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04/03/2003 07:42:04 AM

Record Type: Record

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cc:

Subject: comments on OMB report to Congress

Attached is a word document with comments on the OMB report to Congress for Benefit-Cost analyses. Please accept our comments on behalf of a concerned citizens task force -- Richard Solomanski  
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April 2, 2003

Dear Sir or Madam:

This letter is submitted in response to your request for comments (68 Fed. Reg. 5491) regarding the Draft Report to Congress on the Costs and Benefits of Federal Regulation. Specifically, it addresses the third of the three areas for which the OMB requested comment: improving analysis of regulations related to homeland security.

This letter is submitted by a coalition on 17 concerned citizens. All future correspondence with the coalition can be sent through me. I will coordinate with coalition members.

To date, strengthening homeland security has emphasized greater protections against more traditional terrorist threats within population centers, such as the bombing of buildings and monuments. This is because terrorist attacks are often intended to frighten the populace and destroy one's sense of security. Prime targets generally include institutions of business and commerce, nuclear and other power facilities, airport and transportation centers, government buildings, and military installations, as well as places where large crowds gather, such as malls, sporting events, and parades.

While it is important to protect our cities and other infrastructure, we must not forego the development of plans to prevent and respond to actions that are perhaps less symbolic than traditional terrorist attacks but can be just as devastating, such as those that are more environmental in nature. The introduction of toxins, disease-causing organisms and/or invasive species into the air, aquatic systems or terrestrial systems will have equally serious consequences for the environment, the economy and human health.

#### **A. What environmental systems are at risk?**

The **air** that we breathe is an appealing target for terrorist action because it provides a natural pathway into the human body. Many pathogens are easily transported in air and ingested through the lungs to produce disease or death. However, wind and other weather phenomena tend to disperse airborne particles, diluting their concentrations while increasing the geographical extent of the contaminated area. Due to atmospheric conditions at certain times of the day, some regions of the country, such as Los Angeles and Denver, experience episodes of fairly stagnant air, so such locales may be in greater danger of a significant airborne attack than windier cities. However, devices like "dirty bombs" are very effective in windy conditions because the radionuclides are dispersed over a larger area, causing more widespread health effects and making clean-up costs prohibitive. Of course, any agent delivered through the air would also affect aquatic and terrestrial systems after settling, so such an attack could prove quite devastating.

Contamination of **surface water**, such as wetlands, rivers, lakes, and reservoirs, could have dramatic effects on human health and our economy, as well as causing environmental damage to critical ecosystems. In particular, wetlands are important habitats of great biological diversity, serve as rest stops for migratory birds, and filter pollutants from the environment. Much of the drinking water in American cities is taken from lakes, streams, and reservoirs, and surface water is also used extensively for irrigation of croplands. Surface water sustains animal and plant life and also replenishes groundwater supplies. Thus, the economic and environmental impacts of an attack to such aquatic systems could be widespread and produce consequences such as water shortages, the loss of fisheries and tourism, and many effects associated with the potential threats to human health - contaminated drinking water or recreation sites, the introduction and spread of any associated disease, and possible human fatalities. The corresponding clean-up and mitigation costs may also be high. For example, the cost to eradicate an accidentally-introduced exotic species, the Northern Snakehead, from one small lake in Crofton, MD, in 2002 exceeded \$100,000.

**Groundwater** is one of the most important natural resources of the United States. It is the source of approximately 40% of public drinking water, while providing drinking water to 97% of the population without access to the public system. Groundwater also makes up 30-40% of the irrigation water used by the agricultural industry, so the potential impact of a poisoned groundwater supply would be extremely far-reaching in terms of both economic and human health costs. A contaminated aquifer would have many of the same ramifications and repercussions as those described above for a surface water attack.

The United States has a wealth of land, much of which is cultivated or used for other agricultural purposes by the beef, poultry, grain, produce, and orchard industries. In fact, the Great Plains have been labeled the "breadbasket of the world" because of their extensive agricultural output. For this reason, **cultivated land** would be an enticing target for terrorist action, and the associated impacts could be felt globally as well as domestically. Introduction of a toxin, pathogen, or pest onto farm or range lands has the potential to completely disrupt commodities and other agricultural markets, induce food shortages, and directly harm human health, should the introduced agent not be detected before reaching the food supply. This could have a significant impact upon international trade as well - witness the effects of mad cow disease and foot-and-mouth disease on the associated livestock trade in Great Britain.

