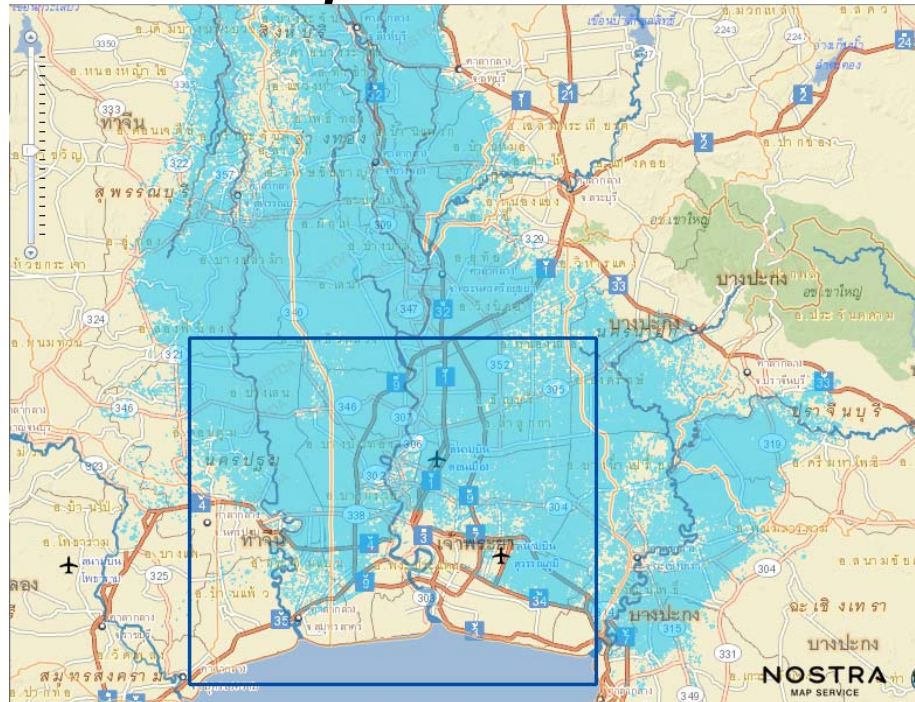


Fall 2011 Thai Flood Photos: Part 11

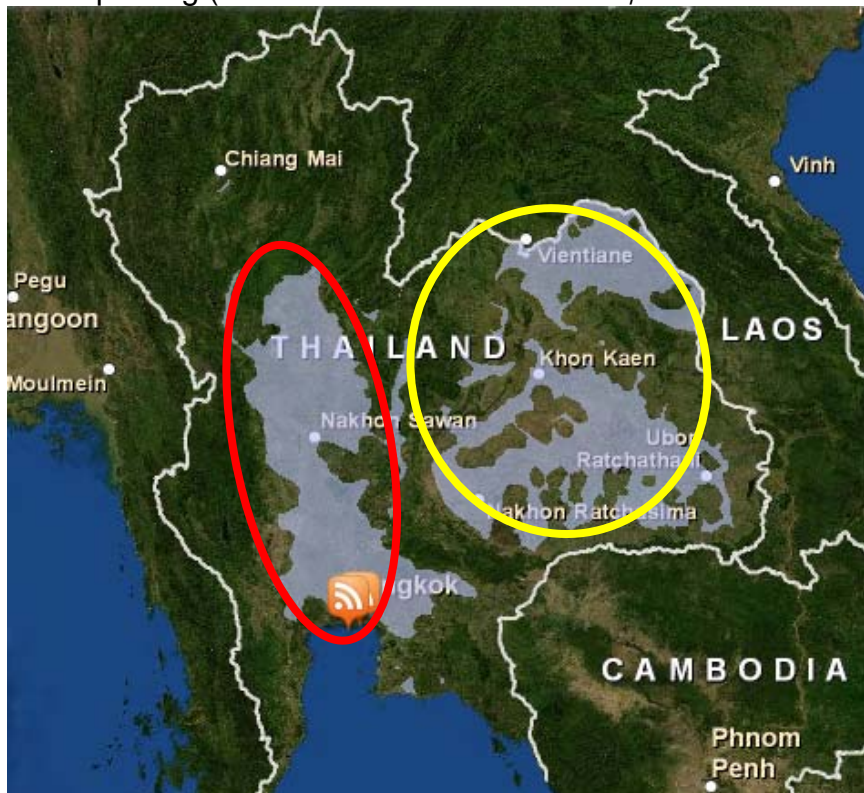
Latest Flood Map at Press Time

These flood maps of Thailand (from ESRI sources) show the extent of the flooding in Bangkok (top image) and across the Kingdom (left image). Bangkok dominates the news coverage for various reasons: it's the national capital, the center of economics, politics, money, and power.

