

April 3, 2003

Office of Management and Budget, 68FR 5492-5527
725 17th Street, NW
Washington, DC 20503

Dear Sir or Madam:

This letter is in response to your invitation (65 Fed. Reg. 5492-5527) to submit comments on the Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulation on the aspects of guidelines for regulatory analysis, analysis and management of emerging **risk**, and improving analysis of regulations related to homeland security. My comments are primarily related to the last of these aspects, for I believe the guidelines have inadequately addressed an emerging risk to our environment that cannot be ignored while considering regulations related to homeland security.

The following comments will specifically address the threat to our natural and cultivated environment, provide considerations for risk criteria and applicable policy considerations, and finally make recommendations for an improved risk assessment.

Environmental Resources at Risk

Some scientists have indicated that a small number of agents, poisons, diseases, and pests could be used by terrorists to decimate agricultural crops, poison river systems, or disrupt our water transportation infrastructure. We must remain vigilant in protecting our natural and cultivated resources because these and other elements of our environmental quality could be easily targeted, at great expense to the economy and, indirectly, to human health and safety.

Several environmental **risks** have not been considered which need OMB's immediate attention. There exist several potential environmental targets at risk for attacks by terrorist individuals and/or groups using biological, chemical, and/or nuclear weapons; these targets include the following:

- 1) Cultivated environment (crop and livestock)
- 2) Water resources (surface and ground water)
- 3) Bays and harbors

The adverse environmental effects associated with **an** attack on any one of these targets are numerous and far-reaching; some are discussed below.

Cultivated Environment

An attack on our cultivated environment could have an immense and immediate impact on our local, regional, and national food supply. This landscape is accessible to all people, though unfortunately, also to those who would wish us harm. Farmers would lose millions of dollars from lost crops; livestock would be affected, and the trade

industry threatened. An attack on the country's grain-producing industry or freshwater supply (*e.g.*, the introduction and eventual spread of a toxin in wheat fields or groundwater through lakes and ponds) would have the potential to adversely affect the most basic human needs of food and water. Ensuring the safety of food and water is critical to the safety and well being of this country.

Water Resources

Water is not only a necessity for humans, but also wildlife. The health of millions of people could be affected by fouled drinking water. Contamination of the country's freshwater supply through the introduction of a biological or chemical agent into lakes and ponds could have serious effects on human health as well as the environment. Hopefully, such a contaminant would be detected prior to reaching the public water supply; however, a toxic agent could kill or disease both aquatic and terrestrial wildlife living in or around the pond in which it was introduced. Additionally, such a contaminant could poison some of the country's groundwater supplies if it were to seep into the water table.

Bays and Harbors

Bays and harbors are used as ports and for recreational purposes. Many depend on these bodies of water for transportation and livelihood. An attack on a U.S. port (*e.g.*, smuggling a chemical agent into the country through imported foreign goods on a container ship) has the potential to significantly impact human health as well as the quality of life for citizens of this country, as such an attack would likely result in the reduction or even elimination of the import or export of some goods.

OMB regulations must provide efficient approaches to homeland security legislation that adequately address and minimize environmental risks. Because of our dependence on our natural and cultivated resources we recommend that OMB proactively address this threat when analyzing and developing regulations related to homeland security.

Risk Criteria for Environmental Resources

The process to improve homeland security regulatory analysis by incorporating environmental impacts must include the establishment of risk factors and assessment criteria. Priorities must be assigned to the environmental systems identified as being at risk from terrorist acts, in terms of environmental consequences and externalities, in addition to the direct human health and safety effects. The criteria are a means to measure and weigh those environmental risks.

Suggested risk criteria are grouped by their consequences, and presented in order of descending impact in terms of immediacy and direct human harm in the following four paragraphs. Examples of environmental systems pertinent to the application of these criteria are provided with each group. OMB regulations must consider these risks when developing federal legislation related to protecting the United States from acts of terrorism.

Fundamental Human Needs

The first group of recommended risk assessment criteria consists of those relating to how the environment impacts fundamental human needs, wherein public safety and health are affected directly and indirectly by terrorist acts on environmental resources, such as air and water. Terrorist acts may cause environmental resources to become vectors of human harm. The human needs include food, air, water and shelter. Examples of environmental system impacts to which these criteria apply are the direct human health effects of poisoning of drinking water, and reduction of the food supply through livestock destruction from Foot and Mouth disease. More indirect examples are destruction of fisheries from poisoned water, genetically altered crops through introduction of foreign strains, and burning of oil fields, dumps, etc. to create concentrated air pollution.

