

Reaching financial limits–What kinds of solutions are available?

We live in a finite world. At this point, we seem to be reaching limits in several different areas:

- **Cheap oil.** Our economy runs on cheap oil, but there is a limit to the amount of cheap oil that can be pulled out of the ground. There is still a lot of expensive-to-produce oil left, but this is not a substitute for cheap oil.
- **Fresh water.** Fresh water is used for drinking, for growing food, for producing oil and gas, and for creating electricity, among other things. In many parts of the world, we are using fresh water faster than aquifers can replenish.
- **Climate Change.** Our agricultural system depends on relatively constant climate. Changes to climate, whether caused by humans or not, are a problem. It is possible that this year's hot summer is caused by climate change.
- **Soil fertility.** Soil fertility depends on adequate depth of top soil, adequate humus content, suitable bacteria in the soil, and proper mineral balance. We have been able to hide soil fertility problems through greater use fertilizers, pesticides, and irrigation, but these are not permanent “fixes”.
- **Pollution.** There are many types of pollution that are problems, from excessive carbon dioxide, to mercury in food sources, to endocrine disruptors, to algal blooms.
- **Human population.** The number of humans on earth is out of balance with world ecosystems and keeps growing, year after year.
- **Financial system.** Our financial system depends on growth, but growth in a finite world system cannot continue forever. High oil prices tend to lead to recession, and reduced economic growth–hence the need for cheap oil, rather than expensive oil.

The question then becomes, “What can we do?” Are there any solutions available, even if they are only partial solutions, as high oil prices and other limits squeeze the economy?

Many of us sense that we likely are not too far away from a contraction imposed by nature–something that looks like a severe recession that will help bring the world back into balance. While we probably cannot completely “fix” the situation, there seem to be several things we can do, in the way of mitigation.

1. Manage your finances to try to avoid the impact of a possible crash. My crystal ball is not as good as it should be, but it is hard to believe that the stock market will continue to rise, as we get closer to the limits nature is imposing. Recession will hit, and the result will likely be both lower oil prices and lower stock market prices. Default rates on bonds are also likely to rise.

I am not sure there are any entirely safe investments, but actual goods and land you own would seem more likely to hold value. Cash would seem to be safer than stocks or bonds. Things like tools you expect to need in the future would seem to be especially good investments.

2. Plan your own family size with world limits in mind. Most people will still want to have children, but stopping at two would seem to be a good choice. It would be even better if families would choose to stop at one.

3. Get family planning back on the world agenda. When Paul Ehrlich wrote the book Population Bomb back in 1968, he got the need for family planning on the world's agenda at that time. Now, it is off the world's agenda, as richer nations feel that the situation will fix itself, as education of women rises. I am not sure how to get the issue back on the agenda, but free "rhythm method" classes for women around the world would seem to be a start.