But the floods are impacting (or



Screen capture 21 Nov 2011 0716 Thai time

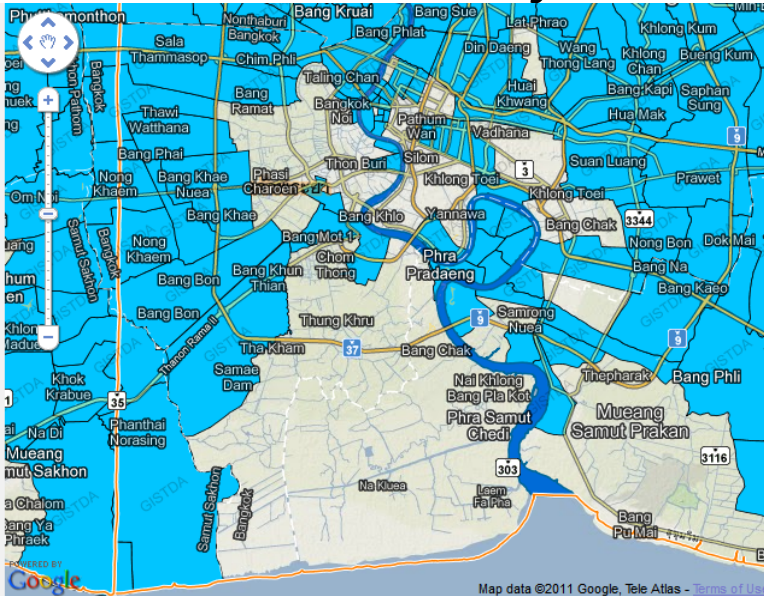


have impacted at other months in 2011) nearly 2/3 of the Kingdom. Some places in the north and peninsular south are drying out and on the road to recovery. But the gray areas shown on the map to the left are still struggling with the floods.

Water in the area in the red oval will drain south to Bangkok and the Gulf of Thailand. Water in the yellow oval drains to the east toward the

Mekong River. It is estimated that the water to the north of Bangkok may pose a threat to the city well into December. The main concerns are if the flood barriers will endure, the spring tides, the threat of waterborne diseases, social unrest, and potential political upheaval.

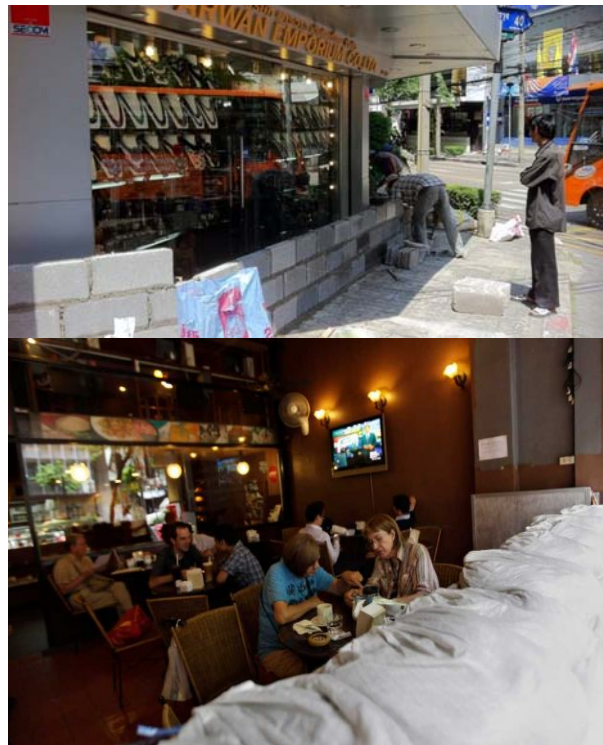
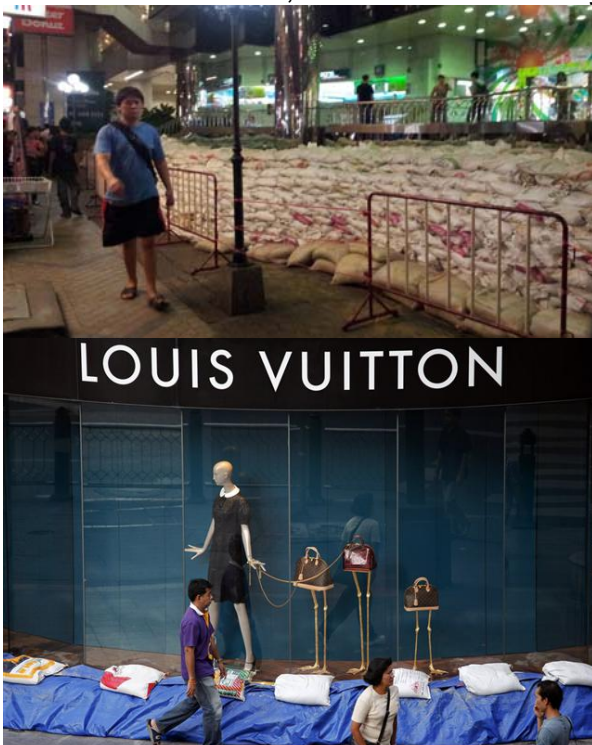
Wet or Dry: It's Relative...



