

Decision Superiority:

Transforming National Security Decision-Making

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The world's most technologically advanced and capable nation has a dark secret. Despite the ultra-precise nature of the United States' weapons of war, decisions about when and how to use this lethal instrument of power are often the result of undocumented processes which emerge spontaneously, are mostly personality driven, and evolve in a near data-free environment. Despite the fact that an increasing amount of information is available, decisions to use force are often made without a process that relates *quantitative* and *qualitative* factors. Presidents have made serious decisions throughout history without innovative processes to assist them, but today's security environment is increasingly complex, dangerous, and quick moving. Today's decisions are executed quickly, in near-real-time, and impact at multiple levels. Senior decision-makers must make very costly decisions without a framework to assist them in understanding the full context and level of risk at that particular point in time.

The interagency process needs to push toward Decision Superiority, a decision environment that ensures any US president will be able to quickly assess alternative courses of action in an appropriate context and relate them to a strategic vision. This paper argues for a transformation in national security decision-making that would leverage existing decision support methodologies to support complex decision-making about the use of force. This thesis applies broadly to all decisions about the use of force, but is especially important concerning President Bush's current responsibility to make decisions about employing nuclear weapons in the context of growing chemical, biological and nuclear threats to the US.

The Problem

These are dangerous times, arguably more dangerous with the end of the bi-polar Cold War. Today's senior decision makers deserve to have the most effective and efficient decision-making methodologies available when contemplating complex defense questions. They need to be able to quickly gather quantifiable information, such as weapons yield data, and weigh it with qualitative factors, such as the potential reaction of allies. They need to rapidly coordinate with other government and non-government agencies that have equities in the decision. They need to immediately articulate to Congress, the press and the American public how their decisions were made and upon what criteria the decisions were based. They must be able to consider the wide-ranging and differing assessments of experts in the context of other competing interests. They need methods for gaining buy-in from the organizations and individuals that are affected by, and will participate in, executing the decision at hand. In short, they need a quick, credible process for weighing the potential benefits of decisions against the possible costs. With tactical decision cycles shortening, senior decision-makers cannot afford to delay important strategic decisions. They need to rely on more than 'gut feeling' to make decisions. They cannot afford to use anecdotal information, nor should they become overloaded with details and data. They should not be forced to operate in a decision environment that lacks a framework for weighing conflicting factors against degrees of risk. Producing decision-quality information, using a credible process, will enable them to choose the best course(s) of action by determining the level of risk acceptable for each specific scenario.

In the end, the personal values of the decision-maker, and how he or she prioritizes those values against an understanding of the potential risks of the situation, determines the decision. Personal values will always be the cornerstone of decisions, but what can the government bureaucracy do to help prepare decision makers for facing ominous national security decisions? What tools can be used in advance to think through the potential unintended consequences of decisions to use force, in this case, with nuclear weapons? What are the pre-conditions for such decisions?

Transformation in National Security Decision-Making

“A decision without analysis is akin to a trip without roadmaps.”¹

Decision analysis is not new. Models and analytical processes are widely used throughout the federal government. However, these practices and tools are typically applied against quantifiable issues, typically decisions concerning programmatic issues. For years, the Department of Defense has trained personnel in operations research, developing numerous methodologies for aiding military leaders in making quantifiable decisions. For example, how much fuel to purchase, store, and pre-position based on analysis of how much fuel a tank uses in various terrains at various speeds of advance. But analytical processes are *less* often used as a basis for a senior leader to make qualitative, national security decisions. Instead, alternative options for national security decisions are often developed by a limited number of trusted advisors, with no process for evaluating priorities against potential risks.

Excellent decision support tools are available today that can transform strategic decision making into a more efficient, thorough, and systematic process. The intent is not to produce the *answer*, but rather to enhance the quality of the decision environment

¹ Decision Processes, “Executive Summary,” www.usbr.gov/decision-process/analysis.htm.

and provide a framework for evaluating difficult issues, some qualitative and some quantitative.

