



Sticky Notes

GECO Newsletter
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Ready to Serve and Sustain Our Community



Happy Chinese New Year!



Happy New Year 2022/4719, the year of the black, water Tiger. Chinese New Year Day is Feb 1, 2022, in the Chinese time zone. The Tiger year begins on Feb 4, which the first astrological day of the first month of Spring (Feb 4, 2022).

The Chinese calendar is a complex combination of a solar, lunar observations and the 60 Stem-Branch counting methods. The 60 Stem-Branch calendrical system uses the five Yin-Yang elements (metal, water, wood, fire, earth), the five colors associated with the elements (white, black, green, red, brown), and twelve animals (rat, ox, tiger, rabbit, dragon, snake, horse, sheep, monkey, rooster, dog, pig). This means the specific color-element animal combination for your birth will only recur on a 60-year cycle.

If you've noticed, the Chinese New Year varies from the last two weeks of January to the first two weeks of February. If you want to know your Chinese birth color-element animal, you cannot use the simple number of the western calendar year that you often see on place mats in Chinese restaurants. Click [here](#) to get your Chinese birth sign.

According to Chinese legend, the sun, moon, and stars were created in the period of the Rat. The five elements appeared during the Ox period. People came on the scene in the Tiger period. Like all things conceived by humans, this can be perceived and interpreted in many ways.

GECO hopes all radio amateurs may have the courage of the tiger to strive for new knowledge, skills, and experiences in their quest for personal growth, job advancement, and when reaching out to bring new people to the hobby.

The world is changing. More people are moving to cities and coastal locations. The large concentrations of people increase the risk of disasters. The same natural hazards are with us, but the physical environment is changing. Recently, disasters are occurring more often, with greater intensity pushing emergency services and governments to the limit. You never know what will happen in a disaster. Look at reports of any of the recent disasters and you find utilities fail and communications are difficult.

Have you considered using your amateur license and equipment for emergency communications? You don't have to join a group and get formal training. It's good if you do, but at the very least, you should make yourself aware. You may become an accidental EmComm operator. 🦊





Snake	1941 1953 1965 1977 1989 2001 2013
Horse	1942 1954 1966 1978 1990 2002 2014
Goat	1943 1955 1967 1979 1991 2003 2015
Monkey	1944 1956 1968 1980 1992 2004 2016
Rooster	1945 1957 1969 1981 1993 2005 2017
Dog	1946 1958 1970 1982 1994 2006 2018
Pig	1947 1959 1971 1983 1995 2007 2019
Rat	1950 1962 1974 1986 1998 2010 2022
Ox	1949 1961 1973 1985 1997 2009 2021
Tiger	1950 1962 1974 1986 1998 2010 2022
Rabbit	1951 1963 1975 1987 1999 2011 2023
Dragon	1952 1964 1976 1988 2000 2012 2024

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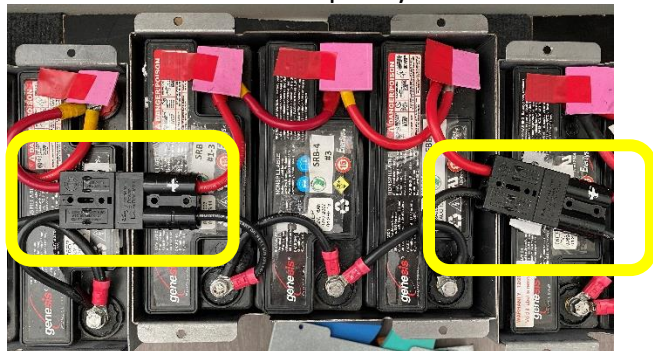
GECO Power Supplies

The following power supply units are in the GECO inventory. They were purchased, donated, or salvaged. 🌱