Psychological Impacts

The second category of suggested risk assessment criteria is psychological impacts from terrorist acts upon the environment. Attacks on the environment can be expected to adversely affect public morale and perception. Speed of impact is a large determinant of psychological effects; immediate environmental damage will engender greater fear or rage, whereas long-term effects may be much less perceptible, although possibly more damaging to the environment. The more direct examples to which the psychological risk criteria apply are children and the elderly suffering from concentrated air pollution or environmentally introduced pathogens (through water, crops, etc.). Less direct examples of psychological impact from the environment to which are destruction of natural visual appeal, (such as loss of forests and clear streams,) loss or degradation of national treasures such as Yellowstone, Mt. Rushmore and other famous parks/monuments, and graphic images of dead or dying wildlife (through disease, poisoning, or trauma).

Economic Impacts

Economic impacts of potential terrorist attacks and impacts on the environment is the third category of suggested risk assessment criteria. Factors of production may be lost or degraded as a result of terrorist acts affecting the environment, such as availability of pure water for industry. Other examples of direct economic impacts are loss of cultivated products, loss of access to bays and harbors, and reduced tourism from loss or reduced aesthetic appeal. Secondary economic impacts could include increases in insurance rates, healthcare costs, environmental damage mitigation, elevated costs for reduced resource supply, expensive resource substitutes, and compensation to affected parties (farmers, fishers, lumber industry, etc.) The effects might conceivably even include costly legal cases involving takings with regard to loss of recreational resources.

Risk Assessment

The fourth category of suggested environmental criteria determinants is one that relates directly to risk assessment. Vulnerability determines the degree of environmental impact from a terrorist act. Vulnerability is related to the ability to defend specific resources against attack, including the existing level of protection. The environment can be considered a large amorphous entity, making it difficult to protect, and harmful effects to it are often delayed and far-reaching. The feasibility component of environmental risk from terrorism encompasses the ease of targeting (accessibility) and the prospect of

inflicting environmental harm, commensurate with terrorist objectives. *Magnitude* is a measure of the intensity and spatial extent of damage. In the long term, magnitude may be dependent on resilience of the affected environmental system. These factors directly relate to probability and impact of a terrorist attack on the environment. An attack on an unguarded water supply may be relatively easy, yet the amount of poison necessary to achieve the desired terrorist effect may be too large to be practical.

Consideration of Policy Factors

In evaluating the environmental areas and resources most at risk in a homeland security context, OMB must consider several policy factors that are unique to potential environmental terrorism.

Existing Legislation and Policy

Substantial legislation designed to prevent environmental damage already exists. While these laws are aimed at preventing or minimizing environmental impacts that result as a byproduct of business and other human activities, they were never designed to prevent an individual or organization intent on maliciously causing large-scale damage. While existing laws, regulations, and policies are not adequate for addressing terrorism, they would be an important factor that should be considered early in the policy development process.

Legal Avenues (Federal)

What are the legal precedents for the Federal government in pursuing actions against environmental threats, or recompense from responsible parties in environmental destruction? OMB needs to review and plan for the available recourse in these circumstances.

Organization

- *Emergency response mechanisms.* Emergency plans, structure, responsibilities, and resources must be in place so that the government can respond immediately and effectively to any such problem. Existing relevant emergency structures must be analyzed and modified as necessary. For those gaps where there is not currently adequate emergency structure, immediate development of such plans and capabilities would be necessary. Ability to mitigate impact as soon as an incident occurs should also be considered in conjunction with emergency response.
- *Mitigation.* What is needed to mitigate the symptoms associated with these threats? What is required to address the causes of these threats? What is the feasibility for organizing a response and establishing control? What is the timeframe involved? Where are the mitigating and control resources located? Must they be moved or built/created? Is it possible or effective to develop them? Where are the best locations for their deployment?
- *Implementation mechanisms.* At what level—international, Federal, state, or local—is this issue, or should this issue be, addressed? Is implementation best handled through a regulatory, voluntary, or incentive process? How much of

a role can and should the Federal government take in implementing policy on this threat?

- *Global cooperatives.* Environmental issues and threats span transnational boundaries. International environmental organizations and aid societies can be key resources in defending against and recovering from environmental terrorism. How much should foreign governments be included in the policy process? Which foreign governments and interested coalitions are most affected by threats to U.S. environmental issues? What resources can be applied to address these concerns internationally? What is the notification and trigger process for invoking an international response?
- *Communication.* What will be the channels for disseminating threat, mitigation, and recovery information to appropriate individuals and organizations? Who are the appropriate recipients? What is the required timeliness of this information?
 - *Confidentiality and discretion.* Homeland security information requires consideration as to the potential for compromise, both in a threat analysis and a public affairs context. What criteria will OMB use to determine what information is withheld, how, from whom, and for how long?