Processes that quickly and thoroughly combine analysis and *knowledge* (professional judgment resulting from experience and education) create solid decision environments. Many of these methodologies are computer-based, often called ‘decision support systems,’ but many are merely refined and efficient processes that require only a trained facilitator and a group of experts from agencies relevant to the particular decision. The decision support tools and the processes are knowledge-based; that is, they are designed to capture the knowledge resident in the brains of knowledgeable and experienced individuals. These tools and processes help bridge the gap between information and the decision to act. L. Adelman defines decision support systems as “interactive...programs that utilize analytical methods, such as decision analysis, optimization algorithms, program scheduling routines, and so on, for developing models to help decision makers formulate alternatives, analyze their impacts, and interpret and select appropriate options for implementation”² In Handbook of Decision Support Systems, S. J. Andriole provides another definition, “{decision support systems contain}...any and all data, information, expertise or activities that contribute to option selection”³

One of the most widely recognized pioneers in decision support tool innovation is the GroupSystems corporation, whose processes and tools are used throughout the federal government. Governor Tom Ridge used GroupSystems to address the complex Y2K

² Adelman, L., *Evaluating Decision Support and Expert Systems*, John Wiley and Sons, New York, 1992, p2.

³ Andriole, S. J., *Handbook of Decision Support Systems*, Tab Publishers, Blue Ridge Summit, Penn., 1989, p. 3.

situation. He credited decision support tools with greatly enhancing and streamlining the decisions he made about how to attack the Y2K problem, across multiple levels of federal and state governments. Anne Reed, Acting Chief Information Office, Department of Agriculture, commented about the Y2K decision process: “Usually we have to work for the technology, but this time the technology worked for us.”⁴

With or without computers, these methodologies offer the national security team efficient and logical methods to understand complex problems, reduce decision-making timelines, weigh the value of relevant factors, evaluate risks against benefits, develop coordinated courses of action, tie individual decisions to national strategy, gain buy-in from the major organizations involved in the decision, and document why a recommendation was selected for historical purposes.

Applying a Process to the Decision to Use Nuclear Weapons

No topic is more relevant to this thesis than the decision to use nuclear weapons. Since the end of the Cold War, the policy of massive retaliation has been adjusted to fit a more complex world. The decision making process concerning the employment of nuclear weapons should also transform to support new kinds of decisions and risks.

For the past decade, US nuclear weapons doctrine has included pre-emptive attack of, and deterrence against, chemical and biological facilities/weapons of state and non-state actors. In 1993, CINCSTRAT General Lee Butler suggested that the US shift to a more flexible nuclear targeting system in order to deter other countries from using nuclear, chemical, or biological weapons in the post-Cold War environment.

The Bush administration’s nuclear policy continues this trend. Senior Bush advisors have made open statements indicating a willingness to conduct nuclear strikes in

⁴ Anne Reed, quoted in “Customer Success Stories,” www.GroupSystems.com.

retaliation for chemical and biological attacks. Some members of Congress support this policy. Senator Jon Kyl (R-Arizona) said, “I can’t think of any other appropriate response in the case of a massive attack with biological weapons...”⁵ Bush’s policy, sometimes called ‘offensive deterrence,’ also includes the option of conducting pre-emptive strikes using nuclear weapons against actors that threaten to use or actually use chemical, nuclear or biological weapons against the US or its allies. The Bush administration has taken it one step further by identifying specific, targeted countries in the Nuclear Policy Review (NPR), recently completed by the Department of Defense. The portions of the NPR that appear in the open press reflect the Bush administration’s rhetoric, and also call for shortening nuclear targeting timelines via adaptive planning. North Korea, Iraq, Iran, Syria, and Libya are cited in the report as being hostile toward the US. According to the report, this group of countries “...could be involved in immediate, potential or unexpected contingencies.”⁶

The President is at the apex of national security decisions, especially those involving nuclear weapons. Regardless of the personal leadership style of the president, decisions about employing nuclear weapons cannot be delegated. Henry Kissinger said, “Every new president soon learns that he faces two seemingly contradictory obligations. He must assemble adequate strength to protect the security of America and of its allies and friends. And he must face too the moral necessity of avoiding nuclear war.”⁷ Setting aside *policy* statements concerning the potential use of nuclear weapons, an actual *decision* to use or not use nuclear weapons, especially pre-emptively, would be daunting for any president. President Bush has to reconcile his desire to reduce nuclear weapons

⁵ Jon Kyl, AP Press, Sep 30, 2001. “Kyl: Chemical Biological Attack Deserves Nuclear Retaliation”

⁶ Ibid.

