

**Comparative Scenario and Options Analysis:
Important Tools for Leaders, Change Agents,
Planners, and Decisionmakers**

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Imagining how the future might unfold is not an aptitude that everyone has. Such imaginings can take any of a variety of forms from wild guesses, crystal ball-like readings, and wishful thinking to thoughtfully crafted analyses based on best available knowledge, insight, and understanding.

The comparative analysis of scenarios as well as the comparative analysis of options can both be used to plan or consider new courses of action. They can be used to inform decisions concerning immediate or near term or future actions.

Typologies, attempts to categorize or classify realms of concerns, can also play a useful role in such analyses and will be briefly discussed in this article.

The present article is intended to serve as an introduction to the subject of comparative scenario and options analysis. The article discusses how comparative scenario and options analysis can be used by leaders, change agents, planners, and decisionmakers. The essential nature of such analysis and some potential uses and benefits will be noted and various examples of scenario and options analyses that the author has developed will be cited or used as examples.

Examples of a Comparative Scenario and Options Analysis

Four examples of comparative scenario or options analysis are the following:

- ~ Typology of Emergencies (See Accompanying File for Table 1)
- ~ Approaches to Federal Emergency Management, Including Preparedness for WMD & Terrorist Attacks (See Accompanying File for Table 2)
- ~ Part 5 of a White Paper on Y2K: A Call to Action: National and Global Implications of the Year 2000 and Embedded Systems Crisis." ⁱ

~ "The Ethics Map ~ A Map of the Range of Concerns Encompassed by 'Ethics and the Public Service'," ⁱⁱ

Hypothetical Scenarios

Hypothetical scenarios can be used to consider some ways in which the future might possibly be shaped or changed, or some ways in which the future might possibly unfold. Such scenarios can differ greatly with respect to their generality or specificity. Since omniscience is not an attribute that human beings have, hypothetical scenarios are always going to involve less than perfect knowledge and understanding concerning the future. Indeed hypothetical scenarios necessarily reflect less than perfect knowledge and understanding concerning the past and the present as well. Part 5 of a White Paper on Y2K provides a comparative scenario analysis of several different ways in which Y2K could have unfolded. ⁱⁱⁱ A description of the way in which events actually unfolded can be found in an article written in 2001 also by the present author. ^{iv} Written in 1999, the purpose of the scenarios in the White Paper on Y2K was to point out the potential outcomes of following two different courses of actions, one course of action being far more proactive than the other. ^v

In developing or considering a scenario, it is helpful to address the following questions:

- ~ What is known?
- ~ What knowledge is needed in order to make an informed decision or take informed action?
- ~ What is the purpose of the decision or the action?
- ~ Will the analysis help those involved in the decisionmaking or in taking action consider and decide upon a viable course of action?

Another set of questions can be raised concerning the merits of such analysis. These can include:

- ~ What advantages can scenario analysis have over other analytic tools?
- ~ Can the use of such an analytic tool help diminish defensiveness or resistance to change?
- ~ Can the use of such an analytic tool in effect help parties to a decisionmaking process save face?
- ~ Can such an approach to analysis give rise to "aha" insights thus paving the way for broadening understanding of possibilities?

Indeed, comparative scenario analysis and comparative options analysis can both serve as invaluable educational change tools, tools that can help decisionmakers think through their decisions and consider options. Such analytic tools can aid them in arriving at conclusions concerning the most promising course of action. Those using such tools may also assume a significant sense of "ownership" regarding the conclusions that they reach.

Comparative Options Analysis

Comparative options analysis can share much in common with comparative scenario analysis. The two types of analysis can also serve complementary purposes. Comparative options analysis can involve consideration and "parsing" of several different ways of looking at a range of different actions that might be taken. Each option might be likened to a snapshot with each snapshot reflecting different constellations of factors or different sets of assumptions and considerations. These different snapshots may differ according to any of a variety of criteria that an analyst might decide to use. For instance, options analysis might focus on "poor", "good", "better", and "best" ways of addressing a problem. Alternatively, options analysis might focus on different ways of looking at a set of related concerns. For example, Table 1 provides a range of ways of describing emergencies of different levels of severity.