Because **ecosystems** have tremendous economic importance for the forestry, recreation, tourism, and drug industries - most Americans would also place a high dollar value on their aesthetic properties - it is important to extend homeland security protections to our National parks and landmarks, and to ecosystems, such as forests, grasslands, deserts, and tundra, in general. Many of these systems contain flora, fauna and other natural wonders that are unique to that specific environment and could potentially be lost if the ecosystem were destroyed or seriously damaged. The introduction of an exotic organism for which the native species have no natural defense could cause widespread ecological damage, and given the complex interactions and

interdependencies of the species within an ecosystem, the scope and degree of the environmental and economic harm would extend well beyond those associated with the individual organism directly hurt by the introduced species.

The latter consideration leads directly to some of the more complicated scenarios that must be examined with regard to protecting the environmental systems mentioned above. To more easily address threats to homeland security, we have discussed each system individually, but they obviously do not exist in isolation of one another. Instead, quite the opposite is true. They are highly interconnected, and an attack on one of these systems is unlikely to be confined to a single environmental unit. Weather phenomena, water, insects, birds, other animals, and humans can transport introduced agents and diseases to initially uninfected areas, as is now occurring with the outbreak and spread of SARS (Severe Acute Respiratory Syndrome) from China to other parts of the world through airline travel. Comprehensive plans of action must take into account the interplay among the various environments, as well as the potential effects, be they incidental damage or other side effects, caused by clean-up and mitigation of a successful terrorist attack.

## **B. How should the OMB prioritize the protection of the environmental systems that are at risk?**

Of course, the Homeland Security Department cannot immediately address all possible threats to our nation and its citizens. It must prioritize these threats and protect those systems at risk that have the highest priority. This entails developing a set of criteria to be used in the prioritization process, and several criteria are suggested here for use in ranking the aforementioned threatened environmental systems.

The **economic impact** of any possible terrorist event must be considered, including the costs of prevention and mitigation. For example, it may be prohibitively expensive to monitor all of our cultivated lands to prevent the introduction of toxins or biological agents - early detection and the prevention of the spread of the infectious agents may prove much less costly and be nearly as beneficial. Should infected food actually enter the marketplace, mitigation would likely require extensive destruction of food products (and possibly the associated farmlands) to eradicate the problem, and the response of a panicked public would likely have significant economic effects, the exact nature of which are difficult to predict.

The **extent of influence** of a successful terrorist attack must weigh heavily in determining which environmental systems to protect, and several factors can be used to define the term "extent." These include the number of humans killed or having their health compromised, the geographical size of the affected area, the number of species endangered, and the potential economic impact. Speed of detection plays an important role here because the extent of influence of a contaminant whose effects can spread, say to other geographic regions or other parts of the economy, will grow with time. Water and air can serve both to transport contaminants and to dilute them, and the relative

effects of such competing mechanisms complicate the determination of the extent of influence of many threats to homeland security.

The **vulnerability** and **sensitivity** of an environmental system should also be considered when prioritizing the importance of its protection. However, higher vulnerability does not necessarily imply higher priority for protection. For example, geographic areas that are less accessible to service vehicles are difficult to monitor, making them more vulnerable to attack, but this same inaccessibility may make these regions less symbolic or less suitable to a terrorist's intents and purposes. On the other hand, those environments that are more vulnerable because they are more sensitive to a given terrorist attack are generally more deserving of protection. Ranking areas by sensitivity includes not only determining the number and geographic extent of the species directly affected by an introduced agent, for example, but also considers factors such as the presence of endangered species, the critical place that certain habitats, such as wetlands, play in the natural ecosystem, and the locations of important historical or natural wonders that are simply irreplaceable.

The **persistence** of an environmental risk is an additional factor to consider. Some systems are very effective at dispersing or diluting any (or certain) introduced agents, as has been illustrated by the unsuccessful attempts of many terrorist organizations to develop an effective airborne toxin. Persistence prioritization should include considerations such as biological longevity (*Clostridium botulinum* spores can live for hundreds of years in the soil), half-lives of radionuclides, the pathogen's ability to spread to other species or geographic regions, the difficulty of detection of an introduced agent, and any other factors influencing the time between contamination and successful clean-up.

