RTC-TH Sep 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

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Heavy Monsoon Rains Raise Flood Fears

The recent heavy rains caused flashfloods in Uttaradit Province (south of us). Levees along the Yom River in the Sukhothai area (SW from us) flooding part of the city with 1 m of water. A landslide undercut a rail line in Lamphun Province (west of us). Rail service to the north is disrupted until repairs can be completed.

With memories of the 2011 flood in their minds, there is growing concern that the floods in northern and north central Thailand bode ill for points south and for Bangkok.

The two major dams that hold back flood waters do not influence the currently flooded areas. The focus for the Thai government has been the industrial areas north of Bangkok. Rivalry between the political parties is still strong making it hard to get a clear picture of how effective any improvements made in the flood management system since 2011 has been. All we can say is "The rainy season isn't over."

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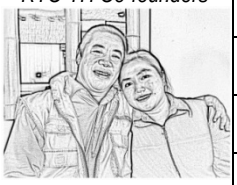
Heavy Monsoon Rains Raise Flood Fears	*1-3*	*RTC-TH Co-founders*  *Greg & Saifon Lee*	*Fi$hing on the Farm*	*10*
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Not everyone is as confident as one high official "guaranteeing" 2012 will not see a repeat of the devastating 2011 floods. They cited lower reservoir water levels leaving room for more rain water to increased numbers of flood protection walls and the clearing of flood control canals. Others raise questions of where the water will go with so many new flood protection walls around "high value" real estate. Meanwhile, the recent rains brought flashfloods to provinces south of Nan.

The impact of the recent heavy monsoon rains was noticeable locally in the Nam Yang River flowing past Ban Na Fa near our farm (yellow arrow in the photo below). The water levels were about 1m and slightly higher. The automatic stream monitoring unit gave out a series of warning "chirps" but the flood alert siren did not go off. [Note: Last year, flood levels reached 3-4 m in the Nam Yang.]

The force of flowing water must NOT be underestimated. Water that is 0.5m deep (about knee deep) can sweep you off your feet. Looking at these photos, you can see the power of the moving water to remove soil from the stream banks. Dressing up the stream banks and clearing debris and vegetation is an annual event along the Nam Yang. And like clockwork, once the rains fall and the water levels rise, the erosion process begins all over again.

These two photos of the Nam Yang looking north from the Ban Na Fa bridge taken 5 days apart show the on the south bank (top center of the bottom photo) after about 35-40 mm of rain fell.

Villagers typically stroll by the bridge whenever a significant amount of rain falls. It seems they come for one of two reasons: fishing or to check on the condition of the bridge. This bridge is the main link to their farms. If the bridge is knocked out, it means a longer trip east or west from Ban Na Fa to the next closest bridges across the Nam Yang. That increases the time, distance, and cost to get to their farms.

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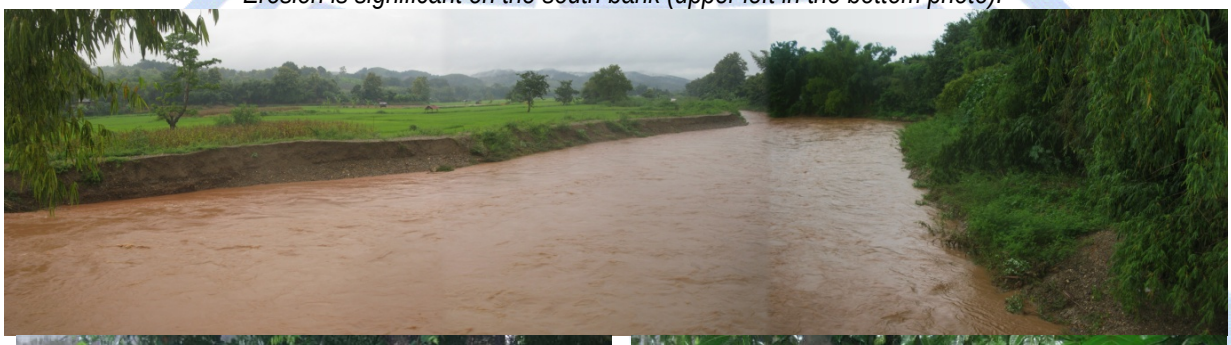
The Nam Yang looking south from the Ban Na Fa bridge. These photos were over the same 5 day period. Erosion is significant on the south bank (upper left in the bottom photo).



This pair of photos shows erosion at the bridge abutment from water draining off the road. This has caused the slow collapse of the concrete apron under the bridge (see photo below). The yellow dashed line shows the original position of the concrete apron. Closer inspection revealed the apron is seriously undercut.