	Radio Shack #22-508B 13.8VDC 19A Power Supply AC Input: 110-120 V AC; 60Hz DC Output: 13.8V DC +/- 0.65V	Main power supply for station battery banks and base station mobile radios.
	Radio Shack #22-504 Regulated 3-Amp DC Power Supply AC Input: 110-120 V AC; 60Hz DC Output: 13.8V DC +/- 0.5V 3 Amps DC Continuous (maximum)	Main power supply an HT radio with battery 12 V eliminator when in station to conserve attached batteries for field use.
	HP Model 712A Power Supply AC Input: 115/230 V AC; 50-60 cps, 16W DC Output: Regulated voltage 0 – 30 V DC, 150 ma continuously variable.	Mainly used for bench power supply when testing equipment.
	King Star Model KC230W AC Input: 115 V/ 6A; 230V/3A; 50HZ-60HZ DC Output: 5V/23A; 12V/9A; -5V/0.5A; -12V/0.5A	Main use as power supply for powered/switchable multi-port USB hubs as well as a workbench power supply.

New Station Battery Bank

The main station battery bank has 24 deep cycle 16Ah batteries on constant float charge and 2 sets of 3 x 16Ah batteries for field use and 1 single 16Ah battery for testing or field use. Each battery box has fast connectors (yellow outlines) so a box of 3 batteries can be quickly disconnected for use elsewhere. 🌱



The heart of the station battery bank is the power supply/charging system. It starts with the Radio Shack 13.8 VDC 15 Amp power supply running on commercial main power. There is the main fuse for the charging system going to the Samlex BBM-12100 Battery Backup Module. When commercial main power is lost, the BBM-12100 will draw power from the battery bank to power up the station through the four-fuse block which is fitted with Anderson PowerPole connectors. These are used to connect to transceivers, fans, and other 12 V equipment in the station. There is space on the station charging panel for a 12 V DC– 110V AC inverter if needed. We prefer not to use it as the process is inefficient and if commercial main power is lost, we would conserve as much battery power as possible. Living in an apartment limits our options for recharging the station battery bank without commercial main power.



4 Fuse Panel with Anderson Connectors	BBM-12100 Battery BU Module	Main Fuse	RS 13.8 VDC 15 Amp Power Supply
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GECO low battery operating procedures start with:

- Only turn on equipment needed for operations.
- Turn off screens on devices to save power.
- Use minimal RF power to make contact.
- Optimize antenna system (e.g., lowest loss coax, full λ , lowest SWR, elevate the antenna).
- Backup power or Plan B.
- CW operating optimizes contacts vs Phone
- Listen carefully (rather than repeatedly calling CQ) to select the optimum station to contact.

Exception is when calling Mayday.

Low Battery Status: When the charge voltage is 80% of full charge, initiate the low battery operating procedures. To prolong the life of deep cycle batteries, GECO tries not to discharge a battery to less than 70% of its full charge. In dire circumstances, the maximum should be 50% and the battery must be clearly marked for reference.

If in a QSO, tell the other station you are running low on batteries and you will monitor the frequency, for example, for 10 minutes starting at the top of each hour. This tells others you will be operating only at that time. If not in QSO, let other stations know your low battery operating plan ahead of time. Then they know to listen at the designated time and to call for you at that time. 🧐

Thoughts on Resilience

This revised article originally published in "Rural Training Center-Thailand March 2014 issue of Updates," pp. 7-10.

Resilience is the ability to become strong, healthy, or successful again after a disaster or emergency. News reports of disasters and unusually severe weather bring the topics of emergency preparedness and emergency communications to the front burner for many folks. Immediately following the emergency event are stories of rescue, relief, and dramatic stories of survival. These dramatic tales sell newspapers and propel news agencies and reporters upward on looking at the "bottom-line." The long-term recovery "story" doesn't seem to capture the headlines. The slow and sometimes lengthy road to recovery cannot compete with the ever-changing news events.



Resilience is the ability to return to "normal."

For us, resilience is a long word (it has more than 3 syllables). This reminds us to use a longer time horizon for both planning and execution. Most people may do this unconsciously. But others tend to be focused on the immediacy of their lives. Long range planning is often pushed to the back burner. There are many reasons we all know too well: (procrastination, denial, lack of funds, being overwhelmed with "doom and gloom" scenarios, and getting tired of being the lone voice in the wilderness, etc.).

