the window. At that point, you must quickly assess your situation, adapt and improvise to survive. In a worst case scenario, you may have to evacuate with little more than what you have on your back. Given more time, you may be able to retrieve more of your prepared equipment and supplies. Make sure they are easily transported.

Practice, practice, and more practice should be your mantra to prepare. To develop and keep your proficiency in EmComm, join a local radio net such as the GERC (Glendora Emergency Response Communications) weekly net.

Hopefully you can pass the litmus test. If not, start to improve now! 🌐



Compact portable emergency antennas are handy to have in your Go Bag for operating flexibility



A small solar panel to recharge radio batteries can extend your operating duration in the field.



A mirror and ground-to-air signal panels are a back-up system to communicate with relief aircraft.

RTC-TH Klunk Works: Our Cameras

We got an email from a new teacher in the Philippines asking what cameras we used and how we made our slide show lessons for REEEPP. We thought the answers might be useful for many other teachers. Here are the basics of what cameras we use. The methods for making the lessons will be covered in future articles.

We get plagued with power fluctuations in rural Thailand, and that might be the source of some of our computer problems. Fear of computer viruses also lingers in our heads. So we set up a dedicated computer to handle all the photo work. This computer is never connected to the Internet. And all computer media is run through updated anti-virus scans before coming into contact with the “Klunk Works” computer.



Greg Lee (RTC-TH Co-founder, author/editor of many of the RTC-TH lessons) at the Klunk Works computer.

The Cameras: We use commonly available consumer-grade digital cameras because they are cheaper and easily replaced if damaged in the field. Digital camera technology changes fast and we don't want to spend a lot of money only to have the camera be obsolete. Besides, the RTC-TH operates on a shoe-string budget. **[Note:** The current cameras we use are no longer made. The key features we look for: price about \$100 USD or less; AA batteries; 10-12 mega pixels resolution; optical zoom preferred over digital zoom; ability to take good close up shots (macro photography).] It is hard to find the “perfect” camera to do everything. As in life, selecting a “good” camera is a compromise. That's why we have these 3 cameras: all of these cameras have both still / video / zoom functions, self-timers, use AA batteries and are convenient for “pocket” travel.

	Vivitar 3760		Canon Power Shot A650 IS		Kodak Easyshare Sport
<ul style="list-style-type: none"> • Windshield recon survey photos (still / video) on Sparky • 3 MP 		<ul style="list-style-type: none"> • General all-around camera • Close-ups • 12.1 MP 		<ul style="list-style-type: none"> • Foul weather • Water resistant camera • 12 MP 	

The Vivitar 3760 was the first digital camera we got for field work. The main reason was the price (~\$70 USD). It was our experiment in using a digital camera (as all of our work used film cameras and we then selected photos to be digitized for use in our lessons). The idea was to get our first digital camera and start using it. After getting practical experience with it, we would gain insight about the practical features we wanted when we were ready to buy a “good” digital camera.



We had a Canon Power Shot SD550 for a while. The high cost of proprietary Lithium-ion batteries was a huge negative impact on our budget. On long trips away from the power grid recharging was not possible. On the other hand AA batteries are readily available in many remote travel destinations. So we opted for easy AA battery availability over the advantages of Lithium-ion batteries.

This brings out some key points to consider when looking for YOUR camera:

- What kinds of photos do you take or want to take (e.g. portraits, landscapes, close-ups)?
- Will you be working indoors or outdoors more?
- Will you be taking a lot of flash photos?
- Will you be taking stills or videos?
- What is the longest time you would be away from power to recharge camera batteries?
- What size, weight, and amount of camera gear are you willing to pack along on a trip? (And carry around all day?)

Power Supply: We opt to only buy cameras that use AA batteries. We also equip each camera with 2 sets of rechargeable NiMH rechargeable AA batteries. We make sure the chargers were “smart” dual voltage units able to work in and out of the Thailand without needing power adapters.

