

Communications Discussion

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This discussion and exploration is about:

- The collapse of industrial civilization and the difference between short and long emergencies**
- How present emergency responders operate, what they can do, and their limits**
- What citizens might do to manage communication when normal systems are down for a lengthy time – months or more**

A. COLLAPSE

Beginning notes and common assumptions

The assumption is that:

- industrial civilization will continue, unabated.
- technology will solve problems as they arise.
- growth can continue as it has, and in fact is necessary for "progress."
- the Earth is "resilient" and can supply all needs for any number of people.

These assumptions are "tacit," without any solid understanding of limits, resources and usage.

Reality refutes these assumptions.

Some realities which contra-indicate the sustainability of Industrial Civilization

Population overshoot has already happened – our ecological footprint, general limits to growth, the addition of 200,000 people to the Earth every 24 hours – all obviate the continued expansion, or even the continued sustenance of a large human presence on Earth.

"Digging holes in the ground is not sustainable." —Jay Hanson

As society's complexity increases, that complexity breeds complex solutions, which in turn, result in greater energy use for lessened result. Complexity breeds delicacy.

Liebig's Law of the Minimum – any complex system is only as strong as its weakest link and as complexity and size increase, the number and delicacy of weak links increases.

The law of receding horizons – as the availability of limited resources (energy and materials) decreases, their cost and the cost of their extraction both increase, or, “if it was too expensive (in energy, mostly) in 1940 it will always be too expensive (e.g., the Bakken formation in Eastern Montana).”

ERoEI (Energy Return on Energy Investment)– as oil, coal and gas become harder to get, the energy costs of their extraction increases. At some point (soon) it becomes too energy intensive to justify its extraction (ERoEI of around 3:1). Canadian Tar Sands are already at that point, but we are subsidizing that operation because we currently value liquid fuels more than natural gas, fresh water or pristine life-supporting landscape.

Peak Oil, Peak Coal, Peak Gas, Peak Everything – all industrial supplies are limited and reaching a critical point of availability.

Limits to materials:

Molybdenum, Vanadium, Neodymium, Copper, Zinc, Bauxite

Phosphorus for fertilizer — phosphate

Natural gas for fertilizer — nitrogen

Energy issues:

Recycling is an energy sink

No alternative fuel source can compete with oil

No alternative energy source will power a full industrial civilization

No “emerging technology” can sidestep the second law of thermodynamics – “there is no free lunch.”

The car culture is dead. Transportation will suffer just as will communication.

Result of all this?

The inevitable crash and fallback of industrial civilization on Earth. We can expect that as energy falls, and population continues to increase, the irresistible force (population pressure) will meet the immovable object (resource depletion) with dramatic and fatal results.

B. HOW CURRENT EMERGENCY SERVICES OPERATE

Emergency communications are subject to two realities:

1. They are assumed to be between emergency responders and other responders, or between responders and citizens, occasionally, as necessary for the emergency.
2. Emergencies are assumed to be short term.

In general, no emergency services agency I contacted or reviewed, including Flat-head Emergency Services, has considered long term communications between citizens for ordinary daily work, when the power goes out for weeks or months. FEMA has a comprehensive Family Preparedness site at:

<http://www.fema.gov/areyouready/index.shtm>

C. SHORT, MID, AND LONG-TERM COMMUNICATIONS SERVICES FOR USE BETWEEN CITIZENS.

Cell Phones will die immediately when the power goes out for extended periods.

The internet will die a severe death as soon as the power is out for extended periods. It takes massive amounts of power to run individual computers (in sum) and the server nodes in places like San Jose, use megawatts.

I have discussed **computer-to-computer links** with Ed Malham, of Computer Security Systems in Kalispell. By using hard-wired phone lines with routers and timing link, data can be passed from one computer to another. These systems can be set up by knowledgeable telephone and computer people, and will be useful for a period of time after the grid becomes unreliable. Data can also be passed by amateur radio using these same router systems. Some data transfer is already being done by ham radio, and many hams (not me) are familiar with managing these systems.