Wet or dry depends on where you are in Bangkok. Some areas of the city are flooded. But others are bone dry!

To be overly simplistic, at the moment, tempers are flaring up between the “haves and the have-nots.” Some have too much water (the flooded) while others have little or no water. Another way to look at it is the inverse relationship of money to water. The more money you have, the less water and vice-versa.

When viewing the news media, the number of “wet” photos and videos far outnumber the dry. Most of us would agree flooded streets are more consistent and sensational with “FLOOD” headlines. On the other hand, dry streets are, ho hum, boring and are no competition to the “FLOOD” headlines. In the drier parts of Bangkok, the presence of flood barriers and sand bags in anticipation of the flood abound. But so far, no water has actually reached the central business district.



To be sure, it is not an easy job to have to make decisions about who should stay dry and who must suffer getting flooded. But making tough decisions comes with the job of being a leader. In some cases, low-lying areas may become indefensible as flood waters deepen and resources are depleted. Higher ground may be easier to defend. Still, it is difficult for those to comprehend how they, most often the poor, are

More Fall 2011 Thai Flood Photos: Part 11

being “sacrificed” and flooded when so much effort is being directed to protect the higher ground (which happens to have so many wealthier people). It seems contrary to any sense of “fair play” and social equality or social justice. There is no doubt the flood waters will subside long before the rage and frustration. The floods of 2011 will be a source of endless debates, arguments, finger pointing and blame. But it doesn’t have to be that way. Strong, visionary leadership could use the flood to wipe the slate clean and make the recovery be a new opportunity for Thailand to shape its future.



Dry Central Bangkok could be on a different planet to the one with people chest deep in fetid flood waters.

Flood + Trash + Sewage = Mess + Threat

If the flood waters weren't enough of a problem adding the city's wastes to the mix certainly doesn't help. It is estimated that Bangkok normally produces 8,000 tons of garbage per day and about 30,000 tons of sewage per day. So far, trash collectors have only been able to pick up about 400 tons of garbage a day. And many people don't have access to a working toilet, and the best guess is the raw sewage is going straight into the flood water. So any human wastes in plastic bags from emergency toilets and buckets get added to the garbage.



Public Health officials worry the garbage will attract rats and increase the number of infectious diseases in the flood water. A quick glance at the floating trash suggests people are not properly disposing of food containers and trash. This poses a threat to the drains and pumps and contributes to slowing the movement of flood water out of the canals

Scenes like the one outside a flooded Bangkok hospital are common. Trash clogging drains and slowing the flow of flood waters. Other reports point out the overlapping duties of 28 different government agencies related to water management. The bureaucracy also lacks a central command structure for dealing with wide spread emergencies.