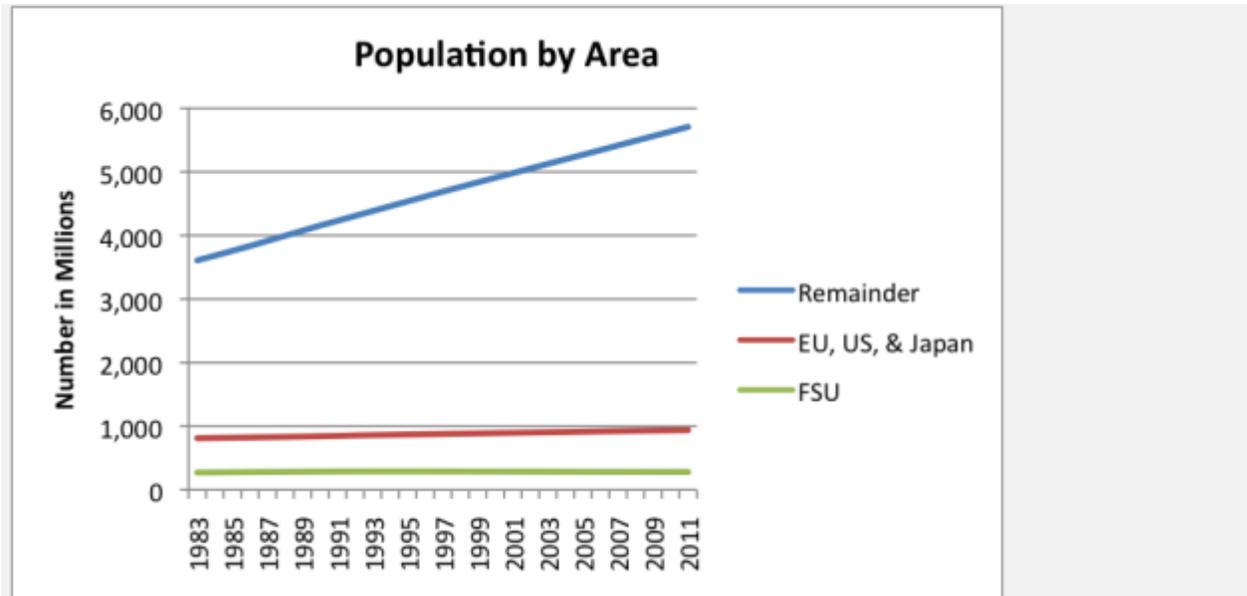


Figure 1. World Population by Area based on data of the US Energy Information Administration. FSU is Former Soviet Union.

4. As layoffs hit, depend more on family and friends. Even before layoffs hit, it would be in our best interests to strengthen ties with family and friends. Then, if misfortune hits, there is a better chance of being able to move in together, if the need arises.

5. Plant trees and bushes with edible fruit or nuts. In terms of protecting the soil, perennials seem to be much better than annual plants. Complementary plants and animals will be needed as well, if long-term fertility is to be maintained. There are other things that can be done to upgrade the soil, but these generally require time and money.

6. Look for simpler and cheaper ways of doing things. The usual pattern is to move toward more complex and more expensive solutions, with ever-better technology and more bells and whistles. We need to be going the other way though—toward simpler solutions that are easier to maintain with local materials, and cheaper. LEED certified homes sound great, but what we really need is homes that are closer in size to what we usually think of as storage sheds, and that can be put up quickly with local materials. It would be great to have state of the art commuter trains, but we need to be planning based on what communities can really afford, and that may be bicycle paths.

7. Appreciate what you have. We are very privileged now—we enjoy a wide selection of food, generally seasonable weather, and nations that are mostly at peace with one another. Every day, think about the good things that are part of your life—the squirrel on your lawn; the ability to zip around in a car or on a bicycle; the job you have that allows you to pay bills; the time you spend with family members. Even if things go downhill, there are likely still to be many good things. We need to keep looking for these every day.

8. Don't focus too much on bad things that might happen. We really don't know what exactly will happen. About all we can do is be flexible and continue living our lives as best we can. If we take care of our bodies by exercising and by eating well, that will be to our benefit, regardless of what happens. Learning skills that might be helpful for the long term, especially if they are enjoyable now might be good as well (playing a musical instrument; doing crafts; studying how we coped without fossil fuels before, as through Low-Tech Magazine).

9. Be prepared for minor outages. If things go downhill, there will be more chance of outages of various kinds. The most likely of these is that you will lose your job and not be able to pay your bills. There is also the possibility that food or water or fuel for your vehicle will become unavailable. It seems worthwhile to do at least some planning for emergencies. I personally am not an advocate of hoarding, but it does make sense to keep some inventory on hand.

Energy Observations

I might note that I am doubtful that energy solutions will come quickly enough to fix our many interrelated limits problems before a financial crunch hits.

Clearly, if we have an adequate supply of cheap oil substitutes, we can continue to hide many of our other “limits” problems. For example, if there is enough cheap oil substitutes, countries like Saudi Arabia can get water from desalination, so fresh water ceases to be as much of an issue. Soil problems are also less of an issue, if we can continue to use fossil fuels for fertilizer and irrigation.

There are some renewable energy sources that may be helpful for individual families, but don't really fix our problem with a lack of cheap oil. For example, solar can be used by families for heating hot water, and a reflective solar cooker can be used for cooking. Neither of these directly substitutes for cheap oil, though. Wind and solar PV can both be used to generate intermittent electricity, but again, this is not really a substitute for oil, certainly not in the time frame to prevent a financial crash in the next year or two.

The closest substitutes for oil are biofuels, but these are in direct competition in the use of soil for food. The next closest would seem to be natural gas, since existing vehicles can be converted to use natural gas. Even this takes time and money, so I am not convinced that natural gas, if available, could prevent a contraction in the next 12 to 24 months. So in the end, we find ourselves thinking about what other solutions to a potential financial crash are available, besides oil substitutes.

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