Batteries are kept in “sets” for specific cameras. Color-coded tabs indicate charge status (red = needs recharge; green = charged). The two sets pictured (on the right) are for the Canon A650 IS.



The tripod inventory is a result of years of photo work.
50 cm to ~10 cm when folded for stowing. We have 2 larger and heavier tripods in storage which we haven't used yet since moving to Thailand.)

Accessories: We try to travel light. About the only accessories we take are a tripod and spare SD memory cards. We have a variety of tripods from which to choose. The choice is often dictated by space available for any particular trip. Larger tripods “ride” in a vehicle. Smaller mini-tripods are for backpacks or belt bags. Another consideration is the “seriousness” of the anticipated photos relative to needing a sturdy tripod.

(**Note:** Tripods in the photo range from

Downloading / Saving Photos: Some folks will set the resolution as low as possible so they can take many photos on one memory card. We prefer to capture our photos using the highest resolution setting possible. This means each photo will be a large data file that takes up more memory. We do this because of the wide variety of uses for our photos. Depending on the use, the image resolution can be reduced LATER. There are two good reasons to reconsider this approach:

- You have a great photo taken at a lower resolution. You cannot easily improve it later if you want an enlarged photo print or project it for a slide show to a larger group.
- If the memory card is defective or gets damaged during the trip, you have lost a large number of photos that cannot be replaced.

You have 3 basic ways to get the images from your camera to your computer:

- **Use a Spare SD Memory card:**

Usually the fastest and easiest way is to replace the full SD card with an empty one and download the photos to your computer later. **Tip:** Lock the full card to prevent accidentally “over writing” you photos. Put an ID tag on the SD card so you know the date / sequence of the card. For example, 10 Jan 2012 #1 tells me it was the first full SD card during the trip on that day. Then I can download the cards in the proper sequence to match my photo log notes for the day.



- **Direct Camera Download:** Some cameras have a USB cable to connect your camera to your computer. This is fast and easy IF you have the cable and your notebook computer handy during the trip. **Tip:** Be sure your camera batteries are in good condition. Loss of power during the download can damage the SD card or corrupt an image file.



Use a Card reader with your notebook computer: Some computers have built-in card readers. Or you can get a separate card reader with a USB cable. There are a variety of different memory card types. Make sure the card reader can handle what you have. SD memory cards are the most common for many digital cameras.



Some computers have built-in SD card readers.



This card reader handles 6 different card types.

Camera Manuals: While many people may not read instruction manuals, it may be more disastrous to buy a camera just before an important trip or event and NOT know how to use it properly. Digital cameras have many automatic features to simplify photography for average users. But learning about the other features can add a lot more to the quality and appeal of your photographs. Consider these thoughts:

- **Buy and use the camera well before an important trip or event.** During this “break-in” / practice period, make notes about how long the batteries last.
- **Review the types of photos you take.** This is a good time to figure out what

added camera functions/features are optimal for you (e.g. portraits, landscapes, close-ups, backlight / fill flash, etc.). Then during the trip you can bring back many more “memorable” shots.

Practice downloading / saving your photos: When your memory card is full during a trip or important event, you either replace it with an empty one (if you have some spares) or download the photos from the memory card and start taking more photos on the now emptied card.



Camera Care

Protect your investment. It doesn't matter that your camera is not very expensive. It is a valuable tool that enables you to open the eyes, minds, and hearts to learning.

Maintaining your camera and keeping it clean (especially the lens) helps the quality of your photos. The basics are lens cleaning fluid, lens tissue, a blower brush, some cotton swabs, and a soft cloth.

Make it a point to clean your camera before going out to take any photos. And when you are done for the day, clean your camera before putting it away.

Dust and grit are the enemies that may cause various camera mechanisms to jam. Get into the habit of using a blower brush rather than a puff of air from your mouth to blow dust and grit off the camera. The blower brush won't accidentally blow water / saliva onto the camera or camera part being cleaned.