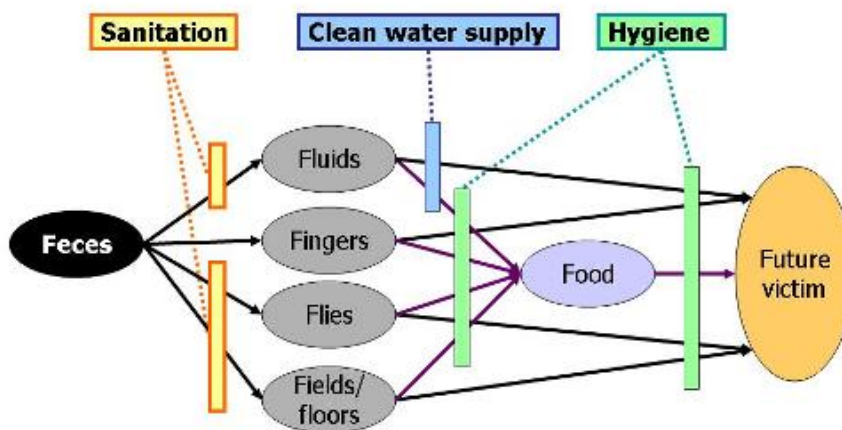
Bangkok's garbage workers face numerous challenges. Many workers have to deal with flooded homes, being evacuated, or may be unable to get to work for other reasons. Even when showing up to work, there is a shortage of equipment. Some of it is under water. Trucks in working order cannot get to all areas due to flooded streets. There are not enough boats. A recent report

indicated the daily amount of garbage to be cleared was 20 times more than the city's capacity to remove it.

Of course, you can't help but wonder why people don't properly dispose of trash? This seems especially critical during times of flooding. And floods are well-known in Thailand. It seems education about what to do before, during, and after a flood needs to be improved.

The diagram below shows the importance of sanitation and hygiene to reduce the transmission of fecal diseases. With the extensive flooding in Thailand, and with some people living in flooded homes for several weeks or even months, the

Routes of fecal disease transmission and protective barriers



dangers of a public health crisis grow with every passing day.

Good hygiene starts with having clean water and soap to wash your hands. These can be in very short supply in a flood. Having hand sanitizing gel in an emergency kit makes good sense in flood prone areas.



EM technology, developed in the 1980s by a Japanese professor named Teruo Higa. It has been used in about 120 countries mostly in agriculture and in some cleaning products.

An attempt to clean the fetid flood waters using “EM” mud balls. “EM” (Effective Micro-organisms) is essentially using “good” bacteria to clear the water of “bad” bacteria. It has been used in agriculture, composting, and smaller situations of ponds and floods in other countries. But it hasn’t been used in floods of the magnitude such as Thailand. It probably will not be effective in flowing water. But in smaller enclosed areas, it might work.



Thai Public Health Officials endorse the use of the EM balls to treat standing flood water.

Due to lack of data, some skeptics fear unintended consequences from the wide use of EM in flood waters. Other less critical skeptics have acknowledged a social benefit from this effort: as sense of empowerment. The volunteers making and distributing the EM balls feel they are doing something to help improve the situation rather than sitting on the side lines as victims.



Supply Chain Concerns



The first wake-up call was the Japan earthquake-tsunami the knocked out a significant portion of the country's electric generating capacity, manufacturing, and food production (agriculture and fisheries). The Thai floods of 2011 may be the "second shoe to drop."

Someone compiled the 5 biggest floods in recorded history, and in contrast, ranked the Thai flood of 2011 as barely making a blip. But the criterion they used was the loss of human life.

G.K. Lee

There was another article

stating that although the monetary losses to factories and investors maybe high, but the companies were not foolish for building on the flood plain of the Chao Phraya. The article stated it was a calculated business decision based on economics. Yes, the factories could get flooded, but over the life-cycle costs, the benefits outweighed the costs. It was all basically a logical common business practice.

Business, like Geography, is location, location, location. And as a geographer, my input to a business would be to avoid flood plains and deltas. I think "inertia" plays a sometimes subtle and unseen role in business "bottom-line" thinking.

I am not an expert, but in the 1980's many Japanese firms came to Thailand to reduce production costs. It is not hard to imagine Thai government agencies shaping the policies created

opportunities at designated sites (with the strong possibility that palms were being greased and pockets getting lined). Once the "pioneers" are in, they become a gravitational force for others who follow. Business logic might dictate locating close to supply sources, existing infrastructure, etc. And the powers that be have even greater incentives to maximize their profits and pocket lining from their initial investment.



Western Digital (dry above; flooded below)



Notably, Seagate chose to locate farther east, apparently on higher ground. At this time, it isn't flooded. But is slowed production due to a lack of parts. Some of Seagate's suppliers got flooded. Similar production cuts were announced by other unflooded factories. These units suffer indirect effects from the floods: power cut off, workers living in flooded areas cannot come to work, and flooded roads limit receivables or shipments.

