



# RTC-TH Dec 2013 Update 2

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

ชุมชนตามสิ่งแวดล้อมศึกษาเพื่อการพึ่งตัวเองและยั่งยืนบนขนาดเล็กรอบครัวฟาร์ม

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

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## Our Rice Harvest in Perspective



Rice on our farm: Dry upland rice (large yellow field to left) and wet paddy rice (large green fields to right).

A recent Thai government report stated the average rice production was 509 kg / rai. [Note: 1 rai = 1,600 square meters = 0/16 hectares = 0.4 acres]. This year, some production figures dropped as low as 300 kg / rai. We looked at our 2013 rice harvest relative to these national statistics (see table on the above right; pink shading = below the national average; green = above the national average).

Location	Rai planted	Sq m Planted*	# bags @ 48 kg		Yield Kg/rai
			Harvested	kg	
Dry Rice	Farm	4.32	37	1,776	411
	Hill Top	3.53	21.5	1,032	292
Wet Rice	Farm	2.88	33.5	1,608	558
Totals		10.73	92	4,416	421
*Minor corrections from earlier reports			Overall average farm rice yield kg/rai		

Overall, our farm yield was 421 kg/rai. This is below the national average of 509 kg/rai. But the devil is in the details (e.g. type of rice grown, soil / moisture conditions, fertilizers, cultivation method, etc.). For our farm, we looked at the yield from each




We grew our annual rice supply for 2014.

parcel (e.g. farm pasture field, Hill Top, and wet paddy). The dry land rice yields are below the national average. This is not surprising as 2013 was a drought year for us.

Our wet rice yield is 9.6% higher than the national average. We like to think this is due to our combined soil / water management in the paddies. We used most of the water in the East fishpond to irrigate our paddies. We still had two fishponds as a reserve. Other farmers were not so lucky. However, we noticed that

several other farmers began digging ponds this year. We won't be so bold as to take credit for that. But we are glad to see others being consistent with the King's theory. 🌐

### In This Issue

 RTC-TH Co-founders Greg & Salfon Lee	Our Rice Harvest in Perspective	1	Ban Na Fa to Ban Mai Bridge Recon	5-6
	Typical Winter Day	2	Thawangpha Battered by Wind & Rain	7-8
	Lessons: New & Recovered	3	Nam Yang River Make-Over	9-12
	Thanks to Our Donors	4		

## Typical Winter Day

We took some photos from the second floor of our Ban Na Fa home to show the views of a typical foggy winter morning (see photos in the left column below). Visibility can be limited to less than 0.25-0.5 km. The fog often burns off by mid-morning (see corresponding photos in the right column).

Pre-dawn temperatures can dip to 18-19°C / 64-66°F and reach mid-afternoon temperatures of 30°C / 86°F. The dynamic range is only 2/3 that of southern California, but it is still a big temperature change on daily basis. The southern California ambience is reinforced as the dry season browns the hillside vegetation.



*You can barely make out the bridge through the fog and you'd have no idea there were hills in the background.*



*The fog effectively hides everything across the river.*



*The view across the street out the driveway doesn't suffer much due to the fog.*



**[Note:** Unusually cold weather in mid-December brought morning temperatures down to 10°C / ~50°F causing very thick fog and very cold ceramic tile floors!]



## Lessons: New and Recovered



Jerry (KD0HOL) helped get some professional emergency helicopter folks to review our draft lesson on scouting an emergency helicopter Landing Zone (LZ) and Drop Zone (DZ). Based on their collective feedback, we subdivided the original lesson into 4 modules. Of course, the pilot in command has the final say about using any LZ / DZ. We want villagers to be pro-active in their resilience to natural disaster. We don't want them to be helpless victims.

We are targeting multiple audiences:

- Ham radio operators and villagers in remote areas;
- Teachers and students in rural schools;
- Emergency service workers responsible for remote areas;
- Ham EmComm operators wanting to add value to their capabilities.

Here is a brief summary of each part:

**Part 1: Your Location.** Empowers people to systematically assess local geo-hazards, prepare for emergencies, and describe their village. The latter helps relief workers unfamiliar with the area to find them and speed rescue efforts.

**Part 2: Basic Landing Zone / Drop Zone Recon Scouting.** Teaches people methods to *estimate* critical factors to identify and screen potential LZ / DZ sites and report them to emergency authorities **BEFORE** disaster strikes.