Funding Considerations

- *Cost/benefit analysis.* Given funding limitations and the already broad challenge of guarding against terrorism, prioritization for maximum protection for minimal cost is especially vital in the realm of environmental considerations of terrorism. Because of the typically large geographic scale of environmental targets and effects, the cost of complete prevention may be prohibitively high. In these types of cases, it may be determined that most of the funding and resources for this type of incident should go to emergency response.
- *Funding Mechanisms.* As OMB begins to implement any new programs to address current environmental vulnerabilities, it will need to consider funding. How will any preventive or emergency response structures be funded? Will the Federal government take the lead or delegate primary responsibilities down to state and local authorities? Additionally, what will be the implementation mechanisms for such programs? Will they be voluntary or regulatory?
- *Compensation.* If an environmental crisis occurred, would the government compensate affected individuals? For example, if the entire fishery of a bay or harbor were decimated, would persons dependent on the water as a way of life be compensated or otherwise receive government assistance?
- *Vulnerability of financial institutions.* What kind of impact could an environmental crisis have on financial institutions that invest in or insure environmental and agricultural enterprises? The regulations should include consideration of whether a threat could completely devastate an industry, impact numerous industries, or have a smaller local effect.

Other Policy Considerations

- *Public Opinion.* Which threats and hazards are most destructive from a public opinion perspective? Which cause the greatest psychological harm in the public's eye? The regulations should take into account the amount of fear, panic, and chaos that could result from various types of environmental and agricultural terrorist attacks.
- *Demographics.* When evaluating the risk of water, cultivated environment, and bays and harbors, certain segments of the population will be affected. The special characteristics of these demographics should be assessed as the threat could affect them differently. For example, poorer areas would likely lack the resources to address the emergency needs of even a small-scale attack. Who is affected by the threat? What recourse do these citizens have in self-protection, recompense, health care, alternative income, *etc.*? What role will interest groups have to play in determining policy? How should regionalism be addressed (*e.g.*, the heartland of America and threats to cropland; the mid-Atlantic states and threats to the Chesapeake Bay)?
- *Environmental Resilience.* It is obvious that some of the most likely environmental targets are highly resilient while others are much more sensitive and could more easily be devastated. For example, regulations should consider that some crops and livestock may be much more vulnerable to disruption and/or contamination. The reasons for such vulnerabilities may require substantial compilation of existing research on the biology and vulnerability of numerous agricultural species.

An Improved Risk Assessment

In bringing together the aforementioned items, I recommend that the following considerations be made:

Openness of the Process

Given the sensitivity of the environmental risks mentioned thus far in this comment, should the policy development process be open to the public and provide 'total disclosure of information'? I recommend balancing the public's right to know with the security implications of an open process that exposes specific vulnerabilities and strategies to people hostile to our interests.

Expertise Required Beyond the Department of Homeland Security

The scope of the environmental risks to our security is too broad to be addressed by the Department of Homeland Security alone.

- The D.H.S. was created from 27 separate departments and currently lacks the internal cohesion and internal expertise necessary to address such a complex issue.
- D.H.S.-centric deliberations will not adequately access the expertise that resides in other Federal Agencies.
- The history of addressing environmental risks, particularly as it relates to biological agents, is short in the United States. I suggest accessing friendly nation experts who have well-developed policy frameworks in these areas, for

example, Australia in the area of invasive species or Israel in the area of water resources.

- In understanding environmental risks and strategies to address them (such as crop vulnerability to invasive species or genetic modification, health implications of water quality impairment, and ecosystem resilience to disturbance), consultation with outside experts and scientists in the fields of ecology, sociology, and agriculture are essential. Peer review of analysis will be important to reach a more robust and trusted public policy.

Multilateral Development of Policy

Many of the strategies for limiting the risk of terrorism on our environment require a multilateral response. These strategies are best developed from the start with our allies.

Removing the 'Fear' From Terrorism

The psychology of the American public is an important factor to integrate into our analysis. It is possible that an act of environmental terrorism may have very little direct impact on human health and welfare. For example, poisoning a reservoir will have a limited impact due to dilution; while the panic caused by such an attack may have greater consequences. More people died of panic in traffic accidents trying to evacuate from the Three Mile Island incident than were killed in direct or indirect exposure to radiation. Moreover, the terrorist intent may be to provoke public outrage that precipitates an immediate and poorly thought out response with negative consequences for the United States. Simply put, the usual 'cost-benefit' approach to weighing risks is inadequate in evaluating the psychological and political damage terrorists want to inflict. Involving psychologists and sociologists in risk identification, risk assessment, and mitigation strategies will be necessary.

Investment in Research in Environmental Risk Assessment

The field of environmental risk analysis as it pertains to terrorist threats is underdeveloped and fraught with difficulty both in assigning the probability of attack and in understanding the impact of such an attack. As the problem is related to temporal uncertainty and structural complexity, the United States would benefit significantly funding research efforts in these areas. We need to build a literature of methods for handling indirect evidence of threat and start right away.

In conclusion, the environment is an essential building block upon which the security of our nation is built. Because attacks on it will have complex, broad-reaching implications, full consideration of threats to our environment must be included in the regulations that guide our security actions. Thank you for considering these important additional factors.

Sincerely,

Wilson Knerr