⁷ Henry Kissinger, The White House Years, Little, Brown & Co., Boston, 1979, p.67.

stockpiles with the need to deter and prevent enemies possessing weapons of mass destruction (WMD) from using them. Decision timelines are likely to be very short in a crisis situation, with little time for considering possible affects of the decision, nor for weighing the relationship of the decision to his/her strategic vision. The national security team should have a systematic process ready that can quickly produce a range of options for the president to consider.

The decision to use nukes has a physical and a social context. It involves much more than a scientific determination of the likely cause and effect of the weapon itself. ‘Bang for the buck’ can’t be the only consideration. The unknown second and third order consequences of employing nukes, including the possibility of a nuclear escalation, are real considerations with very high stakes. Crossing the nuclear threshold, even with low-yield, highly accurate nuclear weapons, may have negative long-term consequences for subsequent US security strategy, and may lower the bar for other nations to use nukes (opening Pandora’s Box). There are also many technical issues. Scientific tests and research on containing fallout, effectiveness against hard and deeply buried targets, and limiting collateral damage are not conclusive. In addition, collecting and verifying intelligence concerning rogue nations’ WMD capabilities is problematic. There are issues about the potential difficulties and dangers to US and coalition troops involved in assessing the effects of a nuclear strike against hard and deeply buried facilities. There are international law and treaty considerations. The potential reactions of allies must be weighed. Moreover, nuclear weapons carry negative psychological connotations throughout the world and for the American public. As an editorial in the Baltimore Sun

noted, “Nuclear weapons are, in some emotional way, out of bounds.”⁸ On the other hand, the consequences of *not* acting could be devastating for the US. As Secretary of Defense Donald Rumsfeld stated recently, “What must we do? Just sit here and take blows like the World Trade Center, take the blows that biological weapons would pose to us?...If your goal is to stop it, you cannot stop it by defense.”⁹

{See Annex A: Illustrative Decision Support Process for Pre-emptive Nuclear Strikes Against Iraq (page 11)}

Conclusion

Complex national security decisions, especially those that consider using nuclear weapons, deserve thoughtful, logical exploration of options by a team of relevant experts. The existing personality-driven decision making process should transform to leverage the best processes available to assist the president in time of crisis. Many decision support tools and processes that help establish good decision environments are already being used across the federal government for less dangerous decisions. These tools and processes are capable of capturing the knowledge resident in the minds of the national security team, and producing quick-turn, balanced and coordinated decision support for the president. There is no ‘right’ answer to the question of using nuclear weapons against the WMD assets of rogue regimes. There are plenty of opinions about what Bush should, or should not do in a nuclear crisis. But when a crisis emerges, the decision to use nuclear weapons will be President Bush’s personal decision. The stakes are high. As Henry Kissinger noted, “In the nuclear age, a bluff taken seriously is useful; a serious threat taken as a bluff may prove

⁸ “Nuclear Daydreams and the Pentagon,” [The Baltimore Sun](#), 28 Mar 02.

⁹ Donald Rumsfeld as quoted by Craig Gilbert in “Can US Be First to Attack Enemy?” [Milwaukee Journal Sentinel](#), 31 Mar 02.

disastrous.”¹⁰ The Bush administration seems to be taking prudent steps with its ‘offensive deterrence’ policy, its rhetoric concerning pre-emptive nuclear strike, and the NPR’s call for funding *conventional* alternatives for targeting hard & deeply buried targets. However, when it comes to an actual crisis, the team must be prepared to advise the president. The national security team owes him knowledge-based, analytical advice.

Policy and rhetoric aside, knowledge-based systems and processes provide a quick-turn first step in presenting the president a range of inter-related options, and a framework for decision in time of crisis. If developed in advance of a crisis, these processes not only prepare senior decision makers and staff for the crisis, but also illustrate areas for potential funding to expand the range of feasible options. As in the illustrative case of a pre-emptive strike against Iraq (Annex A), the process might also highlight other courses of action and steps that government agencies can take to prevent the situation from emerging. Presidents have made serious decisions throughout history without these innovative processes, but today’s security environment is increasingly volatile. Decisions can be executed almost immediately after a decision to act. Particularly with regard to decisions about employing nuclear weapons, transforming the strategic decision environment is feasible, and should be a goal for the current national security team.

¹⁰ Henry Kissinger, The White House Years, Little, Brown & Co., Boston, 1979, p.67.