Water Protection

Exposure to excessive moisture can spell death to a digital camera especially if you turn on the power immediately after immersion in water. When working close to water, use waterproof bags to transport your camera. You can't use the camera for pictures. **[Note:** This is why we got the Kodak Easyshare Sport water resistant camera.]

A regular plastic bag makes a good raincoat for a camera during monsoon season.



Waterproof bags for serious protection; Plastic bags for dust protection or as a temporary camera “raincoat”

We are far from being professional photographers. But we use photography to document our activities and to create lessons to engage learners in our community. For this reason, our cameras are very valuable and useful tools for our work. We keep a camera with us at all times. The common everyday objects and activities of daily life become the focus of numerous lessons. This is especially true for English learners. Most children, even those in kindergarten know the names of things in their local language. When they see a photo of it, they know what it is. Add the English term for it, and you have an instant bi-lingual lesson even when you don't speak the local language or dialect.

Emergency Drinking Water Re-Supply

When floods hit, one of the most immediate needs is clean drinking water. In a hot climate, plan on needing 4 liters of water per person per day. Many sources suggest having enough emergency supplies for 3 days. The recent devastating floods in Thailand left many people surrounded by flood water for weeks (some for nearly 4 months). The floods were so extensive that government and non-government relief workers did not get to some areas for several weeks. The lack of adequate clean drinking water was life threatening. There is a need to be able to extend your initial clean water stocks until help arrives.



Based on our understanding of the conditions and climate in Thailand, the RTC-TH calls for a 1-2 week water stock pile. This gives us enough time to set up our emergency field water re-supply system to process the water. (**Note:** Those living in high flood prone areas, 2 weeks may be a better minimum stock pile goal.) The table below shows the amount of water needed (and the space it takes to store it).

Number of Days	Number of People							
	1		2		3		4	
	Liters	cu m	Liters	cu m	Liters	cu m	Liters	cu m
1	4	0.004	8	0.008	12	0.012	16	0.016
2	8	0.008	16	0.016	24	0.024	32	0.032
3	12	0.012	24	0.024	36	0.036	48	0.048
7	28	0.028	56	0.056	84	0.084	112	0.112
14	56	0.056	112	0.112	168	0.168	224	0.224

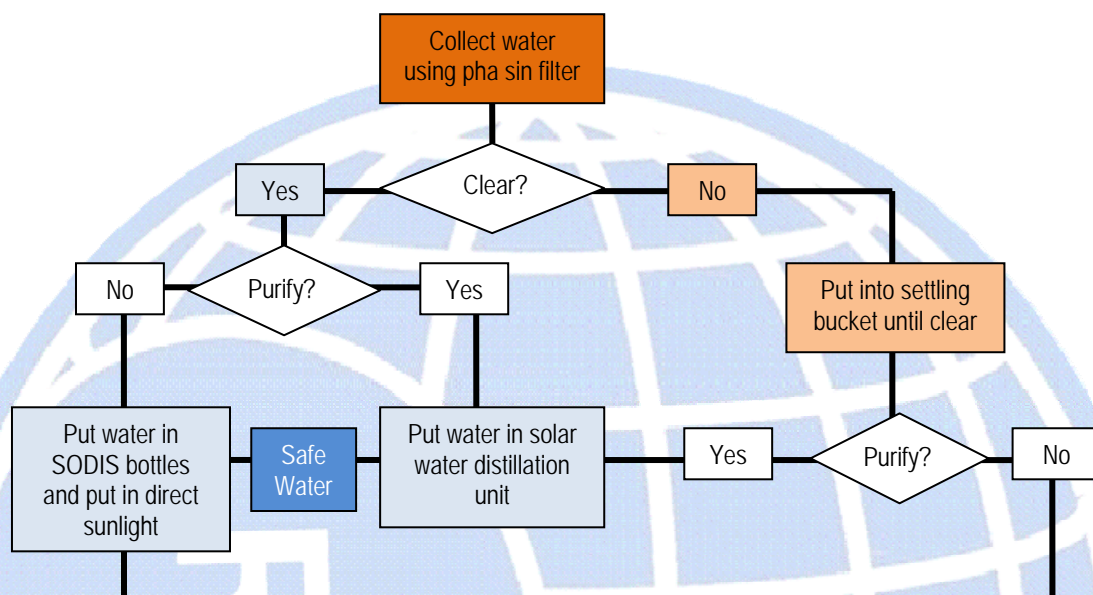
We considered these points in making our emergency water re-supply plans:

