



Disaster Recovery Using E⁴: Education-Energy-Economy-Environment

Excerpted and revised from Rural Training Center-Thailand: Jan 2012 Update.

http://www.neighborhoodlink.com/Rural_Training_Center-Thailand/pages

This version of the paper has been adapted by KI6GIG for use by GECO as part of their emergency preparedness training materials. All GECO activities are guided by the ideas and principles expressed in this paper.

INTRODUCTION

Disasters are like pushing a “reset” button. The devastation set things back to “zero”. This can be a chance for a fresh start. It can be a time for new visions and policies. Here is a chance to improve resilience, sustainability and national security. Recent studies say Southeast Asia will suffer most of the world’s mega disasters in the 21st century. This is due to high population densities in vulnerable areas. Governments in the region should use E⁴ to guide their national policies. The modern world is plagued with issues of low quality education, pollution, a sagging global economy, and increasing environmental degradation. Some see these as separate issues. They are highly interconnected. Educated workers make a positive impact on innovation and productivity. Energy drives economic growth. Both of these factors are key to economic success. The Economy directly impacts the Environment. People depend on the environment for sustenance and survival.

EDUCATION

Many modern issues are rooted in the lack of education or a poor education. This leads to: 1) a limited world view, 2) resistance to change, and 3) the inability to see the “big picture” or to take a “long term perspective.” The environment suffers. We are destroying our life support system. Remember, the planet existed for billions of years before humans appeared. Do you think the world would miss us?

Remember the financial meltdown of 2008-2009? Foreign investment flowed into the region. Corporations came to Southeast Asia, especially Thailand. Initially low labor costs and tax incentives were the main attraction. Asia became a region of economic recovery. Cheap labor could not keep up with rising production demand. A poorly educated work force lacked skilled workers for high tech jobs. The influx of foreign workers created social unrest. English is the international lingua franca for science/technology and business/commerce. It is poorly taught in many SE Asian countries. Former British colonies have an edge. But it is no guarantee. Singapore is an outstanding model for education as a national priority.

Demographers forecast that in the 21st century, nearly half the population of Asia will be female. In many cultures, females are less than second class citizens. They don’t have as many educational opportunities as males. Women provide half the labor in the world. It is foolish to discount half the brain power of a country by not educating women.

ENERGY

Most countries are not energy self-sufficient. This is a point of national “insecurity.” Many countries have limited domestic sources of fossil fuels. Economic growth spurs electricity demand. Limits on energy supply stifles economic growth. This make nations vulnerable. Dependence on fossil fuels and atmospheric pollution created issues of global warming. More

people and nations are aware of the need for clean energy. The disaster at Fukushima has brought nuclear power into the crosshairs of critics. Biofuels bring the dilemma of food vs fuel to farm production. Hydropower has plus/minus concerns (especially mega dam projects). Micro- and pico- hydro/wind projects have unique advantages. This is especially true for remote and rural villages. Governments should create relevant education programs for local people. Learning and making these systems locally is a good first step. It leads to creating a market to make, sell and distribute alternative energy systems. Supplying electricity this way reduces the cost of national electricity generation and distribution. At the same time, rural cottage industries are ready markets for locally produced micro / pico power systems. This give them access to clean / green power to foster and nurture their local economies.

ECONOMY & ENVIRONEMENT

The 20th century and the dawn of the 21st century saw major populations shifts toward urban areas and coastal regions. Pollution and urban sprawl have covered productive farm land. As cities grow, land values rise. It makes it uneconomic to grow food there. Yet without food, people cannot survive nor thrive. The economies of scale favor larger agro-corporations. Small rural family farms begin to disappear. Yet, during the crash in Thailand, returning to a family farms was the safety net for many displaced factory workers. Years prior to the crash, the Thai King proposed self-sufficiency as a economic goal, especially for Thai farmers.

Pollution and contamination contribute to more product recalls and threaten health. Food prices rise and quality declines. Today food is transported greater distances to markets. Rising fuel costs can spur inflation. It's a grim picture all the way around. People everywhere are becoming more aware of environment degradation. The impacts are getting closer to home. Even tribal peoples in remote regions are affected. They note the disappearance of plants they relied upon for herbal remedies. There is fewer animals to hunt for food. It is hard to reverse the downward spiral in the quality of food and life. But disasters could be opportunities for corrective action.

OPPORTUNITIES IN DISASTERS

Disaster recovery is an opportunity for education. Some lessons that can emerge are:

- Improved awareness for disaster preparedness and risk assessment;
- Environmental measures to reduce the effects of a disaster;
- Improved emergency procedures to protect life and property.

Re-building is an opportunity to:

- Install alternative energy systems and more energy efficient/ conserving equipment;
- Install alternate energy systems and equipment for improved environmental protection;
- Re-assessing infrastructure alignments to help improve local resilience;
- Re-locating people and facilities out of harm's way.

Economic recovery could be better facilitated by:

- Diversifying the types of industries in the area;
- Considering the susceptibility of various types businesses to possible local disasters;
- Consider implement "extraction taxes" for raw materials removed from local areas;
- Implement programs to use recycled materials in goods produced locally to create/build markets for locally recycle materials.

Rebuilding gives opportunities for added environmental protection:

- Implement plans for thorough recycling of all wastes / trash to eliminate landfills and incinerator sites. This can go a long way to improving environmental quality.
- Levying “disposal fees” for items of hazardous wastes requiring special handling / processing to protect the environment.
- Start recycling sewerage to minimize water contamination and optimize nutrient recycling. A good model to follow is that of [Joseph Jenkins](#). This would reduce chemical pollution of the water and food supplies as well.
- Provide incentives (e.g. price and tax rebates) to install alternative and clean energy systems. Governments can set an example by requiring government buildings have alternative energy systems relevant to the local conditions (e.g. solar panels, solar hot water heating, wind turbines, etc.).

COMMUNITY RESILIENCE

An effectively implemented disaster recovery based on E⁴ concepts makes a community more resilient. Resilience can feed into an improved economy. A strong economy adds to national economic security. All components of E⁴ (education, energy, economy, environment) are all closely linked. Countries become more stable when policies serve the well-being of all citizens.

Note: The idea of E⁴ for disaster recovery is wholly consistent with another paper “*Shaping Policies Using S⁵: Science, Systems, Synergy, Sustainability, Society.*” The original paper was published at *Rural Training Center-Thailand: Jan 2012 Update*, pp. 5-8; http://www.neighborhoodlink.com/Rural_Training_Center-Thailand/pages