Annex A

Illustrative Decision Support Process for Pre-emptive Nuclear Strikes Against Iraq

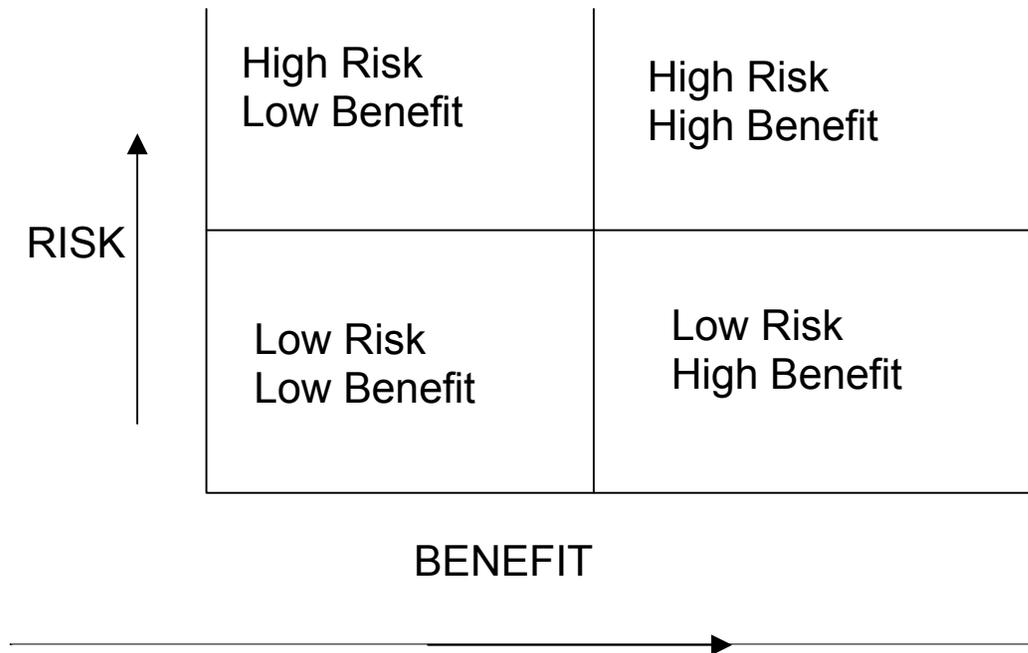
The following case study illustrates the value of transforming decision making concerning complex national security issues; in this case, the pre-emptive employment of nuclear weapons against Iraq. Every decision is scenario and personality dependent. For purpose of illustration, the notional ‘national security team’ is suddenly faced with this crisis:

- Signals interceptions indicate that Saddam Hussein has issued an order to employ bio agent against two US cities in the next 30 days.
- Intelligence reveals that Iraq has large caches of biological agent in hardened, deeply buried facilities. The agent has not yet been dispersed.
- CINCSTRAT reports that the only weapon available that can destroy the bio facilities is the B61-Mod 11 nuclear bomb, developed for earth penetration against hardened targets.

How can the national security team best develop and present the complex inter-relationship between the risks of acting/not acting against the possible benefits of acting/not acting in a short period of time? A *transformed* staff would not waste time wondering what to do. Instead, it would have processes in place that could quickly and thoroughly develop courses of action for the President to consider. The values and priority placed on each criteria developed would depend on the expert judgment of the stakeholders. Once finished, the national security team will have produced a decision graph that will assist the President in evaluating the impacts of each option. The

President will be able to adjust the values of the criteria if he disagrees with the weight applied by his team, and produce a different risk-benefit graph. The intent of these systems is to *enhance* the decision making process and provide a framework for the senior leader to quickly evaluate complex qualitative criteria against each other, not to produce *the answer* to the problem at hand. In many cases, the intent is to quantify professional judgment, and infuse it with factual data where possible. There are many different decision support processes for addressing decisions; a trained analyst would assist the national security team in selecting the most appropriate process for the issue. The following example is designed to introduce the idea of decision support process. Actual decision support processes are more involved and include additional steps, such as agreement on definitions and incorporating data from modeling runs (casualty numbers, fallout plumes, potential bomb damage assessment, etc.).