One of the most important components of terrorist actions is inherent in its name - **terror**. The psychological effects and accompanying reactions of the public to terrorist actions are difficult to predict and can be extremely harmful, which argues for prevention over mitigation. An example of this is the economic demise of the airline industry after September 11, 2001. Factors that can affect public perception (or "outrage") and reaction include the vulnerability of children, the size of the impacted area, the uncertainty or randomness of the event (e.g., the sniper killings in the Washington, DC, area in the fall of 2002), an inability to link the end result to a specific cause or site of introduction, and the controllability (i.e., future prevention) of the causative act. Public reaction to a terrorist attack can range from relative calm to extreme paranoia, resulting in lost work days, increased health care costs, erosion of consumer confidence, and various other types of economic instability.

### **C. What aspects of the policy should be addressed?**

Homeland security planning must incorporate both prevention and response. After assessing and prioritizing potential environmental targets, it would be prudent to address the necessary precautions that could help prevent such attacks. In the event of a terrorist attack, especially one that would pose potential human health risks, a response

system should be in place to isolate the affected area, clean up the affected area, and lessen the impact of such attacks.

The proposed system would require an expansion of duties of the Office of Homeland Security in collaboration with offices on every level: local, state, and federal, with each level taking on vital responsibilities. We would suggest a model similar to that of the Centers for Disease Control and Prevention, which utilizes local detection and national response. Appointees from local or state agencies would bear the dual responsibilities of monitoring and controlling their susceptible environments and assisting in response to possible attacks on surface water and groundwater, as well as on cultivated land. Federal agencies would be responsible for establishing emergency plans and contingencies for those systems, as well as for coordinating response with local and state authorities.

We have chosen to focus these ideas on the three “systems” that we believe are at the greatest risk: surface water, groundwater, and the cultivated environment. In our opinion, these three at-risk systems have the highest priority (i.e., the greatest number of risk criteria, as outlined in section B of this document).

To limit the effect of contaminated **surface water**, we recommend expanded testing for a set of known or probable contaminants. Scientists and technicians who live and work locally will have the best ability to recognize natural variability of solutes within their regions. Local agencies would also have the greatest opportunity to control the amounts of chemicals released into surface water by agriculture and industry. They might be able to account for variations in the amount of a substance in the water, for example, knowing that there had been a spill at a local factory or a local farm that could affect water quality but would never be classified as an act of terrorism. If a body of water was tainted in some way, and the local or state authorities detected this, then federal authorities within the Office of Homeland Security would be contacted immediately, and their action plan would be put into effect. To more effectively monitor surface water, specifically at water treatment facilities, acute definitive toxicity tests, such as MicroTOX, could be used. The MicroTOX test consists of bioluminescent bacteria that decrease in luminescence in response to deleterious compounds. The bacteria are responsive to 1500 contaminants and the test can be completed in 5 minutes. This would provide quick, effective detection of many biological and chemical contaminants that may be used to poison the drinking water supply.

By expanding the requirements for monitoring individual wells, local and state agencies could more quickly learn of the potential dangers of contaminated **groundwater**. Much like the system for surface water, local and state authorities would be responsible for testing wells, both commercial and private. Because groundwater moves so slowly, the effects of a terrorist action are not likely to be observed as quickly as for similar actions affecting surface water. Still, it would be important to have early detection, as the flow of groundwater is incompletely mapped. Streams, lakes, and rivers, for the most part, have observable boundaries, but this is not always the case with groundwater systems. Again, local officials would be most effective with the monitoring,

because they are most familiar with the local water conditions and natural variability of chemicals within the water. If chemicals were detected, federal authorities operating within the Office of Homeland Security would be contacted. Again, testing for a vast number of contaminants using tests like MicroTOX would prove very effective.

Because of the nature of crop distributions, the system used to monitor the **cultivated environment**, or farmland, should again be a collaboration among local, state, and federal offices. It would also be advisable to utilize the expertise of private landowners. Standards or norms of chemical presence should be established within any area believed to be at risk. Local, state, and federal agencies could greatly increase their ability to monitor vast amounts of land by training farmers to monitor their own fields. Such training would include recognizing the visible effects of possible contaminants on crops and the correct use of any required equipment. Additionally, agencies could increase their effectiveness by providing any necessary equipment and resources to farmers engaged in a monitoring program. Local agencies would still be responsible for monitoring, while monitoring done by “deputized” farmers would supplement the agencies’ work and speed up detection.

