



RTC-TH Mar 2013 Update 2

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

ชุมชนตามสิ่งแวดล้อมศึกษาเพื่อการพึ่งตัวเองและยั่งยืนชนบทขนาดเล็กครอบครัวฟาร์ม

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Thinking Small to Solve Big Problems

Food security: This issue gets more complicated when trying to figure out where and how to get more water to grow enough food to feed more people. Irrigation plays a big part in providing water for the Green Revolution that saw some countries become major food exporters. Some countries were able to achieve food self-sufficiency for the first time. On the other hand, the lack of water and irrigation created food-importing nations. Some governments opted to use water for high value production to earn favorable trade balances in order to pay for food imports. The most unfortunate of these food importers are those countries with economies unable to pay for the food without going deeper into debt.


The current state of the world economy puts pressure on governments. With diminished tax revenues and rising costs to build and maintain public infrastructures, massive irrigation projects may go the way of the dinosaurs. The true costs (financial, sociological, and environmental) are proving to be too high. In many less developed countries, water distribution inequities create extreme poverty or threaten to destabilize governments.



Large dams and irrigation projects see rising costs now.

Water scarcity is becoming a bigger problem for many nations. Agricultural use of water, up to now, has been a major part of any national water budget. Growing populations puts pressure on farmers to produce more food. Expanding urban populations, often associated with political seats of power, are demanding more water. Ultimately, farmers need to be able to do more with less. There are no easy answers.

More and more people are starting to realize that the miracle of technology, the Green revolution, and irrigation may not be able to meet the food needed for the 21st century. We still see the King's Theory of the Sufficiency Economy as being a good fit for small rural family farms. We don't see it as a solution for the world's food problem. We aren't in a position to affect national and international policy. But at a local level,

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Editorial Note: We decided to feature the construction project for the new home for Sparky and Sam to give you a glimpse of the differences in construction methods used in our part of northern Thailand.



we see the need for small farmers to recognize they cannot rely on the government to help save their farms and their livelihoods. It all starts at home. They must take a stand and first strive to become as self-sufficient in growing food to feed their family sustainably. This sets the stage to being able to produce a surplus for the family to sell.

Small farmers must take it upon themselves to harvest rainwater and to make the most efficient use of the water

Future pumping costs will increase

they get on their own. If they have access to irrigation water, they must begin NOW to create a “Plan B” for when that irrigation system may fail, they may get less water or have to begin paying for the water. If they pump water, fuel and energy costs will rise and / or ground water levels may drop below the depths they can afford to pump. If they take steps to have their own water security, they have insurance. The climate change card is a great unknown variable here. In our minds, it is better to have “water” insurance than not. We can’t speak for others, but here in northern Thailand, the most obvious steps are:

- Rainwater harvesting
- Protecting, maintaining, and if possible, expanding watershed
- Check dams and planted flow paths for ground water recharge
- Mulching and composting to increase soil moisture retention
- Micro- and deep drip irrigation to effectively reduce water consumption



Climate change predictions say droughts may be longer and optimize plant growth

We have resisted drilling a well. Drilling a well bears hidden costs of maintenance, pumps, energy to operate the pumps. And the threat that as other farmers put in wells, the cumulative draw down can ultimately make our well dry. We prefer to use sustainable options. We rely on rainfall, rainwater harvesting, watershed protection, increasing soil moisture retention, and drip irrigation as effective low cost ways to water crops.



Our farm watershed is key to our water resources.

We feel approaching the challenge of food for the future begins at home on the small rural family farm. These are the people in poverty and are malnourished. Rather than be victims of an uncertain system, they need to try to bootstrap themselves by using whatever materials they have on their farm to grow enough food to eat. Many ancient peoples created many low tech methods to collect rain water for their crops. We need to share these with poor rural farmers.

It may be overly simplistic to think of reducing food demand by putting the brakes

on population growth. So far as we know, China's one-child per family effort was a step in this direction. It's uneven application and exceptions created inconsistencies. And for many, the lack of "free choice" and "human rights" were pivotal issues. Bluntly, the bottom line comes to giving people the freedom and the right to starve when food supplies fall below demand. Without adequate family, increasing agricultural productivity is similar to expanding a road system to solve traffic jams. More lanes added to the road often leads to even larger traffic jams.