In this case, the notional team decides to develop a cost-benefit graph that will place the options into a risk-benefit-relation quadrant. Most decision makers would likely want to operate in the Low Risk, High Benefit quadrant. However, every decision is situation-specific, and often there are no options that fall into that quadrant. The graph helps the decision maker visualize how various options relate to important criteria.



The President’s interagency team gets together with a trained facilitator to develop assumptions (some of these illustrative assumptions draw upon Barry Schneider’s decision-making criteria concerning pre-emptive action¹¹):

- Saddam is undeterrable and violent
- The intelligence reports are highly credible
- US vital interests are directly threatened
- Limiting environmental damage is desirable, but falls below the threshold for this decision
- Iraqi underground WMD sites can only be destroyed with nuclear tipped penetration munitions

Next, the team develops potential courses of action. After considering many, they select four that capture the range of feasible options:

¹¹ Barry Schneider, quoted by Craig Gilbert in “Analysis Considers Nuclear Hitler,” Milwaukee Journal Sentinel, 31 Mar 2002.

- Option A: Pre-emptive nuclear strike—unannounced
- Option B: Send Iraq a demarche demanding the supervised destruction of the bio agents. If he does not agree to the terms, strike sites with nuclear weapons
- Option C: Strike Iraqi C2 targets with conventional weapons
- Option D: Do not pre-empt

Next, they develop a system to evaluate the options. Numerical values are developed through a ‘pair wise comparison’ methodology, which values each criterion against the other and assigns relative, numerical values to the alternatives. They would consider factors such as international law, possible reactions of allies, opening Pandora’s Box, and whether a pre-emptive strike could lead to “the very kind of doomsday terrorist attacks it is meant to forestall.”¹² They then list the risk factors and prioritize them. This helps build a rationale for the options based on the relative value and impact of each factor. In this case, the factors are prioritized 1-4, with 4 being the worst possible outcome. Notional results of the assessment are reflected here:

- Adversely impacts US international prestige: 2
- Causes US to lose long-term support of allies: 1
- Sets a precedence for using nuclear weapons (crosses the nuke threshold): 3
- WMD strike by Iraq: 4

They list potential beneficial aspects, and prioritize them 1-4, using the same pair wise methodology described above, 4 being the most valuable benefit:

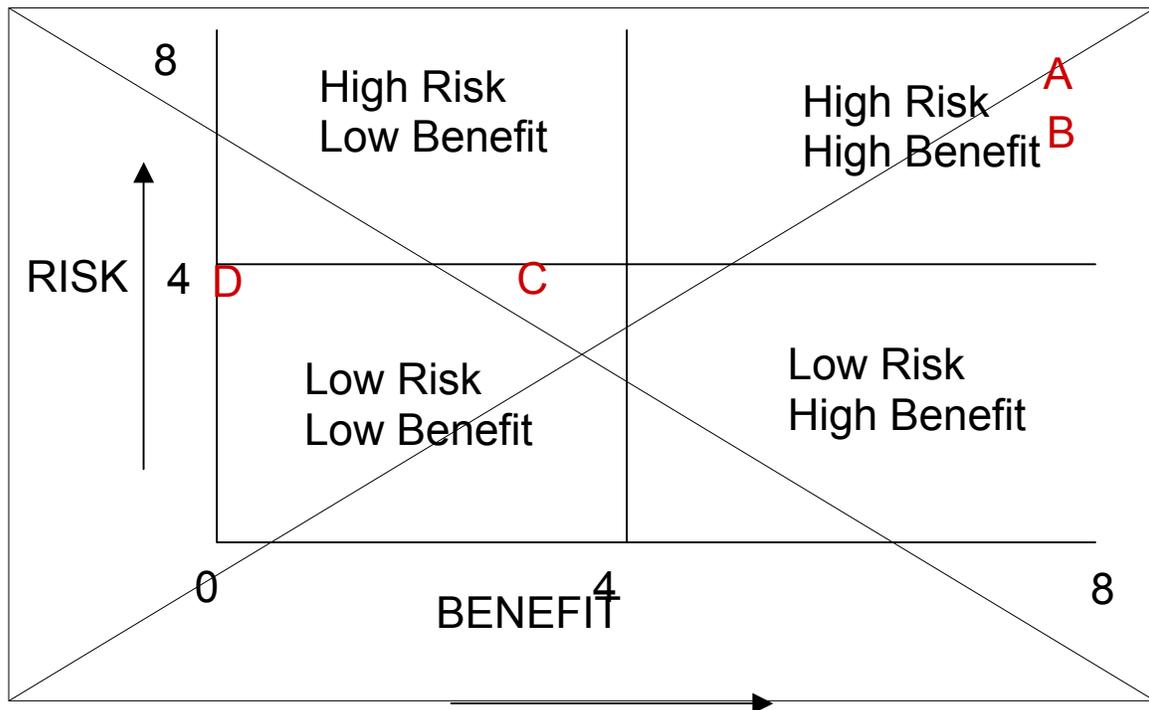
- Decreases Iraq’s capabilities to attack the US with WMD: 4
- Decreases threat of WMD attack on allies: 1