A Note About Typologies

Before discussing Table 1, it would be helpful to include a note about typologies. Typologies can play a useful role in options analysis. Indeed, typologies might well be viewed as a kind of options analysis. A definition of "typology" in Webster's is an "analysis or classification based on types of categories." A typology can be a set of different possible ways of viewing a "universe" or area of concern. Indeed, typologies can be used to map or identify a universe or set of related concerns. An example of such a typology can be found in an article entitled "The Ethics Map."^{vi} That "map" parses the universe of ethical behavior in government into three categories: behavior that is not based in values that are consistent with acting a way to maximize the public good; behavior that is rooted in a value neutral stance; and behavior that is rooted in values that are consistent with acting in a way to maximize the public good.

A Typology of Emergencies of Differing Levels of Severity

The typology in Table 1 provides a means of comparing and contrasting a range of possible ways of looking at emergencies that are of varying levels of severity, ranging from emergencies that involve the death or injury of scores of people to emergencies that involving the death or injury of millions of people.

A purpose served by this typology is to provide an overview of the "universe" of possible ways of categorizing emergencies of differing levels of severity. These categories can then be used as the basis for comparing and contrasting the ways in which emergencies of varying levels of severity can be seen to differ from one another and, hence, how approaches to addressing emergencies of varying levels of severity will necessarily differ from one another. These emergencies of varying levels of severity are compared and contrasted using a set of identical parameters. In this typology of emergencies, the parameters used are as follows:

~ **#'s of Dead & Injured:** The size of the emergency gauged solely in light of the numbers of dead and injured

~ **Roles of Government:** The roles that might be played by different levels of government in response to emergencies of specific levels of severity

~ **Approaches:** The general description of the approach that would need to be used in order to respond to an emergency of a specific level of severity

~ **Characteristics:** A characterization of the extent to which emergencies of varying levels of severity might be viewed as being manageable

~ **Skill and Training Needs:** A characterization of the nature of the emphasis that needs to be given to skill and training needs in emergencies of varying levels of severity

What uses might a typology of emergencies have? What purposes might it have?

The original version of this typology was developed by the author as part of a task to develop guidance for local level emergency managers.^{vii} The guidance was meant to help local level emergency managers prepare for and respond to emergencies of varying levels of severity, through and including an all out nuclear war. The individuals who asked that the guidance be developed did not seem to be basing that request in a realistic assessment of worst case scenarios. The original version of this typology was developed to help these individuals recognize that the "universe" of "emergencies of varying levels of severity" needed to be viewed in a vastly expanded way compared to the perspective they had been using. A preponderance of efforts in planning for mass casualty events over the past many decades has rarely considered events involving massive numbers of casualties. Worst case scenarios have rarely been considered. This would include scenarios in which the nation's infrastructure might be so badly damaged that capabilities to respond would be overwhelmed. As a result, preparedness and contingency planning, more often than not, have been based on very limited and often unrealistic assumptions concerning worst case scenarios.

A major purpose of this typology of emergencies of differing levels of severity was to jar the consciousness of planners, decisionmakers, and those involved in emergency preparedness and management into considering and accepting new assumptions concerning the implications of a range of worst case scenarios and catastrophic events. In the process such planners, decisionmakers, and emergency managers and responders would also come to understand that one cannot approach small scale emergencies in the same way that one approaches larger scale emergencies or emergencies of catastrophic proportions. The typology and the guidance material of which it was a part were intended to broaden the understanding of planners, decisionmakers, and emergency managers and responders and help them recognize the importance of developing some of the same skill sets and improvisational capabilities that would need to be employed in the largest scale emergencies and catastrophes. The typology reflected a consideration of a wide "universe" of possibilities. In doing so, the typology was intended to serve as a means of introducing some individuals to a more realistic understanding and comprehension of what can actually be entailed in attempts to deal with, respond to, and recover from emergencies and catastrophes of widely differing levels of severity.