- Heavily silted water can take 24- 48 hours or more to settle and clear. [**Note:** Cloudy water requires more time and treatment to be safe to drink.]
- Filtering dirty water through 4-8 layers of a clean *pha sin* (the traditional Thai tube skirt similar to the sari of India) can effectively reduce cholera infections by 48%. FFI: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC298724/>
- Fuel to boil water was very limited during the recent extensive floods.
- Supplies of unscented chlorine bleach were limited or non-existent in flooded areas.
- SODIS (SOLar water DISinfection) using empty PET plastic beverage bottles disinfects water when exposed to strong sunlight for 6 hrs or 2 hrs in a solar cooking box. FFI: http://www.sodis.ch/methode/index_EN
- Solar water distillation (using a 2 sq m unit) may produce about 4 liters of clean water per day under strong sunlight.
- Floods occur mostly during the SW monsoon season (May to Oct). Summer thunderstorms can bring flash floods in Mar and Apr. The summary table (below) shows the number of rainy days / month and the average hours of sunlight per day from Mar – Oct. These kinds of “averages” may not really mean much in

practical terms, but it gives some insight for your emergency water planning.

- Lack of clean drinking water during a flood increases your chances of contracting water-borne diseases. This often results in diarrhea which can increase your risk of dehydration.

The diagram below shows the RTC-TH emergency water re-supply system.



The table below briefly summarizes the components of the re-supply system. An abbreviated climate data chart shows the relevant conditions for using SODIS. Your emergency drinking water stock pile buys you time to set up and produce clean, safe drinking water to re-supply you until help arrives.


Pha Sin	SODIS	Solar Distillation				
<ul style="list-style-type: none"> • Clean pha sins • Clean container Use 4-8 folds of pha sin to filter water. Wash / rinse pha sin and spread in direct sun after use	<ul style="list-style-type: none"> • Clean clear PET plastic bottles with caps Fill bottle $\frac{3}{4}$ - $\frac{7}{8}$ full with water to be treated. Put on cap. Shake vigorously to aerate the water. Set out in direct sunlight for 6 hours. [Note: This disinfects water. It does not purify it. UVA is the main disinfectant.]	<ul style="list-style-type: none"> • 2 nesting plastic tubs (inner tub is $\frac{1}{4}$ diameter of the larger) • Clear plastic bag Put water for treatment in large tub. Center smaller clean tub inside the larger tub. Put clear plastic bag to enclose both tubs. Put small pebble to depress the plastic bag over the small tub so pure water condenses and drips off the plastic into the smaller tub.	Month	# days of rain	# hrs of sunshine / day	UN UV Index
Settling bucket <ul style="list-style-type: none"> • Clean bucket(s) Put cloudy water in bucket. Record time it takes for water to become clear so you know the cycle for water re-supply.			Mar	3	8	12
			Apr	7	8	12
			May	15	7	11
			Jun	16	6	12
			Jul	18	6	12
			Aug	21	5	12
			Sep	20	5	11
			Oct	16	6	10



Filtering water through a pha sin or sari



Placing bottles of water in direct sun ala SODIS

Why do we advocate both SODIS and solar water distillation? SODIS is a quick re-supply method to get safe disinfected drinking water. Solar water distillation takes longer but gives you purified drinking water. Together they give you alternative methods to re-supply your stockpiled water until help arrives. 

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