¹² Craig Gilbert, “Can US Be First to Attack?,” [Milwaukee Journal Sentinel](#), 31 Mar 02.

- Adds to credibility of US nuclear deterrent policy: 2
- Deters others from planning WMD attacks against the US: 3

Next, the facilitator leads the team in scoring the courses of action against the risks and benefits. For illustrative purposes, the options are scored like this:

- Option A: Pre-emptive nuclear strike—unannounced. Risk= 7.5, Benefit = 10
- Option B: Issue a demarche demanding the supervised destruction of the bio agents. If he does not agree to the terms, strike sites with nuclear weapons. Risk = 7, Benefit = 10
- Option C: Strike C2 targets with conventional weapons. Risk = 4, Benefit = 2.5
- Option D: Do not pre-empt. Risk = 4 , Benefit = 0



In this illustrative analysis, none of the four courses of action evaluated had Low Risk, High Benefit. The President may direct his team to develop some new courses of action that would permit him to operate in that quadrant. Or, he may decide that one of the High Risk, High Benefit options carries acceptable risk.

Bibliography

Adelman, L., *Evaluating Decision Support and Expert Systems*, John Wiley and Sons, New York, 1992.

Andriole, S. J., *Handbook of Decision Support Systems*, Tab Publishers, Blue Ridge Summit, Penn., 1989.

Canon, Scott. "Even Nuclear Arms Might not Bust Enemy Bunkers, Scientists Say." Kansas City Star, 26 Mar 02.

Fleck, John. "Sandia to Help Build Bomb." Albuquerque Journal, 27 Mar 02.

Fuerth, Leon. "Return of the Nuclear Debate." The Washington Quarterly, Autumn 2001, 24:4, pp97-108.

Gilbert, Craig. "Can US be First to Attack an Enemy?" Milwaukee Journal Sentinel, 31 Mar 02.

Gilbert, C. "Analysis Considers Nuclear Hitler." Milwaukee Journal Sentinel, 31 Mar 02.

Gottemoeller, Rose. "On Nukes, We need to Talk." Washington Post, 2 Apr 02.

Grey, Kenneth. "Nuke Em From on High." 8 Oct 01. www.wired.com

Halloran, Richard. "Leak of Nuclear Doctrine May Have Been Deliberate to Deter Rogue Nations." Honolulu Star-Bulletin, 24 Mar 02.

Kelly, Henry. "Nix the Mini-Nukes." Christian Science Monitor, 28 Mar 02.

Kerrey, Robert and Hartung, William. "Toward a New Nuclear Posture: Challenges for the Bush Administration." Arms Control Association, Apr 01.

Kissinger, Henry. The Whitehouse Years. Little, Brown & Co, Boston, 1979.

"Nuclear Weapons in Counterproliferation: Responding to the Chemical and Biological Weapons Threat." Center for Global Health and Security, www.psr.org/s11/chembionuclthreat.html

Pincus, Walter. "US Nuclear Arms Stance Modified by Policy Study." Washington Post, 23 Mar 02.

Schell, Jonathan. "US Military Policy and Threat of Nuclear War." The Nation, 1 Apr 02.

Sullivan, Elizabeth. "Is US Creating an Axis of Anxiety?" Cleveland Plain Dealer, 24 Mar 02.

Thompson, Loren. "Rethinking the Unthinkable." San Diego Union-Tribune, 24 Mar 02.

Weinberger, Sharon. "Earth Penetrating Nukes May Not Violate Restrictions, Says DOE Official." Aerospace Daily, 3 Apr 02.

www.usbr.gov/decision-process/analysis.htm, Decision Processes, "Executive Summary."