Many may well remain in denial or otherwise fail to comprehend the enormity of the consequences of larger scale emergencies and worst case catastrophes, but as more individuals, particularly individuals in roles of public responsibility, come to comprehend the enormity of these concerns, the more likely it is that they will adopt realistic and thoughtful approaches for addressing all aspects of the emergency management cycle: prevention, preparedness, mitigation, contingency and continuity of operations planning and management, response and recovery.

Another Example of Comparative Options Analysis

Table 2 is entitled "Approaches to Federal Emergency Management, Including Preparedness for Weapons of Mass Destruction (WMD) & Terrorist Attacks."

This is an updated and abbreviated version of a table that the author developed as a part of an issue paper for FEMA in 1982.^{viii}

The 1982 issue paper was focused on the need to reconsider and reconfigure the government's approach to nuclear attack preparedness. Subsequently, FEMA adopted an all hazards approach to emergency management, an approach that was included as the last of the five options described in Table 2.

Before discussing Table 2, it may be helpful to provide some background on the 1982 FEMA Issue Paper in which an earlier version of Table 2 appeared.^{ix} In that Issue Paper, there were five options described in the most significant of the accompanying tables. The Issue Paper was developed for use by a FEMA task force led by the Director, General Louis Guiffreda. The purpose of the task force

was to make decisions concerning the reconfiguration of FEMA's nuclear attack preparedness efforts and civil defense program. The five options described in the Issue Paper were as follows:

- 1) Minimal Activity Option (Status Quo)
- 2) Medium Visibility/Communications-Focused Option
- 3) High Visibility/Advocacy-Oriented Option
- 4) Consensus Seeking/Compromise-Oriented Option
- 5) Reoriented/Non-Confrontational Option (modeled after the functional all hazards approach to emergency management and civil defense being taken by West Germany at the time).

Some of the parameters included in the earlier table included:

- ~ Nature of Approach,
- ~ Stance Taken by Adherents of the Approach to Basic Issues,
- ~ Sensitivity of the Approach to Public Opinion,
- ~ Selected Possible (Negative) Public Reactions,
- ~ Mode of Dealing with Controversial Issues,
- ~ Organizational Feasibility,
- ~ Possible Negative Reactions to the Approach by Major Congressional Critics,
- ~ Prognosis for Accomplishing the Aims of the Option.

Each of the five options was described in terms of each of these parameters.

The FEMA task force adopted the fifth option, the all hazards approach, the last one in the table. Modeled on the approach that was in place in West Germany, this option was one in which governmental emergency preparedness and response responsibilities were delineated according to functional areas, not by type of emergency, such as nuclear attack, hurricane, flood, or earthquake. Certain functions were seen as being common to all of these emergencies. Functions were seen as being cross cutting and as being applicable in a wide range of emergency situations.

Prior to the development of the table of options that had been developed for FEMA's consideration, Options 2, 3, and 4 were being advocated by different groups within the task group of the 25 highest ranking officials in FEMA. The options already under consideration were ascertained through interviewing individual members of the task group. These three different options were being most seriously considered. Information and understanding resulting from the interviews concerning these three options were included in the table. Option 5

was added by the author of the issue paper as an option that seemed less potentially controversial and more feasible and likely to achieve the task group's goals than the options 2, 3, or 4. The effect of that table was to bring everyone on the task force to the same page, literally and figuratively. After having a chance to go over the issue paper and the key table, the task group "bought off" on Option 5.

It seemed that the table had helped the members of the task group to weigh the pluses and minuses of adopting the given options. In a sense, the table served as a tool for resolving conflict. It did this by providing a means for advocates of the various options to see and acknowledge the relative merits and deficits of the options and to do so without being psychologically threatened or put on the defensive. It also paved the way for introducing a new option that had not previously been under consideration.

