Field Report

RTC-TH Farm Update

Jun-Jul 2006	Rural Training Center – Thailand, Ban Na Fa, Nan Province, Thailand

Community-based Environmental Education for the Self-sufficiency and Sustainability of Small Rural Family Farms

Since last summer, when the RTC-TH demo farm began, much has happened. Some of the changes evident to last summer's volunteers:

- New buildings were constructed: 2 pig sheds, a cowshed, mushroom shed, duck pen, chicken coop.
- Forage grasses were planted for soil erosion control and livestock feed.
- A new fish pond was built for increased water storage and fish production capacity.
- The use of duckweed to supplement livestock feed and composting material.
- The upper slopes of the farm were terraced for soil and water conservation.
- Rainwater catchment gutters and tanks were installed on the farm house.
- Bamboo grove removed and a new gate and fence sections installed for increased farm security.

The terraced upper slopes, 2 new pig sheds and a new fish pond are some of the big changes on the RTC-TH demonstration farm.

Bamboo grove removal, new gate and fence line help improve farm security.

There is a lot to do, and limited time and staff to do all the work. To reduce some of the work, we sold the cows. "We need time to establish the forage grasses in the right places and in the right quantities and times to assure a more self-sufficient operation," reported Saifon. When the RTC-TH demo farm started up, the cows were already there. During the moist parts of the year, sufficient forage existed on the farm. During the dry season, there was a shortage, and it was too much effort to get the cows to areas off the farm to graze, or it cost too much to buy feed from off the farm. So the decision was made to sell the cows, regroup, and make the proper plans and arrangements before buying new cows. The cows fit into the overall scheme of things in terms of biogas production, compost for increasing the organic content of the soils, and as potential draft animals (in the event of a severe energy crunch) as well as being food for the family.

New forage crops selected and planted to provide feed in both wet and dry seasons to assure year-round livestock feed supplies.

Duckweed is the world's smallest flowering plant. It makes up for its diminutive size by its prolific reproduction---increasing its numbers by 2 – 3 times under ideal conditions. It can be harvested every other day and used as animal feed supplement. Pigs and ducks can eat it fresh (wet). Cows and chickens can eat it after it has been dried. This valuable plant can help cut off-farm feed purchases. Reducing off-farm expenses is one easy way to move small rural family farms toward self-sufficiency.

Duckweed, a renewable farm resource.

As with many things, too much of a good thing can have negative consequences. Too much duckweed reduces available oxygen in the fish pond. So a major clean out was done to bring water conditions into balance.

The new fish pond and its amazing duckweed feed supplement for our farm animals.

The duckweed is skimmed from the water surface and accumulated for collection and removal.

At the same time, the existing fish ponds were drained for maintenance and repair. The staff removed as many water lilies as possible from the main fish pond. It may take 3 years or more to completely remove these plants. Although they are pretty and shade the water, they create some problems. Snakes hide in them and the roots entangle the nets when catching the fish. One snake can eat many baby fish.

Clearing water lilies from the main fish pond to reduce losses to fish-eating snakes and reduce entangled nets to increase fish harvesting efficiency.

Making learning / work more enjoyable is at the heart of the RTC-TH demonstration farm. Ringing a bell to signal fish feeding is a fun-work activity on the farm.

Traditionally, fish are a main protein source for Thai farmers. In 1978, when the farm was originally started by Tang Suttisan (Saifon's father), he read and followed the King's theory. Tang was the first farmer in the area to dig a fish pond on his farm. The government recognized the significance of his effort and encouraged other farmers in the area to do the same. The RTC-TH demonstration farm continues in the steps of the farm's founder.

The ponds are now being refilled and re-stocked with fish. We put a small bell on the main fish pond saladang. "We ring the bell to train the fish to come for feeding," said Oi, the farm manager. "It adds some fun and excitement to the work. It's very enjoyable to watch all the fish churning the water at feeding time."

A new fish pond is under construction. During the dry season, the basic pond was excavated. The family is a basic element of the RTC-TH farm, so we hired family members with construction experience to build the saladang (pavilion) for the new fish pond.

With a long-term view, we decided to use concrete pillars as opposed to the traditional wood pylons for the new sala. Except for the hoist used to position the pillars, all other work was done by hand: digging the footings, mixing the concrete, etc.

The new sala will provide a cool resting place for workers and farm visitors. It also serves as a feeding station for the fish. In the future, it will also facilitate the fish harvest.

A fish pond has multiple functions: water storage, producing food (fish, shrimp, frogs, ducks, edible insects, and traditional Thai edible water plants), enriched soil supplements, irrigation water for the rice paddies, fire fighting water source, swimming hole, and a cool place to rest.

New ideas for reducing fish harvesting labor call for additional excavation of the pond in the next dry season maintenance cycle. Studies are under way for solar powered pond aeration, water temperature monitoring, and a lighting system to attract night insects for fish food.

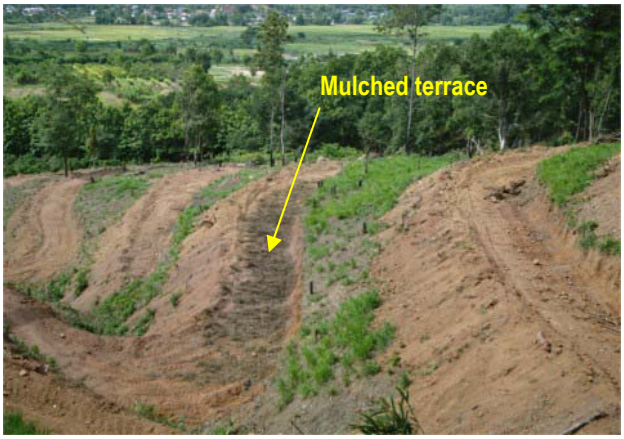
Terracing to conserve soil and water.