Here are three common natural disasters that are increasing in frequency and intensity in recent years: Severe storms, floods, and droughts. We hope these examples will illustrate a systematic approach for others to adapt to their local situation. We used northern Thailand as an example.

Storms (wind)



Floods



Droughts



Short-term impacts are the immediate loss of the current crop, reduced income, and accelerated poverty. Long-term impacts can be extensive environmental damage that could ultimately eliminate agricultural production.



Typhoon storm surge of salt water destroyed soils for agriculture; recovery may take 6+ years.

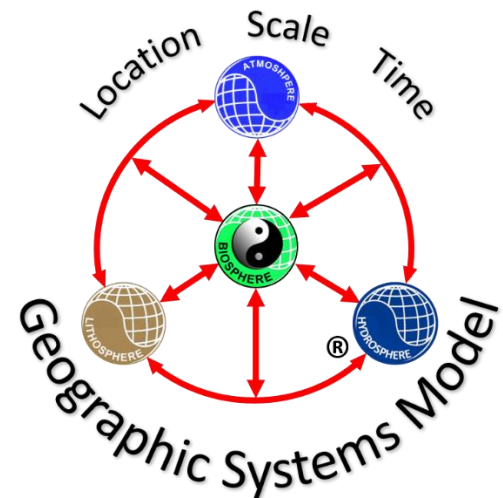


Extensive soil erosion by floodwaters destroyed the farmland. It is hard to imagine any recovery at all.



Prolonged drought and dust storms permanently removed topsoil. Recovery is beyond a lifetime.

When government resources are stretched to the limit, people will be left to fend for themselves for longer and longer periods of time before help arrives. Our ideas for building local resilience use the Geographic Systems Model to make people aware of local geo-hazards. The strategies are: 1) avoidance; 2) relocation; and 3) risk-taking based on fore knowledge. Avoidance is best. But for many people, they are already located somewhere, and it is hard for them to make a change. Relocation involves financial costs. It also requires people to overcome inertia and resistance to change. Many people cannot conceive of “giving up” their ancestral or traditional homeland. Total or near total environmental destruction may force people to relocate. Some will be pushed into abject poverty and others may not be able to move. There may be a smaller number of people with the resources to “weather” the storm or seek to relocate with a greater range of options. In developing countries, most farmers don’t have insurance. When disaster strikes, governments often mobilize to help the people. In Thailand, the floods of 2011 severely stressed the system nationwide. Thais, like many people around the world, rely on government aid for natural disasters.



Risk-taking is a very common default strategy. Some people do this knowingly. Others feel stuck in place and feel powerless to make a change. Poverty has a way of creating the mind-set “I am helpless and can do nothing. I am a victim of fate.”

Security and safety begin at home. This is not to say you cannot rely on the government. Our position is everyone and each family should be responsible to do as much as possible to plan for their own security and safety. They do this within their ability and means BEFORE turning to the government. We operate at the local scale. The government is often responsible for all the people but mainly at regional, national, and international scales.

For example, at the local level, one person or family deals with their home and farm, first. Then they take on some responsibilities in their village and local community. National governments coordinate the civil affairs mainly above the local level.



A Resilience Mandala Model



These levels are not mutually exclusive and do overlap somewhat. National governments reach down into the local levels affecting villages and individuals. But their primary activity is usually above the local level.

Individual and family security and safety involves the daily life activities of shelter, water, food, and space to maintain life. Home safety includes locks, insect screens / nets, electrical safety, and keeping dangerous tools, materials, and supplies away from children. On the farm, it means avoiding the use of toxic synthetic chemicals which can get into flood waters and contaminate a larger area and people wading in flood water.

Being aware of local geo-hazards empowers you to either avoid putting yourself, your family, home, and farm in harm's way. If you cannot avoid these, then you must take appropriate action to prepare and recover when disaster strikes. Avoidance and recovery are not free of financial or emotional costs. No one gets a free ride. [**Note:** The 2011 floods in Thailand stretched government resources very thin. People in some areas waited for weeks to get any aid.] If people were better prepared, they would be better able to wait for help to arrive. In our area, we suggest having adequate shelter, water, food, and space to hold out for at least 1-2 weeks or longer if possible.