**Part 3 Advanced Landing Zone / Drop Zone Recon Scouting:** Teaches people Advanced methods to *measure* critical factors of screened sites to plan LZ / DZ and report them to emergency authorities **BEFORE** a disaster strikes.

**Part 4 Supporting LZ / DZ Operations:** Teaches villagers basic LZ / DZ safety and operating procedures for initial rescue / relief flights. It assumes proper authorities will handle subsequent flights.

We are nearing completion of the first two lessons as this update report goes to press. We plan to release the series early in 2014. We are actively seeking volunteers to translate these (and other) lessons to Thai and other languages.

Over the years we have had our share of computer crashes. We were fortunate to recover two documents we thought we had lost in digital nothingness. Apparently the normal back-up drive was full. So we temporarily saved the files on lash drives that happened to have space. Then in the hustle and bustle of life, we forgot to move the files to permanent storage. We updated them and posted them to our website.



## Merry Christmas / Happy Holidays

*Merry Christmas and happy holidays to all of our friends in different countries with different cultures around the world. Thanks for your interest and support for our educational efforts to empower people toward self-reliance and developing / maintaining a strong sense of community to make the world a better place.*



## Thanks to Our Donors



*Connie Beck*

Our requests for donations of Scrabble game sets and a Canon camcorder brought responses from diverse individuals and places. Among the donors were Ellen (nee Oda) McOwen and Jay Allen (Greg Lee's high school classmates). Each donated a Scrabble set. Connie Beck (a 2005 Summer volunteer) dug out her old (but still working) camcorder. She also appealed to her students (Rochelle, Hei'ock, Ann, Sharon, and Evelyn) and rounded up 6 scrabble sets. Tom Higham (KI6YCC), a GERC ham radio operator donated a Scrabble set. Along with the existing Scrabble set and Scrabble Crossword Cubes in the RTC-TH inventory, we now have 9 Scrabble sets and 1 Scrabble Crossword Cube set. We haven't reached our original goals, but this initial effort puts us on the right track. Thanks to our donors for the successful launch of this effort to bring fun to English language learning in our Community-based Education (C-bE) program.



*Rochell Furguson*



*Hei'ock Kim*



*Ann Swanson*



*Sharon Earl*



*Evelyn Kezar*



*Tom Higham*



*Ellen\* & Michael Owens*



*Jay Allen\**

*\*Greg's high school classmates*

Connie dug through her things and donated her Canon ZR40 camcorder. We can now begin to recover and transfer our mini-DV tapes to DVDs. This will make a wide range of field trip videos available for future lessons.

Digital video editing will let us make video clips and capture still photos. Many friends and students here are curious about the US. So retrieving and archiving videos of our US field trips will be a source of many future illustrated lessons to promote cross cultural awareness and education. These lessons will bring another dimension to English learning in Thailand. Thanks, Connie! 🌐





## ***Ban Na Fa to Ban Mai Bridge Recon***

Many years ago, Ban Na Fa was located on the same side of the river as our farm. A flood destroyed the old wood bridge across the Nam Yang River linking the village to the paved road (Route 1170). The villagers voted to move across the river to the present village location. Today, the Nam Yang River separates us (in our house in Ban Na Fa) from our agricultural lands (the Hill Top and the Farm). The present bridge at Ban Na Fa is concrete. But, erosion threatens the abutments on both ends of the bridge. If the bridge gets washed out, there are two alternate routes. To the West is a bridge at Ban Mai. To the East is a bridge at Ban Kong. We took Sparky on a recon the Ban Mai bridge route to our farm. 🌐



*The alternative route via the Ban Mai Bridge over the Nam Yang adds 2.5 km to the normal 1.1 km trip.*



*A left turn at the stop sign on to Route 1170 to Ban Mai*



*Heading West on Route 1170 leaving Ban Na Fa*



*We make a left turn in Ban Mae past the orange house*



*We pass the yard with the hand water pump*





*Wat Ban Mae is far from the village homes*



*We get to the concrete bridge over the Nam Yang*



*You can hear the falling water upstream from the bridge*



*A view of Doi Phu Kha*



*This bridge goes to Thawangpha; we head to Na Fa*



*A view of Ban Mae from across the Nam Yang Valley*



*We get a glimpse of our Hill Top land.*



*We turn right to go to our farm, left to Ban Na Fa.*



## ***Thawangpha Battered by Wind & Rain***

We got up one Sunday morning. Power was out. It came back on, but soon went off again. This repeatedly occurred over and over from 0400 to 0800. We got a call from Pi Oi to come to town and photo document some storm damage at our business. The night before, high winds and heavy rain hit Thawangpha. In Ban Na Fa, we had no rain and only an occasional gust of wind. In the village, lightning and thunder led us to estimate the storm was 3-4 km away to the west. [Note: The damage was minor. But we were surprised to see the damage around the area.]