Flat land is more ideal for farming. Slopes have more challenges and problems: mainly increased soil erosion. Terracing the slopes slows water movement down the slope reducing soil erosion and water loss. Mulch also helps and adds organics and nutrients to the soil. Initially, the terraces are being planted with forage grasses and peanuts to improve the soil structure. At the same time, soil biological health is improved. Later, fruit trees, vegetables, and a variety of other crops will be planted on the terraces in addition to the forage crops.

With the monsoon season approaching, it is a race against time to get the slopes planted. Extra workers are hired on a daily basis to help with the planting.

The improved soil structure leads to increased water retention on the terraces will help to mitigate future water supply issues associated with global warming issues. It may seem ironic to some that small rural farms in Thailand need to be concerned about global warming created by the big producers of green house gases half a world away. But those who know and use the Geographic Systems Model are not surprised.

Water is diverted from the gully to the terraces keeps more water and soil on the farm. The terraces also offer the opportunity to use gravity to minimize labor.



Mulch can protect the bare soil from rain drop impact, the first step in soil erosion.

Terrace teamwork: workers planting forage grasses and peanuts on the terraces to anchor and develop the soil.

Growing what you eat, and eating what you grow is part of the self-sufficiency for a family farm. This approach diverges from commercial agriculture where crops are grown for sale and profit. As a result, what commercial farms grow is not often what they eat.

Grow what you eat,
Eat what you grow.

The RTC-TH family members were asked what they like to eat. This information became the lists of plants to investigate for suitability on the RTC-TH demonstration farm. The first batch of new plants purchased for planting include: 2 types of pomegranates (red and pink), coconuts (nam hom), jumbo Indian jujub, custard apple (noi nah).

New pomegranate trees for the RTC-TH farm.

Once basic family food needs are met, any surpluses can be bartered or sold to get things needed from off the farm. The difference between the theory and practice of self-sufficient farming will be determined by tipping the balance away from depending on outside or off-farm goods and services and toward a more independent life-style.

Sustainable conservation practices at the RTC-TH demonstration farm emphasize mulching rather than traditional burning of plant residues.

Tropical soils are typically low in organic content. Burning is a fast way to break down plant materials and add organics to the soil. But most of the nitrogen is lost to the atmosphere in the combustion process.

At the RTC-TH farm, plant residues are left as mulch. They break down slowly, releasing nutrients and adding organic materials to the soil. The addition of organics improves soil structure. This decreases surface runoff, improves the ability of the soil to resist erosion, and increases soil moisture retention.

Save Our Soil (SOS) and Save Our Water (SOW) are fundamental aspects of the RTC-TH environmental education programs for small rural farm families. The idea is to keep these basic resources on the farm for as long as possible.

Burning of plant residues is common in Thailand.

Instead of burning, mulching is the preferred as a better nutrient recycling method on the RTC-TH demo farm.

Rice is planted in the wet season. The process begins with plowing the paddies which were planted with dry season crops. The soil must be smoothed to a fine texture and flooded. We hired out the plowing to the same man each year.









The rice seedlings are planted in advance. Then they are taken from the seed bed, bundled, and carried to the paddies for trans-planting.

The rice paddies are irregular sizes and shapes to fit the land and water flow. Planting rice is labor intensive work. Talk and jokes help pass the time and make the time pass faster. Family members, other relatives, and hired workers were able to plant all of the paddies in one day.

It is customary to provide food for workers. Meal time is a rest break and time for more socializing. Most of the workers helping us plant rice are women. Many rural farm families seek extra work to earn more. Thus, men often take on heavier or physically demanding work that also brings in more pay.

Traditionally, Thai families would grow their own rice supply for a year. In fact, one standard of success was to have enough land to grow this annual supply. But in modern times, many people consider the time and effort too much relative to the low income earned.

Self-Selected Thai Sponsor

"Networking rather than not working" has been a catch phrase often used by RTC-TH Co-founder Gregory Lee. True to form, Warot "Boat" Udomsittikul, a former PCC international student from Thailand, is now managing a business in Thailand. Champ Magic Block (CMB) is one product line he handles. It recycles coconut husks into a soiless planting medium with high moisture retention.

"I am very interested in doing what I can to help support the RTC-TH. I took Mr. Lee's class at PCC. I was very impressed with his creative and critical thinking style. I transferred to CSU-Northridge where my international business major required an internship. Mr. Lee facilitated an international internship through an ESSI project in Thailand. This activity was a good match for my CSUN class needs."

Doing business in a socially responsible way and community involvement.

One of the intrigue CMB products is a hanging planter. The RTC-TH wants to explore the use of this growth medium to create "Green Screens". These would be living plants hung in series to act as thermal, acoustical, and visual privacy screens. Not only would this beautify an area, but adding living plants is an environmentally sound practice especially in urban environments. A particular characteristic of the CMB materials is high moisture retention which could translate to low maintenance for a Green Screen. "We are very excited about this idea," said Warot, "and look forward to sponsoring some RTC-TH activities using our products."

"Meeting the Lees this summer is good timing. I am very interested in formalizing a relationship with the RTC-TH because it brings a whole different perspective of community involvement and social responsibility to running a business."

CMB can be seen and ordered from www.cmb.in.th, or e-mail Mr. Udomsittikul directly at wboatu@gmail.com .

Coconut husks, a waste by-product when extracting coconut milk and meat, are processed into a soiless planting medium.

The CMB hanging planter can be used to create thermal, acoustical, and visual "green" screens.