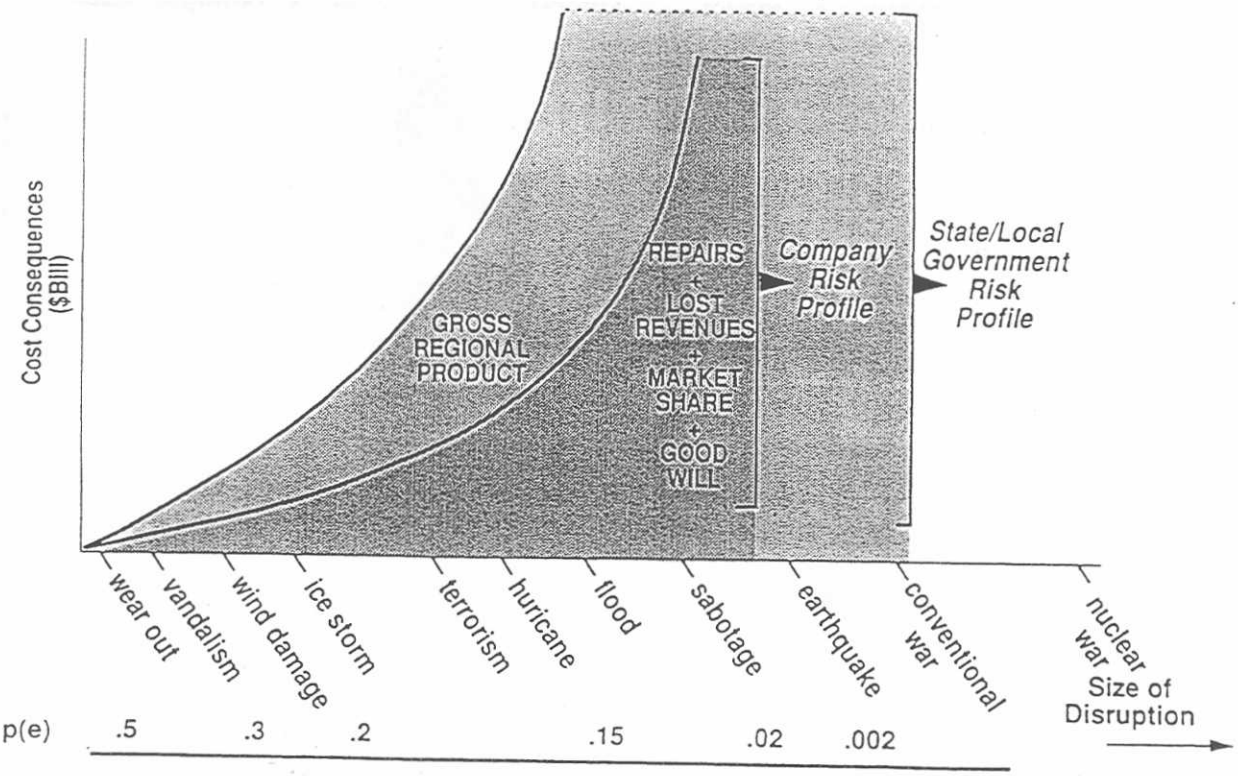
FIGURE 4: Risk Avoidance-Regional Level



Another region comprised largely of manufacturing and heavily energy-intensive industries may have an extremely large energy multiplier effect.

The point to be made here is that the energy company neither sees nor has incentives to insure against such additional costs.

If that is the case, regional authorities (with the power to intervene if necessary in energy or other risk planning) should consider prudent risk profiles for the region. If these authorities determine that risk profiles are unusually low, they may conclude that companies have over-invested in risk avoidance and elect lower reliability in their energy supply or seek less investment in emergency preparedness by energy customers in that region. Conversely, to the extent these authorities determine that risk profiles are too high, they may attempt to encourage more investment in emergency preparedness--either by the energy companies or by their customers, whichever is most cost-effective.

RISK AVOIDANCE-NATIONAL LEVEL

While economic consequences in one form or another are the primary bases for risk planning by companies and regional authorities, they are not the primary concern of the federal government. National security, while philosophically attractive as a goal of federal risk planning, is not easy to quantify. Rather, federal risk planning is more subjective. That is, most energy end-users benefit from risk avoidance initiatives by companies and regional authorities However,

only selected end-users whose functions are considered essential to national security and whose operations must not be interrupted for any reason (including lack of energy) may be of critical federal concern.

Referring to Figure 5 (**Risk Avoidance-National Level**), as before, the gap between the Gross Regional Product and National Security curves reflects the national security multiplier for the region. It is likely to differ for each region, depending on the composition in that region of end-users whose continued operations are considered essential to national security.