The reality of global poverty and hunger are not easy problems to solve. Inequities arise due to multiple and various reasons. These reasons range from the international differences among nations down to tribal and sometimes individual levels. There is no standard universal cure-all. We feel some of the more effective



The IDE micro-irrigation system

solution sets may very well appear at the grassroots level with some outside help. This was the basis for our initial volunteer project in 1999. It's validity is applicable 14 years later.

IDE (International Development Enterprises, www.ideorg.org) has taken this premise to another level focusing their "outside" help efforts in a 3-prong approach: designing appropriate, effective, affordable products for poor farmers; effective education, marketing, distribution, and innovative local supply chain systems, and; grassroots empowerment. They strive to combine new information with local and traditional practices in light of the new realities of climate change. By moving food production to the local level, they reduce (and hopefully, eliminate) the need to import food.

IDE looked at existing drip irrigation technology and found ways to reduce the production cost. Looking at local practices in various countries, they scaled the system (in size and price) to fit. Combined with culturally effective education and marketing techniques, they demonstrated the effectiveness of the IDE micro-irrigation to impoverished farmers in Latin America, Africa, and Asia. The IDE system effectively and efficiently uses less water to produce crops. The enables farmers



The IDE micro-irrigation system in use

Previously unable to grow crops to begin to feed themselves and earn an income. Three cheers for IDE. Please visit their website (www.ideorg.org) and support their efforts by sharing this information with others. 🌱

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Please Help Us to Help Others

After reviewing the IDE materials, some of our volunteers suggested we make an appeal to our readers. The idea is to solicit supporters in developed countries to make a gift of a micro drip irrigation system. The initial systems received would be set up as demonstration / training units on our RTC-TH demonstration farm and self-selected local village elementary schools in our area. The initial effort calls for a minimum of 5 sets 20 sq m units, 2 sets 50 sq m units, and 2 100 sq m units. Any units we get after the initial sets would be distributed on a matching funds basis (the ratio to be determined based on the available excess sets). The idea is for additional recipients to pay a "buy in" fee to get a system. Their "buy in" fees would be pooled to create a fund to sustain purchases of additional units. In the end, we hope to have an ongoing, sustainable program to distribute more micro drip irrigation systems.

Here is an opportunity for you to make a difference. If you have a club, group or are a teacher, consider a group effort to fund a micro drip irrigation system for a Thai elementary school. Please email us (rtc2k5@gmail.com) when you have placed an order. Thanks for your help!

iDEal Global Supply Drip Irrigation Kits	Package volume in m ³	Gross Weight kg/package	1x Kit	2-10 Kits unit price
Microtube Drip Kit 20 sqm with 20 liter water bag	0.005	0.6	\$15.00	\$10.00
Microtube Drip Kit 50 sqm with 100 liter water bag	0.009	1.0	\$20.00	\$15.00
Microtube Drip Kit 100 sqm with 200 liter water bag	0.011	2.0	\$30.00	\$25.00
Microtube Drip Kit 200 sqm w/o water bag	0.025	5.5	\$40.00	\$35.00
Microtube Drip Kit 500 sqm w/o water bag	0.046	11.0	\$85.00	\$80.00

To order, email to globalsupply@ideorg.org

With your order, please provide iDEal Global Supply with the following:

- Detailed shipping address: Mr. Gregory Lee
166 Moo 5 Ban Wangwa, T. Thawangpha
A. Thawangpha, Nan Province 55140
Thailand
- Contact person and local phone number: Mrs. Saifon Lee 086-011-3497
- Preferred shipping method: **Door to Door** send by air courier, door-to-door. Shipments weighing over 20 kgs can be shipped by door-to-door air courier, (products are currently shipped out of India)
- Necessary information to be included on the invoice, packing list, and airway bill to minimize importation and customs costs in country: Gift; science education kit

Form of payment: Payments are accepted by Credit Card through PayPal, Credit Card through our donation page, or by wire transfer

Once iDEal Global Supply has this information, they will provide you with quotations for shipping costs and time.