Although it appears solid and intact from above, water removed large amounts of soil under the apron.

The yellow arrow points to a concrete beam. The top surface of the beam was originally even with the top surface of the concrete apron.

Spectators on the bridge expressed confidence the bridge was in no danger. While the bridge may be structurally sound, the road abutment may fail. At that point the bridge will not be connected to the road. The devil is in the details.

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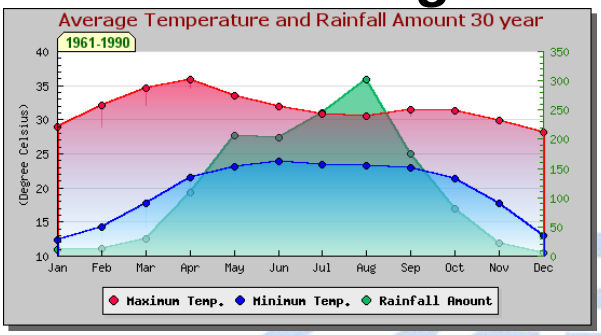
Tracking 2012 Weather Data



The chart on the left shows the 30 year climate summary for Thawangpha. The table below shows the numerical data for the 30 year average, rainfall data and number of rainy days for each month of 2011 and score card for 2012 that we fill in as the data becomes available.

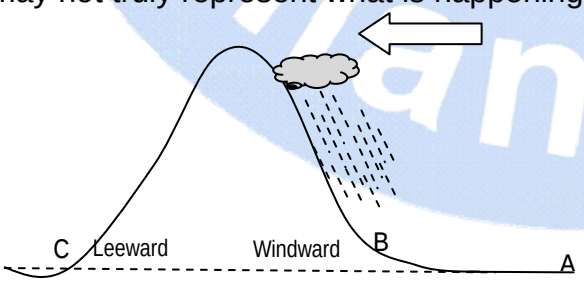
	30 Yr Average		2011		2012	
Month	Rainfall (mm)	Rainy days	Rainfall (mm)	Rainy days	Rainfall (mm)	Rainy days
Jan	11.0	2	1.52	3	17.78	3
Feb	12.6	2	14.48	2	1.01	1
Mar	29.2	3	69.33	6	31.24	2
Apr	108.0	9	98.55	10	163.32	8
May	206.2	17	208.53	22	205.21	10
Jun	202.4	17	396.20	17	100.31	10
Jul	244.1	21	340.87	19	175.01	23
Aug	302.3	22	321.05	18	303.2	23
Sep	175.6	16	371.08	20		
Oct	80.4	9	147.57	7		
Nov	22.7	4	8.12	2		
Dec	5.9	1	0	0		
Total	1400.4	123	1977.3	126		

Blue Box = northern Thai SW Monsoon Season
Green shading = data above 30 year average for Thawangpha
Red shading = data below 30 year average for Thawangpha

The August 2012 data shows we are behind the 30 year average. In contrast to historical 30 year data, in 2012 we have only 89% of the accumulated rainfall which fell on only 86% of the accumulated days of rain. On a monthly basis, August 2012 was wetter than the 30 year average with total monthly rainfall and total number of days with rain being slightly more than 100%. In contrast to 2011, total rainfall was less, but with more rain days.

The data clearly show us that caution is needed when using climate statistics. Total annual values are often too general to give you a good picture of meaningful rainfall data for agriculture. Crops need different amounts of water at different stages of growth. Certainly the number of days of rain doesn't guarantee a lot of rainfall. In Jul and Aug 2011, more rain fell in fewer days than the 30 year average.

Of course, there is also the consideration that the government weather station may not truly represent what is happening on a farm a few kilometers away.



Places A, B, C are nearly all at the same elevation. A storm is moving through the area (right to left). There may be rainfall at B, but not A and C.

Local terrain can affect rain fall patterns. The diagram at the left shows three locations (A, B, and C). They are all about the same elevation above sea level. It is 10 km from A to C so they are in the same local area. The prevailing wind is from right to left. As the wind hits the mountain it is forced to rise and could make rain over B, but not A or C.

It is important to consider how local terrain creates a unique situation for each farm when looking at rainfall data. This is why the RTC-TH advocates the use of GROW (Getting Real On-farm Weather) to record the weather data for a farm.

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Progress on Our Farm Office

Pi Fon, a new RTC-TH volunteer helps clean the "office".

We stepped up efforts to set up the farm office despite the absence of a clear decision about re-building a new farmhouse after the fire. The original building site is the most suitable, but Thai traditions and beliefs of bad luck arose concerning rebuilding on the same site after a fire..