In this context, the meaning of the term 'national security' is meant to be very broad. It is meant to include not only the 'national defense' but also any other function which society considers essential (e.g., telecommunications, medicine, police and fire protection, electronic banking, transportation). These minimum essential uses of energy have, on occasion, been referred to as 'the sinews of society'.

Figure 6 (**Sample NSEP Functions**) provides a sample of functions considered to be essential.

Overall Concept of Operations

While the common goal of contingency planning by each agent is to reduce emergency risks to acceptable levels, each has a different objective in mind: the company to assure its corporate success; state and regional government(s) to protect the regional welfare; and,

FIGURE 5: Risk Avoidance-National Level

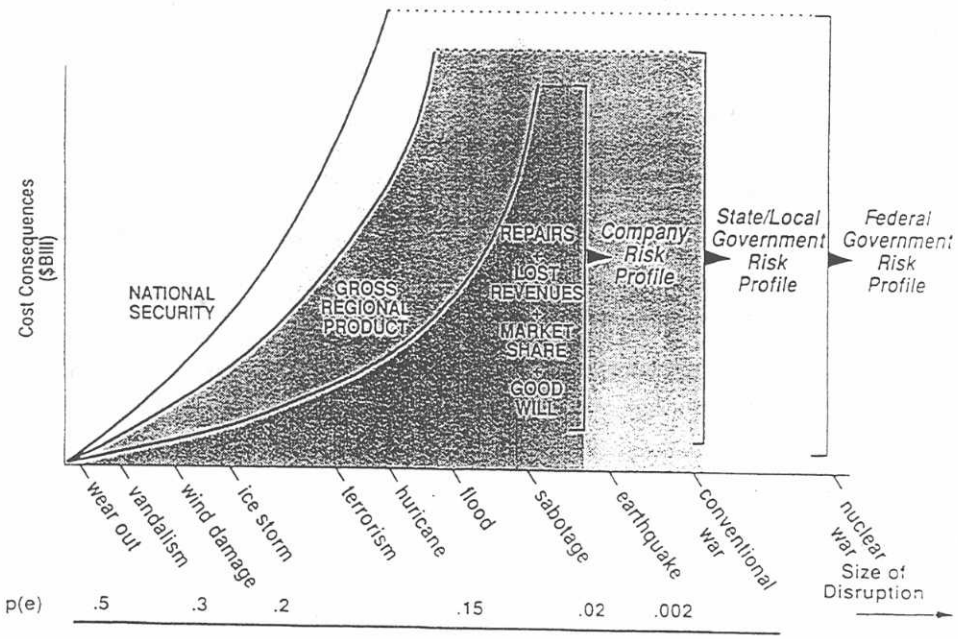
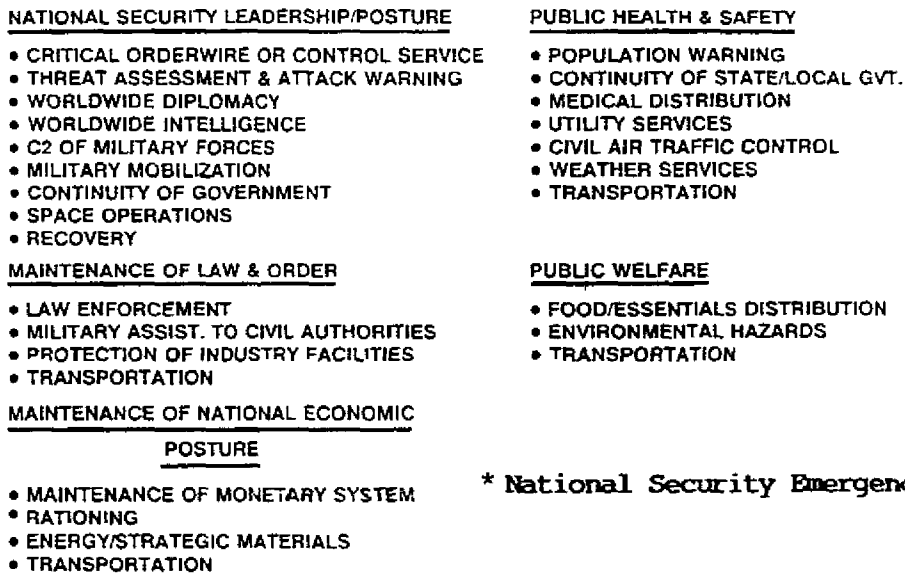