This example of the use of comparative options analysis as a tool for decisionmaking and change can strengthen one's appreciation of the merits of using such an analytic tool. The use of this tool played a significant role in helping decisionmakers sort out options already on the table. It also helped them see the merit of a new option that had not previously been under consideration.

There are certain similarities with the situation that FEMA leadership found itself in during the early '80s and the situation that Department of Homeland Security (DHS) and FEMA leadership (now a part of DHS) find themselves in late 2004.

Since 9/11 and the major revamping of emergency preparedness and response responsibilities and approaches to managing emergencies, the all hazards approach that was previously in place has undergone major changes. These changes are evidenced since 9/11 in planning documents and in funding allocations and priorities. In practice, these changes have resulted in some serious concerns. Some of these concerns have to do with where emergency management responsibilities now reside when the nature of the emergency falls into a "gray" area. For instance, who in government was responsible for dealing with the emergency situation arising out of the August 14, 2003 Blackout that lasted several days? Who was responsible for helping with the California wild fires in the fall of 2003? Had a contributing cause of either or both of these been overtly terrorist-related, would the responses have been different?

Another concern is the way in which the emergency management cycle is being viewed also as reflected in planning documents, in funding allocations, and in practice. What portions of the emergency management cycle are being emphasized? A narrow focus appears to be taken, one that emphasizes preventing, preparing for, and responding to events or emergencies. What consideration should be and could be given to mitigation, contingency planning, long term recovery, and long term impacts? How much importance is being

given to a full range of protective and preventive measures? The current focus seems to be on a very narrow time frame surrounding an event or an attack.

The current focus also seems to be on a very limited portion of the emergency management cycle. That limited portion of the emergency management cycle tends to focus on the time immediately prior to the event, the event itself, and the time immediately following the event. Such a focus has major implications for long term impacts.

Yet another concern regarding current approaches to considering and addressing "emergencies" involves the penchant for "boiling the ocean" or "counting all the leaves on the tree" approaches to long term data collection and analysis efforts. It will take considerable time and the application of extraordinary analytic expertise in order for such massive amounts of data to be rendered useful or put into a useful format. In the meantime such approaches cannot be expected to help address in any significant way capabilities for minimizing or prevent potential damage and impacts for events and attacks that occur in the very near term or events that may have just occurred.

In the parlance of planning, the data collection phase of a total comprehensive planning approach seems to be underway. In the meantime, what is being done to be better prepared for events and emergencies that happened yesterday or might happen tomorrow? To what extent are functional capabilities being enhanced for a full range of possible events? To what extent has there been attention given to doing the best we can now to minimize problems? What attention is being given to the common sense initiatives that were focused on in the years, and, in some cases, the year before the Y2K rollover? This included zeroing in on the most critical elements of the nation's infrastructure and making sure that protective, mitigative, and remedial steps had been taken and that contingency plans were in readiness.^x

In the post 9/11 world, there is a need to take mitigative and protective steps and implement preventive measures. There is also a need to have contingency plans and continuity of operations plans in place for a wide variety of possible scenarios. In addition, much more is needed. This is owing to the cascading effects that infrastructure problems, disruptions, and attacks can have on the stability of the nation: societal stability and economic stability, individual and community security, and national security.

Reasons for Using Comparative Scenario or Comparative Options Analysis

Why consider something as imprecise as using analytic tools such as comparative scenario or comparative options analysis? Why try to envisage possible ways in which the future might, could, or even ideally should unfold? Why consider the effects that certain actions might have on even near term or

long term events? Why weigh one course of action and its possible outcomes and consequences against another alternative course of action and its possible outcomes and consequences? The answers can be simply that such thoughtful consideration can result in minimizing or preventing losses. Such efforts can result in a better outcome. Such actions can result in maintaining or improving security or the quality of life. Indeed, a weighing of possible approaches can provide a means of clarifying what the best options for action might be. Visualizing or imagining how the future might, could, or should unfold can actually affect the way that the future does unfold because such understanding, however imperfect, can better inform and shape action.