Some surplus rice is held in reserve for mutual aid.

Our family usually grew more than enough rice to meet our family's annual consumption. We often have several bags more than we need. These are held in reserve for mutual aid. It is an individual choice as to how much you are willing to share. We keep this mutual support system in place. It is our social responsibility and adds to village security in times of need.

The table below covers some of the major points we considered for increasing our farm's resilience to potential local disasters.

	<i>Storms (wind)₁</i>	<i>Floods₂</i>	<i>Droughts₃</i>
<i>Short-term</i>	Attempt to prop plants up and salvage as much crop as possible	Check dams, planted flow paths, flow diversions to swales for more ground water infiltration.	Rainwater harvesting, increase water storage capacity, and compost to increase soil moisture retention.
<i>Long-term</i>	We had considered windbreaks, but the increased shade would reduce crop area causing a loss in productivity unless growing shade-tolerant crops.	The upper slopes of the farm were terraced (to slow water flow and increase infiltration) and planted with teak to increase the farm watershed	Reduce water use (e.g., drip irrigation, seek drought / heat tolerant crops, etc.) Construct surface flow diversions to concentrate water collection, swales, etc.
<i>Notes</i>	1) Storms / winds are so variable it is next to impossible to plan for them. 2) Our farm is not susceptible to floods; however heavy rains can threaten to overfill our fishponds. 3) Regional and local climate change trends forecast droughts will be longer and more frequent.		

The next level of resilience for an individual or family involves their neighbors and the village. Problems too big for one person or family to handle might be easily resolved by a local group. Ban Na Fa is a clan village. It's like being in a very large extended family. Of course, there are differences of opinion and disagreements. But in times of need, mutual assistance is the norm. At the village level, relief assistance is readily available from the Sub-District. Here, the Thai government involvement quickly links to the District and Provincial levels, and then to the Central Government. This is where the vulnerability of our resilience is exposed.



Village security and safety.

When local supply sources are depleted, re-supply is only possible by 3 main roads and air. The only major airport is at the provincial capital---see red star on the map below). River transport is not likely (during floods in Nan there are often shortages of boats). All roads are vulnerable to landslides

(especially in the rainy season). Highways 1091 and 1148 extend west across north-south trending mountains. These are twisting roads with steep grades. The routes are more hazardous in the rainy season when disasters are more likely to happen. Highway 1080 is the main preferred route.



However, in addition to landslide risks, there are some critical bridges that could be choke points or points of failure. Re-supply by air will be costly. But all relief supplies face the problem of distribution by road or added cost of helicopters.

Many emergency preparedness kits are available. The 72-hour kit is a popular one (supposedly help will come by then). For the situation in Nan Province, we suggest preparing for 1-2 weeks as being more reasonable. But this must also be adjusted by considering the rural nature of our situation.

Most villages in our area are farming communities. Many make use of “forest food” and insects are a matter of routine in their daily diet. Drinking water supplies come from wells and village-based reverse osmosis (RO) water facilities. These depend on electrical power to operate. If the power grid is knocked out, clean drinking water supplies may be severely limited.

Local villagers have a key advantage over urban dwellers. Many locals still remember how to live without electricity, phones, TV and cooking without LP gas. Most do not have hot running water in their homes. They often take traditional cold water “splash baths.” Living without these modern things maybe inconvenient. Doing without them is not as much of a hardship as it would be for city dwellers.

Help from outside the local village area will come and be coordinated by the Sub-District Administrative Office. They are backed-up by the District Office and, when needed, the Provincial government and the Thai military.



Most villagers use wood for cooking

of Thailand) shows this simple fact: the farther you live from a major population center, the longer it may take for help to arrive. This basic fact should tell you why you need to prepare to wait longer for help to arrive in rural areas. The most important thing to remember: No matter how advanced the country’s technology or how big your cache of supplies may be, a disaster can damage or destroy it all in a matter of minutes. If that happens, what is your back-up plan? 🌿