Computer Hard Drive Makers in Thailand

Hitachi GST

Prachinburi (HDD assembly)
Saha Union (HDD assembly)

Seagate

Korat (HDD assembly and disk heads)
Korat (disk heads)

Toshiba

Navanakorn or Pathum Thani? (HDD assembly)

Western Digital

Navanakorn (HDD assembly)
Bang-pa In (HDD assembly and disk heads)

Asahi Glass

Bangkok (disk media)

Furukawa

Rojana (disk media)

Hoya

Changmai (disk media)

TDK

Rojana (disk media)

Minebea

Rojana (motors)

Nidec

Rojana (motors)
Ayutthaya (motors)

Hutchinson

Ayutthaya (suspensions)

Magnecomp

Rojana (suspensions)

Min Aik

Ayutthaya (HDD components)

Cal-Comp Electronics

Bangkok (PCBA)

Sony, Canon, Toshiba, Toyota, and Honda all have factories in the Thai flood zones. A wide variety of industries and products set up shop in Thailand to profit from the low cost, high quality labor force, tax incentives, and other reasons. Fiber optics, optics, computers and related parts, auto parts, digital cameras are all on the list.

News reports from the US tell of car



Flooded factories north of Bangkok

Production slowing down due to lack of parts from Thailand. Many companies will be posting losses directly and indirectly related to the Thai floods. The vulnerability of the supply lines has been exposed by another natural disaster of unprecedented magnitude.

Some news reports mentioned factories in the US and UK decreased work hours and production due to supply line disruptions. The indirect effects of the Thai floods are beginning to be felt far and wide.

Even in part of Thailand that are not flooded, re-supply of daily consumables are slow to arrive. Most of the warehouses and distribution centers are in Bangkok. Even if some warehouses are fully operational, flood highways mean detours and increased shipping times and costs. Some tourist resort areas in the south were reported to be ordering supplies from sources in Malaysia in order to assure they can keep operating for any expected tourist arrivals.

Effect of Thai floods on Japanese companies

		Status	Effects
Automobiles	Honda	Factory submerged	No prospect of recovery
	Toyota	Parts not supplied by flood-damaged manufacturer	Production suspended
	Nissan		Until Saturday. Considering air shipment of parts and other measures
	Isuzu		Until Wednesday
Electronics	Nikon	Digital camera factory submerged	Until Friday
	Sony	Printer-related factory submerged	No prospect of recovery
	Canon	Printer-related factory submerged	Considering production at a different factory in Thailand and other areas
	Nidec	Two electronic parts factories submerged and employees at four factories evacuated	Considering production in China and other countries
	TDK	Electronic parts factory submerged	Considering production at a different factory in Thailand
Food	Ajinomoto/Calpis	Jointly established beverage plant submerged	

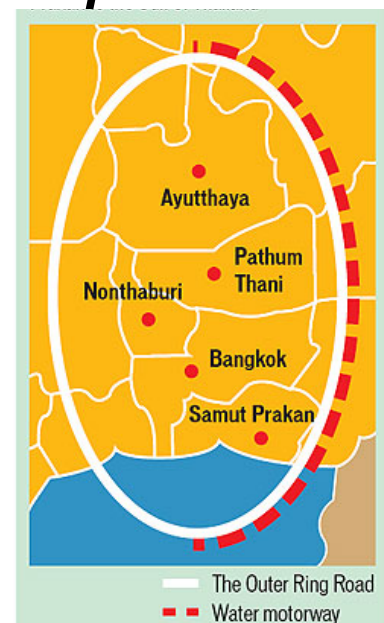
The longer it takes to recover, the higher to flood damage losses will climb. Previous statements about resuming production in Thailand seemed overly optimistic. In truth it may take several months longer than earlier thought. Some analysts see a strong possibility some companies will diversity and move to other countries.

New Flood Protection Plan Proposed

The Team Group proposed a 100 km canal next to the Dept of Highways planned Outer Ring Road 3 extending from Ayutthaya to Samut Prakan to the Gulf of Thailand. The project might take 7 years to complete. The idea is to create a major drainage canal to move water more quickly and directly from the Chao Phraya River north of



Ayutthaya to the Gulf of Thailand. In our opinion, this only deals with 1 of the 4 key factors affecting the flooding of Bangkok.