The use of comparative scenario or options analysis can provide opportunities for assimilating lessons that can be gleaned from past actions and events. As a consequence, the ultimate choice of action is likely to be an improvement over a less thoughtful consideration of possible futures or less well thought out actions. A comparison of different scenarios or options for action may not only lead to more thoughtful action, it may identify potential pitfalls, deficiencies, and impacts that might not otherwise have been apparent. Comparative scenario or options analysis may also provide a means of capturing and building on lessons that can be learned from the past or gleaned from past personal experience.

Some thought provoking work for those who may be interested in exploring scenario analysis and long range thinking in greater depth includes the following:

~ Gerald Feinberg, **The Prometheus Project: Mankind's Search for Long-Range Goals**^{xi};

~ Peter Schwartz, **The Art of the Long View: Planning for the Future in an Uncertain World**^{xii}; and

~ Jerome C. Glenn and Theodore J. Gordon, **Futures Research Methodology**^{xiii}

Some other potentially helpful references to those interested in comparative scenario and option analyses and related organizational challenges include the following:

~ Philip Slater and Warren Bennis, **The Temporary Society**^{xiv};

~ Paula D. Gordon, "Recognizing and Addressing Problems of Scientific and Technological Complexity,"^{xv} "Successful Knowledge Transfer"^{xvi}, and "Transforming and Leading Organizations"^{xvii}

Also see **Public Administration in the Public Interest** by Paula D. Gordon for a treatment of the role that public administration and government can play in addressing the complex problems and challenges that face humankind.^{xviii}

Summation

Comparative scenario and options analysis is little more than the application of common sense and investigatory and analytic tools to organizing one's thinking about hypothetical scenarios and alternative courses of action or options for addressing problems and challenges. The one engaging in such analysis is trying to envisage, "capture", and explore some portion of a universe of possibilities. It may be a narrow portion of a "universe" or it may be an extremely large portion of a "universe". It may even be all encompassing. That universe may be naively conceived or it may reflect extraordinary levels of sophistication, knowledge, and understanding. If well conceived and utilized, comparative scenario and options analysis can play critical roles in helping develop and apply our intellect, understanding, knowledge, experience, commonsense, and creativity to addressing the range of challenges and problems that face us. This most certainly can include challenges and problems of national as well as global dimensions.

ⁱ Part 5 of Paula D. Gordon, "A Working White Paper on Y2K: A Call to Action: National and Global Implications of the Year 2000 and Embedded Systems Crisis." 1998-1999. The link to the full report is toward the bottom of the page at <http://gordonhomeland.com> (Part 5 includes a discussion of scenarios describing ways in which those problems may have unfolded.)

ⁱⁱ Paula D. Gordon, "The Ethics Map: A Map of the Range of Concerns Encompassed by 'Ethics and the Public Service'," 2004. <http://users.rcn.com/pgordon/homeland/ethicsmap.pdf>

ⁱⁱⁱ Paula D. Gordon, 1998-1999, ob. cit.

^{iv} Paula D. Gordon, Strategic Planning and Y2K Technology Challenges: Lessons and Legacies for Homeland Security, 2001. http://users.rcn.com/pgordon/homeland/homeland_strat.html

^v Paula D. Gordon, 1998-1999, op.cit.

^{vi} Paula D. Gordon, The Ethics Map, ob. cit.

^{vii} Paula D. Gordon, Manual for Local Level Emergency Management Coordinators, April 1984. Available through the Federal Emergency Management Agency Library and through Inter-Library loan.

^{viii} Paula D. Gordon, Approaches to Developing Understanding of the Civil Defense Program, FEMA Issue Paper, March 1982 (This document is available in the FEMA Library and through Inter-Library loan.)