Setting up an office in the container is an interim move to implement the GROW (Getting Real On-Farm Weather) station. The process began with cleaning and measuring the interior of the container. In order to set up the weather sensors, the teak tree near the container had to come down. A relative in the lumber business collaborated with us to cut down the tree in exchange for lumber to make the work bench in the future container office.

The nearby teak tree had to come down to clear the way for the weather sensors and radio antennas / masts.

The container as it appears without the nearby teak tree.

Plans call for using a solar panel to charge the batteries to power the office / station. At this time, 12 VDC power is all that is needed for the weather station and ham radios. It will be another matter if computers are

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installed in the farm office.

The light weight tower / mast (from the town location) will be moved to the farm and positioned near the container office. It will be incorporated in the station ground ring for the container. The wide open space at the farm makes it better for antenna testing, too.

We also anticipate a separate mast for the weather sensors. The full height of the weather mast depends on the cable routing from the mast to the station interior where the weather monitoring equipment will be mounted. To conform to WMO (World Meteorological Organization) standards, the anemometer should be 10m AGL (above ground level).

The farm office will be the records center for our efforts to monitor farm environmental conditions (e.g. fish pond water temperatures, soil moisture, duff temperature/moisture for fire hazard assessment, etc.). For now, this is considered an interim step. In the future, when we build a new house on the farm, it remains an option to incorporate the farm office or to keep it as a detached unit.

Green Views Around the Farm

The rainy season is the time of green at the farm. The new dry land rice crop is growing well and is about waist high in the pasture. Water is flowing in the rice paddies. All the dikes seem to be holding up with no breaches or failures yet. A common cause for dike failure are crabs and eels burrowing into the soil and creating pathways for water to penetrate a dike starting the erosion process.

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A row of pineapples along the driveway (right photo) is our start for having our own supply. On a recent trip, we acquired 2 more varieties of pineapple, both smaller than these (and hopefully sweeter).

We are planning to use pineapple as part of the vegetation firebreak along the farm's western boundary. Our thinking is a 2 m wide band of interlocking pineapple plants will create a fire resistant crop to reinforce the bare earth perimeter road.

The photo on the left shows the western boundary of the "pasture" area. To date, no fires have crossed this part of the western boundary. In the long term, a perimeter road could be put along the fence, and then a 2m wide strip of pineapples could be a possible improved fire break.

Fire did cross the fence line from the cowshed (in the background) and into the orchard behind the cowshed.

Our small sugar cane supply thrives on one edge of the middle fish pond. We use it as an ingredient in some Thai dishes, as a simple raw snack, and occasionally sell some fresh cut stalks when setting up the fruit stand in front of the town business location.

A key advantage of a subsistence farm is the natural biodiversity of the crops. We grow what we eat. Commercial farms tend to be monoculture (single crop).

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The view from the top terrace shows how well the green of our farm fits with the green of the Nam Yang Valley. RTC-TH fans will notice the teak has taken hold on the terraces. Some of the teak is now more than 2m high. It will be another 5 years or so before they reach the minimum size to cut and sell. Full market size is another 15 years away. Teak is a traditional long term savings account for Thai farmers.

The terraces seen from the fish ponds show how the teak trees add to the protected forest watershed above the farm. The central gully is the main watershed component that feeds the ground water supply for our fish ponds. We have no direct irrigation water access from the nearby reservoirs. So we must increase our efforts to catch and hold rain in our farm watershed. With an eye toward climate change, holding water in the soil will be like having money in the bank. Slowing and holding water as high up in the terraces as we can means a longer, slower seep time for it to get to the fish ponds.

The old bamboo trellis over the compost "sunken" garden got old and gave way under the giant passion fruit. Rough bamboo structures left out to the elements might last for 2 years or so. If termites get to the structure, its lifespan could be drastically reduced.

Replacement parts are readily available on the farm for repairs. The only cost is the labor if extra help is needed to get the work done.

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Along the lower east terraces, the teak and bamboo are doing well. In another year, the bamboo will be ready to cut and sell. Many neighbors cut and stack their bamboo along the roadside. Large tandem tractor trailer rigs from the south will come along and offer to buy the bamboo. It is trucked down to the Gulf of Thailand and sold to people in the fisheries business for making fishing structures and traps.

The photo on the right shows the access road to the cowshed and the west side of the terraces of the upper portion of the farm. To the right of the road is the pasture area planted with dry land rice (our family's back up in case the wet paddy rice harvest is lower due to the drought). To the left of the road is the orchard behind the old farmhouse. It has tea, wood apples, limes, and breadfruit trees to supply the family needs.

Walking and working on the farm during the rainy season can be very hot and humid work. Shade is available, but finding a shady spot with a breeze can be like looking for a needle in a haystack. The East Fish Pond sala is a good bet.