From a geographic perspective, the contributing factors for Bangkok's flooding finds its roots in:

Topography / Hydrology:

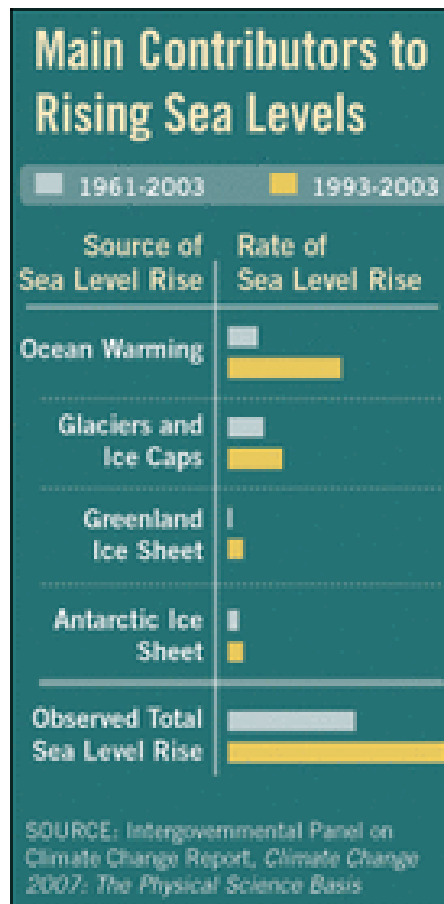
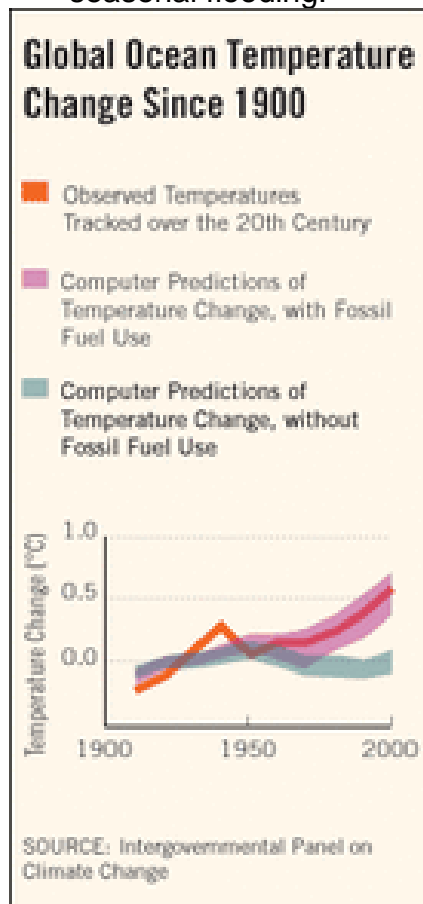
- Bangkok is on the flood plain and delta of the Chao Phraya River.
- It is only 2m above mean sea level.
- It is in close proximity to the Gulf of Thailand. Thus, the Chao Phraya River is subject to tidal influences affecting its flow rate.

Climatology:

- Thailand is in the SW Monsoon region.
- Global warming has caused sea level to rise.
- Global sea temperatures have been rising. Weather patterns are changing with a trend to increased Tropical Storm activity.
- Climate change models suggest that Thailand will face hotter, longer droughts. Monsoon rains will probably still come; but they will be more intense over shorter periods of time.

Sociology / Demographics:

- Population shift has been from country to city; from inland to coastal zones.
- Increased population density in the Bangkok region has meant increased ground water withdrawal and land subsidence. This has increased the impact of annual / seasonal flooding.



All of these factors add up to the fact that in the future, there may be more water coming in a shorter time span.

The overall implications: the land is getting lower, the sea level / tides are getting higher, the monsoon rain pattern will be more intense over a shorter time, Tropical Storm frequency / intensity will be increasing. The net result is Bangkok will have to deal with more flood water at even higher levels than in the past.

Older mechanisms for dealing with floods

probably will not be able to cope. Construction costs will be confounded by land acquisition issues and constrained by existing infrastructure. The huge recovery effort will fuel an ever growing demand for scarce resources leading to higher costs and inflationary pressures. The current flood exposed the bureaucracy of overlapping

jurisdictions, turf wars, power plays, and political infighting. Building flood barriers higher will only set the stage for an even more massive catastrophe when they fail. Yes, not if they fail, **WHEN** they fail.