#### **D. How should OMB approach analysis?**

In pursuing the analysis stage of the proposed rule, the OMB should do the following:

- Bring in individuals from outside the Department of Homeland Security;
- Establish information sharing between state and local governments;
- Reexamine Appendix C due to the inadequacy of environmental aspects addressed by the proposed rule; and
- Reexamine current or create new environmental laws that will meld Homeland Security with other agencies.

Hopefully, these ideas will be pursued, resulting in better coordination among the agencies involved and among different levels of government, as well as providing an efficient and comprehensive system for maintaining human and ecosystem health.

The Department of Homeland Security is currently a conglomeration of various agencies; however, it may be more helpful to further incorporate professionals and “ordinary” people. Professionals can contribute greater insight on applicable issues, and know which measures will be most effective in remedying or preventing problems. As mentioned in Section C of this document, farmers educated about problem signs to look for in their crops can notify the authorities of potential hazards more quickly.

It is ideal to establish an information-sharing system among agencies, but this is a very difficult task. Focusing on state-to-local information sharing is probably the least daunting and most natural approach, especially when local governments perform the monitoring and are expected to inform the state. By clearly stating the working relationship in the rule, there would be fewer problems and discrepancies to address later.

In addition to clarifying interagency coordination, we would also suggest that Appendix C be reexamined. The environmental impacts and aspects are described in one short paragraph there, which is unacceptable due to the potential risks involved. The impact of biohazards on water and cultivated environments are severe, and should not be taken lightly. If our water or food supplies are contaminated, we will suffer both economic and physical harm. Our farmers and the markets will suffer financial losses, and citizens will be forced to pay higher prices for imported goods, in addition to experiencing any physical effects, which could include anything from minor irritation to death.

Historically, modifying existing laws has been difficult. Therefore, it would be best to create new environmental laws that directly address bio-terrorist actions and threats to natural resources. The new laws should address our major ecosystems: land, water, and air. The laws should outline how the government plans to monitor for potential attacks, enforce new regulations, respond in the event of an attack, and, of course, how all of this will be funded.

An analysis of the alternative methods of protecting our environmental systems from contamination by terrorists should also take into account:

- Any existing market-derived protections;
- An analysis of Benefits vs. Costs, and Cost Effectiveness Analysis of actions and regulations;
- The likelihood of compliance with required actions and regulations;
- The practicalities and costs of oversight and enforcement;
- The most appropriate (e.g., efficient) governmental division (local, state, or federal) to implement and oversee actions and regulations; and
- The consequences of action versus inaction.

Within each of these considerations are subset considerations. For example, does the private sector, through the action of market forces, provide any adequate protections, as opposed to what could be done through public regulation? How does geographic location affect the analysis? How do you account for non-quantifiable benefits?

In order to project benefits and costs in “out-years,” an appropriate discount rate must be applied - the 7% average rate of return on investment capital within the United States is unreasonably high.

Perhaps most importantly, the risks considered, and the costs to adequately protect our environmental systems, must be compared with the universe of other risks. For instance, how do controlling the effects of acid rain on our eastern forests compare to controlling the potential damage from exotics or biohazards there? Contrast the deleterious health effects of different pollutants in the air we breathe versus those associated with protecting or not protecting against airborne biohazard contaminants such as anthrax.



All of this is extremely complex, and requires interactive and ongoing information exchange among the various constituents engaged in environmental resource protection and regulation on the local, state, and federal levels. This complex issue also calls for the outside analysis of experts in the private sector and within academia.

Lastly, deciding the most efficient response to any threat to homeland security will undoubtedly take a substantial initial effort and then require ongoing information gathering for continued analytical iterations.

In summary, we recognize the importance of protecting our cities and other infrastructure from terrorist threats, but we feel that the development of plans to prevent and respond to actions that are environmental in nature is just as important. The introduction of toxins, disease-causing organisms or invasive species into the air, into aquatic systems or onto the land can have serious consequences for the environment, the economy and human health. It is for this reason that we submit this document in response to your request for comments (68 Fed. Reg. 5491) regarding the Draft Report to Congress on the Costs and Benefits of Federal Regulation.

Thank you taking the time to review and consider our comments.

Richard Solomanski