^{ix} Ibid.

^x Paula D. Gordon, April 1984, ob. cit.

^{xi} Gerald Feinberg, **The Prometheus Project: Mankind's Search for Long-Range Goals**. New York: Doubleday and Co., 1968.

^{xii} Peter Schwartz, **The Art of the Long View ~ Planning for the Future in an Uncertain World**, New York: Currency Doubleday, 1991.

^{xiii} Jerome C. Glenn and Theodore J. Gordon, **Futures Research Methodology -- Version 2.0 ISBN: 0-9722051-1-X** 2003. This is an extraordinary compendium of descriptions of "tools and methods for forecasting and analysis of global change". <http://www.acunu.org/millennium/FRM-v2.html>.

^{xiv} Philip Slater and Warren Bennis, **The Temporary Society**, New York: Harper and Row, 1968.

^{xv} Paula D. Gordon, Recognizing and Addressing Problems of Scientific and Technological Complexity, 2003. http://users.rcn.com/pgordon/homeland/problems_scientific.html

^{xvi} Paula D. Gordon, " Knowledge Transfer: Improving the Process" 2003. http://users.rcn.com/pgordon/homeland/knowledge_transfer.html

^{xvii} Paula D. Gordon, "Transforming and Leading Organizations" 2004.

http://users.rcn.com/pgordon/homeland/transforming_orqs.pdf .

^{xviii} Paula D. Gordon, Dissertation: **Public Administration in the Public Interest: A Prescriptive Analysis of a Democratic Humanist Paradigm of Public Administration**. American University, Washington, D.C., 1975. <http://www.jhu.edu/pgordon/> .

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TABLE 1: TYPOLOGY OF EMERGENCIES*

| <u>Size of Emergency</u> | <u>#'s of Dead & Injured</u> | <u>Roles of Government</u> | <u>Approaches</u> | <u>Characteristics</u> | <u>Skill & Training Needs</u> |
|--------------------------|----------------------------------|----------------------------|-------------------------|--------------------------|-----------------------------------|
| Small Scale | Scores | Local | Surging of capabilities | Care manageable | Surge capability |
| Medium Scale | Hundreds | Local, state, regional | Modified to makeshift | Care normal to minimal | Networked surge capab. |
| Large Scale | Thousands | All levels of gov't | Modified to makeshift | Care normal to minimal | Networked surge capab. |
| Catastrophic Scale | Millions | All levels of gov't | Mostly makeshift | Care minimal or worse | Make do capabilities |
| Mega-Catastrophe | Multi-millions plus | Remaining gov't vestiges | Totally makeshift | Care minimal if existent | Improvisational skills |

*Adapted from a Typology of Emergencies in **Manual for Local Level Emergency Management Coordinators** by Paula D. Gordon, April 1984 (Available through the FEMA Library)

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TABLE 2: APPROACHES TO FEDERAL EMERGENCY MANAGEMENT, INCLUDING PREPAREDNESS FOR WMD & TERRORIST ATTACKS

| <u>Options</u> | <u>Nature of Approach</u> | <u>Basic Stance</u> | <u>Feasibility</u> | <u>Likely Outcomes</u> |
|---------------------------|--------------------------------|-------------------------------|-----------------------|-----------------------------------|
| Status Quo Approach | Fragmented | Not an all hazards approach | Resources diluted | Large potential attack impacts |
| All Hazards Approach | Building on Fed. Response Plan | Dual use emphasis | Resources better used | Minimize potential impacts |
| All Hazards/CIP* Approach | Add proactive CIP focus | Incl.mitigation/prev./prot.** | Resource use optimal | Greater stability/minimal impacts |

* Including a strong focus on critical infrastructure protection and continuity societal and economic stability

**Including a strong focus on mitigation, prevention, protection, contingency & continuity of operations planning, and disaster resistant communities and regions and a disaster resistant nation

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