A recent international conference in Africa of world climate specialists concluded with a general warning to all national leaders: Be prepared to see more intense and more frequent weather events in the coming year.

Croc Busters May Be Crock Busters



We noticed an article about relief workers responding to a report of local residents in a northern Bangkok suburb sighting a crocodile in their area. A team was dispatched to try to capture it.

They interviewed local residents, and then set out to scout the area for any other witnesses or sightings. Finding nothing, the team left traps baited with raw chicken meat.

Just as with fire fighters, reports must be taken seriously cannot be ignored as possible “false alarms.” Unfortunately, the political polarization in Thailand makes the flood a prime opportunity for political opponents to create embarrassing situations for the standing government. It’s hard to say if and when false alarms are generated. The threat to public safety makes is very precarious to make judgment calls. But resources and personnel are



limited. And the prolonged flood has exhausted workers, volunteers, and resources.

For example, boats are in short supply. Any boat dispatched for croc hunting is one less boat for rescue work or for distributing much needed relief supplies to diverse and widely scattered flood victims. One can only wonder when workers and volunteers get tired and decide to dismiss some calls. It will be tragic indeed if “crying wolf” too often results in an attack resulting in serious injury and even death.



A crocodile caught in a flooded neighborhood of northern Bangkok.

More Trouble in Already Troubled Waters

Frustration and anger are festering in the flood waters along with all the other detritus. More cases of protestors forcing openings in flood barriers in an attempt to drain water from their neighborhoods have occurred. This action often means flood waters entering parts of Bangkok that were previously well-protected from



floodwaters. The response was repair crews showing up with police support to effect repairs, and the positioning of police to guard the barriers from subsequent attack. Sometimes, the police guarding the barrier were contacted later and asked to remove a layer or two of sand bags to allow some water to flow through. This may have been an attempt to “compromise” in an effort to defuse the situation.

Other news stories report larger trucks carrying relief supplies to areas with deeper flood water were running into spike strips intentionally placed in the flooded road ways. Speculation is the spike strips are used by flood profiteers trying to keep relief supplies out of the area. Others attribute the spike strips to political opponents trying to embarrass the Yingluck government. It is disheartening to hear the darker side of human nature coming out during these difficult times.

Relief Distributions Stretched Thin

A flood hits and the normal reaction is to get to high ground. But when there is little or no high ground to evacuate to, what's next?

Hundreds of shelters have been set up, but they are sparsely populated. Many people defied evacuation orders and stayed home, found some place "dry" close by, went to a relative's home in the city or to another province.



For relief officials and volunteers, the problem is not knowing who, where, how many, and what their condition might be. Since most were not prepared, their food and water supplies are limited. With relief donations and supplies piling up, getting these to people in need is a real challenge.

Many people living in flooded conditions complain they have yet to receive any government help in any form. Various non-government groups and just plain folks step forward to help in the effort to help others.

The urban equivalent of a remote rural village are people living in small the many small sois (side streets) off the main streets of Bangkok. They must either wade out to a pick up point and travel to a relief center, or wait for boats to bring food and water to them.





RAST (Radio Amateur Society of Thailand) is just one example. The boots in the water effort is lead by husband and wife team Champ (E21EIC) and Goi (E20NKB) out of their own home. Monetary donations to RAST are used to buy supplies. RAST members prepare these into food relief packages. Other RAST members use their own trucks and boats to deliver these relief supplies to neighborhoods in need. You can see a photo report on their efforts at <http://www.qsl.net/rast/text/Suzuki4x4team.html>

RAST members formed a convoy to deliver several hundreds of relief parcels and meals to flooded neighborhoods around Bangkok. Some delivery runs last 3-4 hours or more and delivered more than 300 meals.

Operating expenses are all out of pocket. Driving in water more than a





meter deep takes a toll on your vehicle. All required servicing is an added volunteer expense as is fuel for their trucks and boats.

Other RAST members performed more traditional emergency

communication activities to specific Thai government agencies. A comment was made that ham radio has been particularly useful because the government radio frequencies were overly congested. The wide extent of the floods forced so many government officials and agencies into action. The air waves are overly congested with so many users on the various government frequencies making it hard to communicate clearly. In contrast, amateur bands were less crowded. The old saying "When all else fails, ham radio gets through" rang true once more.

These RAST members carry on in the greatest traditions of ham radio rendering valuable service to their communities in time of need.