A cool breeze makes the sala over the East Fish Pond a favorite resting place on the farm.

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Fi$hing on the Farm

It was a fine sunny day for fishing. We charged folks a flat fee to fish for the day. They were restricted to the central fish pond and could only fish by hook and line (no nets).

Folks drove to the farm. Most staked a claim to a spot on the edge of the pond and set up an umbrella. Some used simple bamboo poles while others sported fancy casting reels. Each had their own approach and bait. Everyone seemed to be catch tilapia (small to medium sizes mostly from what we could see).

The afternoon winds wreaked havoc with some of the umbrellas. None were blown away, but a few got inverted when a gust of wind hit them.

Everyone seemed to be catching something. Most were intent on fishing (or drowning bait) or at least seemed to be having a good time.

Recent rains brought the water levels in the middle pond close to the maximum. Now is a good time to check all overflow drains. If the more rain comes, water levels will easily reach the overflow drains. If they are clogged, the pond banks can be over topped and risk being damaged or fail.

Water levels in the rice paddies were normal. Any additional overflow from the ponds simply passes through to the next farm.

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Fun with Clouds

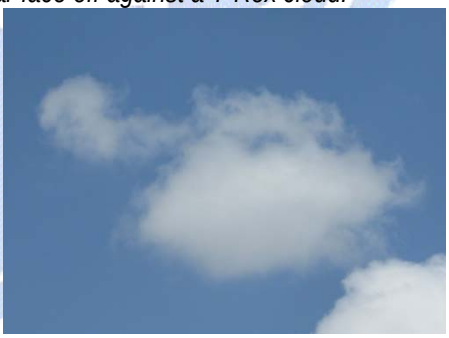
Giant cloudy Teddy bear floating by in the setting sunlit sky.

This is a free pastime we never tire of doing: cloud gazing. It might be a form of natural "Rochart tests", but we enjoy it all the same. Take a moment to share the views with us. Laugh, debate, or re-interpret these photos as you like. These photos may not make it to any famous art gallery, but we are endlessly fascinated by what we find in nature (and in the mind's eye).

When was the last time you looked up at the clouds and let your imagination take flight? Do parents do that with their children anymore? It seems the modern world is in too much of a rush to get from point A to B. We see many children today more actively engaged in a small LCD screen using what may become over developed thumbs. Maybe we are too out of sync with the times. Nature is so much more, intriguing, and engrossing.

A baby and mother bear face off against a T-Rex cloud.

A bearded giant rests his head on a soft cloud pillow over town.



A very lucky sky squirrel finds a very large walnut and now has to figure out how to get it home.

The sky's the limit when you decide to lay back and watch the clouds drift by.

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Getting To & From School in Rural Thailand

Typical "school bus" ride near the Provincial capital.

Most villages have an elementary school. If not, there's one in a nearby village that is in walking distance. Naturally there are more elementary schools than there are secondary (intermediate and high schools). In rural Thailand, you don't often see the typical yellow school bus. Instead, pick-ups and other trucks are modified with benches and steps to serve as "buses". The overcrowding is typical and would cause many American parents to balk at sending their children to school this way. But for Thais, it is all part of the daily routine.

As you progress through school, you generally have a longer distance to travel. For remote areas where "bus" service isn't available, many under-age students begin driving motorbikes to school. Most don't wear a helmet, though it is required by law. Motorbikes are involved in 80% of the traffic accidents in the Kingdom annually.

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New Plants for the Farm

We recently got some new plants for the farm: 2 varieties of pineapple, ginger, jícama, a better tasting avocado, and a new unidentified plant with tiny purple blossoms.

New ginger plants in a temporary bed

The new Batavia pineapple patch is above the West Fish Pond at the edge of the intercropped Longan and tea plants. Eighteen pineapples were planted here where they can get full mid-day and afternoon sun. They are close enough to the old farmhouse so we can get to them if they need supplemental watering until they fully take hold. We hope the rainy season will give them a good head start in life. If they prove successful, we may expand the area for them in the future.

Saifon decided to try growing jícama (*Pachyrhizus erosus*) as a back-up crop. Tubers are protected underground when adverse conditions affect the leafy parts of the plant. A severe storm could wreak havoc with grains and fruits exposed to the storm. So having emergency stores in the ground means having something to eat after the storm. We were told this plant tends to spread. So we are thinking to plant these in the upper terraces to help cover the ground against rain drop impact.

The tiny purple flower caught our eye on a recent trip. So we picked some from the roadside and will try to find out more about it. It was growing in a wet location, so if it isn't an invasive, we may plant it along the outer fish pond berms or alongside gullies as part of the green flow path area.

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