Warranty: iDEal Global Supply provides a one year warranty from the date of purchase on its products for defects in material and workmanship. During this warranty period, iDEal will replace, free of charge, the part or parts found to be defective under reasonable use and service, as determined solely by iDEal. iDEal reserves the right to inspect the defective part prior to replacement. Liability under this warranty is limited to the replacement or repair of defective parts. In the case that an initial shipment is incomplete, iDEal will send the missing components, free of charge, to an address indicated by the customer. This warranty is exclusive and is in lieu of all other warranties expressed or implied, including, but not limited to warranties for fitness, for use or merchantability. FFI: <http://www.ideorg.org/OurTechnologies/GlobalSupply.aspx>

New Home for Sparky and Sam (continued)

In mid-February, we started the carport expansion at our Ban Na Fa location as part of our re-organization plan. The saga continues with these photo summaries.

7 Mar Day 11: The workers return. They install the west fascia, then begin to prepare the concrete footings. Sand and gravel delivered. Cement and wire arrives and the workers begin to cut, bend, and make the re-bar for the footings. So much of the work is done manually. In the US, standardized pre-fabricated materials reduce the labor and time involved for similar tasks. Thais have their own way to get things done.



Sand and gravel arrive.



Cement and reinforcing rods soon follow.



Cutting and bending the steel reinforcing rods



Making the steel reinforcement for the footings



Re-bar for the footings are completed and the concrete forms are partly done.



8 Mar Day 12: Today they completed all the footing forms, mixed several batches of concrete by hand, and poured all of the footings. They borrowed forms from a neighbor. One man cut stakes from the scrap teak log trimmings. More trimmings made up the short fall in forms. They expend a lot of time and energy due to the lack of standardized construction materials and equipment. But that is all part of life in rural Thailand. Sometimes you make do with what you have.



Cutting stakes from teak log trimmings



Hand mixing a batch of concrete



The pouring is done manually from small buckets



Day 12 ends with all of the concrete footings poured.



Workers removing the footing forms



Cinder block and mortar delivery

9 Mar Day 13: It was a busy day. Footing forms removed, cinder block, mortar and dirt fill are delivered. Two men mix and carry the mortar; two men lay the blocks. They completed installing the low cinder block walls leaving space for the doors. By the end of the day, they set additional reinforcing bars and forms for the top of the lower wall. The cinder blocks are tied to the teak posts using large nails or thick reinforcing rods extending into the mortar for each course of block. They finished in fading daylight.



The floor fill material arrives shortly after.



The cinder block wall begin to rise.



Fitting forms for the top reinforcing rods.



10 Mar Day 14: They started the day by filling the concrete forms to top off the wall. Then they proceeded to fill in the floor cells. It was a tight fit for the tractor to do the coarse filling. The final dressing was done by hand. (I would have sequenced the work differently. But hey, this is Thailand. Local experience of the workers suggested a rain skirt for the east end of the carport. An you guessed it: in order to start that task, first they had to build the scaffolding. The rain skirt frame was completed by sunset.



The walls are topped with a layer of reinforced concrete



The floor cells were roughly filled by tractor and dressed by hand.



A rain skirt is planned for the east end of the carport



The side door frame is all teak





Concrete forms are removed from the tops of the walls



The wood base plate is installed on top of the walls

11 Mar Day 15: Only 3 men were on site today. First they removed the concrete forms from the top of the wall. Then they installed the wood base plate to the tops of the walls. In the afternoon, the work was divided into two activities. One carpenter worked on building the window frame. The other two men began plastering the south wall. One mixed the plaster; the other did the plastering and surface finishing.



The lead carpenter builds a window frame



Plastering the wall requires several passes to build up to the final finished surface.





Stucco work continues



Slats getting smoothed for installation



The side door frame is put in position

12 Mar Day 16: It was another busy day. Two men continued the stucco work. They finished 90% of the interior walls and began on exterior wall. Two carpenters worked on installing the side door frame and a window frame. Then one continued cutting and installing the horizontal braces for the wall slats. The other carpenter began smoothing the wall slats in preparation for installing them. A separate metal worker will handle the steel roller garage door installation in the near future.



Installing the window frame



Placing the slat mounting braces.