FIGURE 6: Sample NSEP* Functions



* National Security Emergency Preparedness

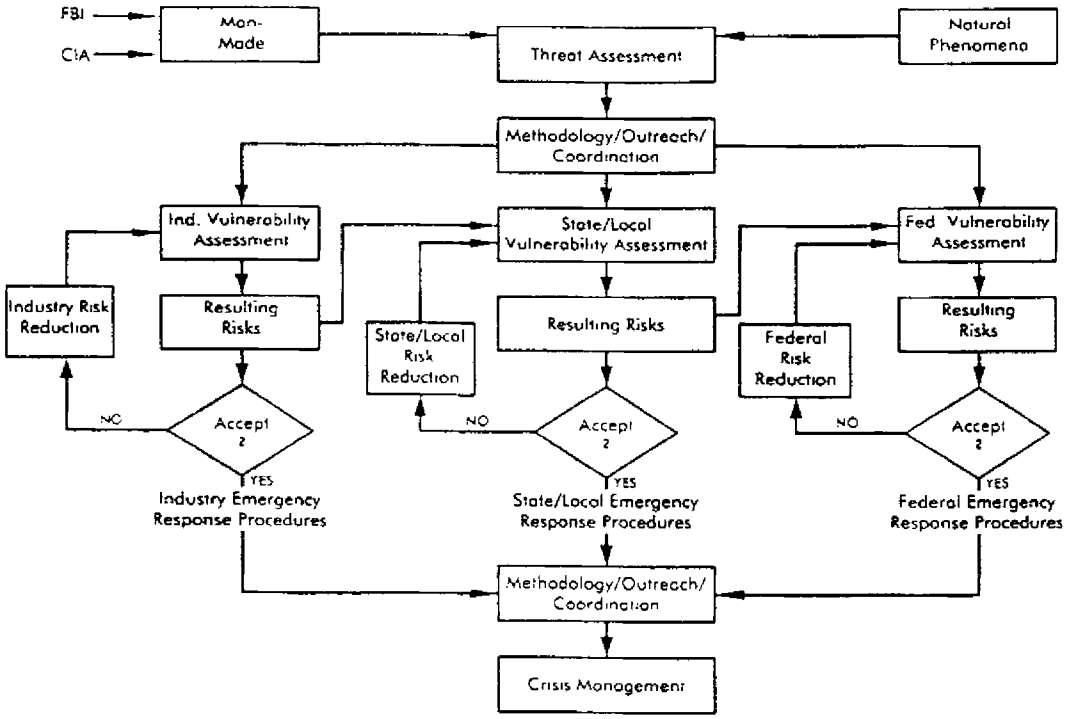
the federal government to promote national security and economic stability. The primary difference among their individual objectives is the risk each finds acceptable. Since it is likely that risk reduction measures undertaken by any one of the agents also will benefit the others, it seems to make sense for them to combine forces and work together. Unfortunately, while there may be isolated exceptions, this is generally not the case, and society is more likely to pay too much for risk insurance or be underinsured.

One way (probably of many) to overcome this is shown in Figure 7 (**Overall Concept of Operations**). The concept envisions a conscious effort on the part of all agents to identify potential emergency incidents, both natural and man-made, and then to coordinate risk reduction and emergency response preparations accordingly.

Using a team approach, each agent would pursue emergency preparedness objectives and integrate them with the plans and risk reduction initiatives of each of the others. Such coordinated planning will assure that all pertinent emergency events are considered, practical solutions are developed, regulatory matters are addressed, and a workable plan exists prior to the onset of a crisis.

An additional advantage of this approach is that each agent will have a clearer understanding of the level of built-in preparedness and, therefore, the type and extent of emergency response measures which may be prudent. It is possible, after all, to exacerbate the consequences of an emergency by

FIGURE 7: Overall Concept of Operations



responding improperly--in spite of preparedness initiatives which may have been in place.

SUMMARY

This article has introduced the notion of a spectrum of emergencies and discussed the importance of emergency preparedness, especially from an energy perspective. Distinctions have been drawn between the prospective value of emergency preparedness initiatives as seen by three separate agents; namely, energy companies, states and localities, and the federal government. The wisdom and value of a collective and coordinated approach by these agents to emergency preparedness has been discussed. An operational program has even been suggested as a way to begin the coordination process.

The point has been made that emergencies occur or not based on their own clock. An on-going regional or national incident does not mean it's impossible for a local or other emergency to occur simultaneously.

The time needed for a coordinated approach to emergency preparedness may add a little to its cost, but the benefits could be enormous. It's still not too late if we begin now.