Hard-wired telephones will last into a long emergency better than most other technologies. Initially, the battery backup system will hold up hard-wired land-line telephone for at least four days. After that, emergency generators will supply the systems for some time, perhaps months or more. Eventually phone service will be rationed, then spotty, then down. They will be resurrected occasionally as fuel and solar power can recharge the battery systems, or provide enough power to run the systems directly.

Commercial radio and TV will become used to passing messages, especially for groups. Public service announcements (PSAs) will take more and more air time as the emergency deepens and lengthens.

Emergency service Kiosks - postings at community centers; Sheriff delivery of warnings and evacuation notices. These are already used.

GENERAL NOTES on emergency communications -- power and equipment:

Solar power (PV Panels) are dropping in price due to lagging sales, and overproduction. Now is the time to buy.

We are in a deflationary spiral, and prices on many items will continue to drop (while some prices, notably food) will rise. This will carry through into 2010, and perhaps longer. This should allow us to buy radio equipment and battery/solar systems at decent prices for another year or so.

Fuel will exist for some time, though prices will edge up again. At some point, when electricity is rationed, stations will have difficulty pumping fuel and fuel will also be rationed.

Backup generation of electricity for communication will also become spotty, limited, rationed, and eventually, unavailable.

SUGGESTIONS for citizen preparation for mid and long-term electricity failures:

Stock up on CB sets, FRS radios and ham radio equipment and lots of rechargeable batteries and little solar chargers for them. As we've noted, these will eventually fail and not be replaceable or fixable, but for a number of years, they will be the interim technology to use, and will be extremely valuable in citizen-to-citizen communications at the local level.

Amateur radio (Ham Radio) will allow long distance communication. I encourage everyone to get a ham license (no code required), buy a good HF (High Frequency) rig and several 2-meter radios, and learn to use them.

The Flathead Valley Amateur Radio Club (FVARC) meets every third Thursday, at the United Way Conference Room on the west side of the old Gateway Mall building (outside entrance). Meeting time is 7:30 PM. They have a website at <http://www.fvarc.org/>.

Ham radio, as long as good battery systems are available, will provide both local and world-wide communication for many years. The American Radio Relay League is the major ham radio organization: <http://www.arrl.org/>

LONG TERM communications

Perhaps decades down the collapse road, will require a return to much more basic tools.

Bicycle couriers will be extremely useful. Many cities already have such services, and the models are well known. In rural areas, when phones are down, and all other systems are out, with no fuel for mail trucks, much simple communication will be by courier.

Even resurrecting the old Pony Express model, using horses and horse buggies, will gain prominence once again.

Public Kiosks will be used. In early American communities, there were central locations where individuals and community agencies could post announcements, reward posters, coming event and sale notices.

Today's emergency services already use a version of this, and have gathering locations where they post notices of evacuations, dangers, etc. This could easily be expanded to include citizen and community group information.

The back-fence network. Phone-trees are used by activist organizations to inform their constituencies of coming events and general information.

With phones out, similar "trees" for citizen information dispersal could be organized on a neighborhood basis. We used this "back fence" network before telephones, and arranged it semi-formally. It will be used again.

Other possibilities include semaphore signaling, smoke signals, carrier pigeons, flashing mirrors and flaming arrows.

SUMMARY

In general, long-term requirements for citizen-to-citizen communication have not been considered by emergency services, nor have they been discussed in most community forums, even those which understand that industrial civilization is limited and that our "normal" modes of communication are going to become quite limited.

This lack of vision is a large missing part of preparation for collapse.

There are no solid solutions. Our best preparation is to become aware of the reality of limits, to understand that we will need to be very adaptable, and to gather our internal, mental, psychological bootstraps. Be ready to lift.

Edmund Fitzgerald

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