13 Mar Day 17: The major efforts are to continue the stucco work and setting the braces for the slats. The day ended with stucco on 97% of the interior walls and 75 % of the exterior walls. The slat braces were about 85% completed. The first slats were installed to check on the spacing and get an estimate of the total number needed. The length of each slat has to be measured and cut separately. The key variable is the diameter of the teak trees used in the rafters. The sheet metal for the rain skirt arrived. 🌐



Stucco work continues on the exterior walls



Work on the horizontal slat braces continues



More slats are prepared



The first slats are installed on the south wall.



Sheet metal for the rain skirt arrives



To be continued

Carport Project “Wastes” Not

“Waste not, want not” goes the old saying. We put it to use for our carport expansion project.

We carted off the old materials (wood, sheet metal, and even the nails) to the farm for re-use. Nails too bent to be of use got added to the scrap metal for sale to the recycler.

New materials included saw dust, wood shavings, wood chips, tree bark, wood scraps, and, yes, even bent nails and scrap trimmings from the new roofing panels, were meticulously



Old carport and garden wood posts for farm re-use gathered.

The sawdust, wood shavings and chips became mulch in Mom’s garden bed. This saves soil moisture and reduces labor for weeding to maintain the front yard.

The tree bark stripped from the teak logs went to the farm for mulch. Some may become kindling for the farm cook stove. Wood scrap got added to the wood pile for cooking fuel. Any bent

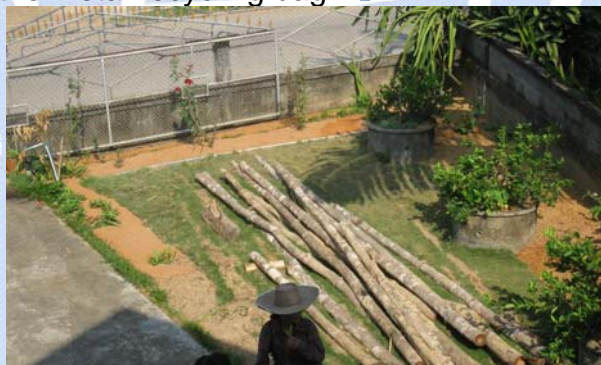


Salvaged sheet metal added to the farm stockpile.

easily straightened nails were salvaged and added to the bag of hardware for the farm. Any beyond salvage were added to the metal recycling bag.



Sawdust from cutting the teak beams



Sawdust mulch in the front yard garden beds



Bark for mulch



Wood scrap and some bark for cooking fuel

Eggs for Breakfast...

What's for breakfast, you ask? Eggs of course. *Mot Kai Deng* (red ant eggs), that is. It's a northern Thai delicacy. I suppose it comes under the category of "forest food". Mom went out of her way to make it not spicy just so I could have a try. How can you graciously refuse a special offer as that? So with spoon in hand, I held my breath, and dove in.

Well, as she promised, it was not spicy. I am not the best choice for a food critic (due to my crocodile tongue which doesn't seem to be very sensitive). I



Eggs with vegetables and soup for breakfast can report the vegetables and soup were great. I can't say I noticed the ant eggs regarding flavor. (Saifon likes the "buttery" taste of the ant eggs.) Texture ...definitely a slight rubbery "pop" when you chewed on one. (In the photo on the left, the ant eggs are the white objects that appear as supersized rice grains...and also maybe some of the smaller ones as well. There is no rice in the dish).



A northern Thai delicacy: what a treat!

The eggs are those of the Thai red weaver ant (*Oecophylla smaragdina*).



Image from the Internet: educational free use clause

The red ant eggs are harvested by raiding the ant nests found in trees.

The ants pull the leaves together to create the nest. Most nests we have seen are the size of 2 open hands. Harvesting techniques vary regionally. Some folks in northern Thailand use a bamboo pole with a suspended sack with rice flour in the bottom. They poke a hole in the ant nest, shake out and catch the contents in the bag. Apparently flour coated ants don't stick to you. You have to be careful. The red ants bite. The workers come in 2 sizes: 12 mm long for building, foraging, and defense; 6-8 mm long for domestic housekeeping work. They are very territorial and have a very effective mass communication system. We often see red ant nests in the ficus tree in front of Saifon's business. 🐜