The variability of weather over a short distance (in this case 8 km) reinforces our belief that villages and farmers need to set up their own weather stations to monitor climate change, better estimate rainwater harvesting, and to monitor local soil erosion.



*Half way to town, a leaning power pole in Ban Yu.*



*Near our business: a collapsed roof and billboard.*



*Cement truck stuck at the Tor Kor Sor construction site.*



*Highway sign blown down south of our business site.*



*Fallen tree along the highway south of our site.*



*Broken tree limbs at Thawangpha High School.*





*A huge tree fell over at the back corner of the high school.*



Driving to and from the village to town started off fairly normal. At Ban Yu, the first evidence of storm damage appeared. From that point on, leaves, debris and fallen trees became more frequent. We didn't see any government crews clearing the streets. Utility workers handled power line problems. Local residents all seemed to clear any fallen trees associated with their property. Schools called in workers to clean up major problems. 🌐



## ***Nam Yang River Make-Over***

The Nam Yang River floods annually during the wet monsoon rainy season (May-Oct). The average slope of the Nam Yang floodplain from near Sila Phet waterfall to the bridge at Ban Na Fa is about 1%. This is a fairly flat flood plain. A river flowing on this flood plain tends to meander (swing back and forth rather than flowing in a fairly straight line). The changes in river bed alignment are part of a dynamic natural process. However, losses of property and changes of boundaries prompt officials to control the alignment of the river. Wat Ban Na Fa (our village temple) is threatened with destruction by erosion. Both the north and south bridge abutments at Ban Na Fa over the Nam Yang have been under severe attack for the last few years.

This month, a major erosion management project commenced for a stretch of the Nam Yang in the Ban Na Fa area. They are dredging and re-grading the banks of the river. Riprap of rocks encaged in steel mesh will be installed to protect the soil banks. These photos show the current dredging and grading phase of the work.



*The curving / twisting Nam Yang river bed attests to the low slope gradient of the floodplain (yellow solid line). This satellite view reveals some possible "meander scars" of past river bed alignments (yellow dashed line).*







The new levee seems to be higher on the north bank (our side of the river) than the south. The added protection of the riprap will alleviate our concerns for erosion on the south boundary of our property in the village.







A work crew began installing the riprap just upstream from Wat Ban Na Fa (our village temple). Riprap is a layer of rock “armor” to protect the levee from erosion. They diverted the river around the work site to get clean access to the river bed. They laid out a white geo-textile layer. A series of wire cages are set in place at the levee base. These filled with rocks. A wire mesh array is secure to the base level cages, then rolled up the levee face. It consists of 6 parallel “fences” extending across the slope. Each row is secured by bamboo stakes into the levee, and bamboo poles to support the upper edge of the fence. Cobbles are dumped into each row filling it to a depth of about 30 cm. Then a wire mesh cover is placed over the top to lock everything into place.



The system relies on mass and gravity to keep the riprap in place. The photo on the left gives a cross-section view of the rock layer and wire mesh. The rock-filled wire cages (yellow arrow) anchors the system to the river bed. The depth of the riprap is thicker at the base and tapers toward the top of the levee. We have to wait and see how they handle the riprap for the bridge abutment near our house.





A notice to our neighbors said their wells along the Nam Yang would be buried by the new levee. They opted to keep the wells in place, but to raise the pumps to conform to the new levee height.

It was interesting to see the work in progress. Everything was by-guess-and-by-golly; I didn't see a tape measure used at any time throughout this effort. The result will be obvious when the new levee is completed.



*The elevated well-head and its new appearance in the newly graded levee (yellow circle in photos above).*

The levee is wide enough at the top to permit a pick-up truck to drive along the river. It isn't wide enough for two-way traffic, but we are sure that may occur infrequently. 🌐

**Goodbye 2013! Hello 2014!**