

***U.S. DEPARTMENT OF COMMERCE***  
***Office of Inspector General***

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***OFFICE OF THE SECRETARY***

*Report on Audit Survey of the  
Department of Commerce  
Natural Disaster Reduction Initiative*

*Audit Report No. STD-11600-9-0001 / July 1999*

*Office of Audits, Science and Technology Audits Division*





**UNITED STATES DEPARTMENT OF COMMERCE**  
**The Inspector General**  
Washington, D.C. 20230

July 14, 1999

**MEMORANDUM TO:** David H. Festa  
Senior Advisor to the Secretary  
for Business and Environment  
Office of the Secretary

**FROM:** Johnnie E. Frazier *Johnnie Frazier*  
Acting Inspector General

**SUBJECT:** Report on Audit Survey of the Department of Commerce Natural  
Disaster Reduction Initiative (STD-11600-9-0001)

We have completed an audit survey of the Department of Commerce's Natural Disaster Reduction Initiative (NDRI). We found that the Commerce initiative is in consonance with the overall natural disaster reduction plan for the nation issued by the National Science and Technology Council (NSTC). The Commerce plans for the initiative are developed and milestones have been established that outline the steps individual bureaus will take to achieve the goal of the initiative. If the initiative is to be beneficial for the Department, a reporting mechanism is needed to ensure that milestones and objectives can be monitored. The reporting process will help ensure that the initiative is properly implemented, adequately evaluated and maintained, and achieving the desired results. In our draft report, we recommended that you establish standard, periodic progress reports that each Commerce bureau will submit to a designated Department official for the Commerce NDRI.

In responding to our draft report, you agreed with our finding and concurred conceptually with our recommendation. As a matter of practical implementation, you thought that it would be most appropriate to house the reporting function in the National Oceanic and Atmospheric Administration which has been the focus of much of the NDRI leadership effort, and the recipient of most of the resources. With the response to our report, you asked the Under Secretary of Commerce for Oceans and Atmosphere to work with the bureaus to ensure that such reports are developed and submitted to the Office of the Secretary. Your response is provided as Attachment 2. We concur with your response to our recommendation.

Please provide your audit action plan addressing the recommendation within 60 calendar days, in accordance with Department Administrative Order 213-5. The plan should be in the format specified in Exhibit 7 of the DAO. Should you have any questions regarding the preparation of the audit action plan, please contact Mary Casey, Deputy Assistant Inspector General for Auditing, on (202) 482-1934 or Ronald Lieberman, Director, Science and Technology Audits Division, on (301) 713-2070.

We appreciate the cooperation and courtesies extended to us by Department of Commerce personnel during the audit survey.

## INTRODUCTION

Natural disasters such as hurricanes, winter storms, floods, and earthquakes, cause fatalities and inflict human suffering. In addition, they destroy property, diminish economic productivity, negatively impact the environment, and cause lingering disruptions of entire communities. During the period August 1992 to December 1995, the United States experienced structural losses amounting, on average, to about \$1 billion a week due to natural disaster. Reducing losses from natural disasters is one of the Administration's top priorities for science and technology.

The President established the National Science and Technology Council by Executive Order on November 23, 1993. This Cabinet-level council is the principal means for the President to coordinate science, space, and technology policies across the federal government. The NSTC acts as an agency for science and technology to coordinate the diverse parts of the Federal research and development enterprise.

In December 1996, the NSTC Committee on the Environment and Natural Resources, Subcommittee on Natural Disaster Reduction, issued *Natural Disaster Reduction: A Plan for the Nation*. The plan provides an interagency approach for the strategic coordination and advancement of programs, strategies, and research to reduce the social, environmental, and economic costs of natural hazards. The plan also sets forth a new approach toward natural disaster reduction, one which emphasizes long-range risk assessment, accurate and timely predictions, comprehensive community-wide planning, and building resilience to future natural hazards.

In February 1998, the Department of Commerce issued *Out of Harm's Way* - the Department's fiscal year 1999 NDRI and a strategic framework for Commerce partnerships in natural disaster reduction. In March 1998, the Secretary announced the Commerce Department NDRI. "We can do more to help prevent the damage that bad weather can do," said Secretary Daley, outlining a program that pools Department resources to help communities and businesses reduce the impact of natural disasters. "Commerce's NDRI brings together for the first time the resources of the Commerce Department to help build disaster resistant communities and jobs."

A senior scientist from the National Oceanic and Atmospheric Administration is the Department's point of contact for the initiative in the Office of Policy and Strategic Planning, Office of the Secretary. The scientist also is the chairman of the NSTC Subcommittee on Natural Disaster Reduction, which is made up of representatives from 19 federal agencies. Other government agencies involved in natural disaster reduction include the Federal Emergency Management Agency, U.S. Geological Survey, U.S. Army Corps of Engineers, National Science Foundation, Environmental Protection Agency, and the National Aeronautics and Space Administration.

Commerce bureaus and other federal departments and agencies prepared and submitted fiscal year 1999 budget requests in response to the NSTC natural disaster reduction plan for the nation. These requests were reviewed by the Office of Management and Budget as part of a high priority interagency research and development effort in natural disaster reduction.

## **PURPOSE AND SCOPE**

The purpose of our audit survey was to determine what the agencies involved have done in response to the Commerce natural disaster reduction initiative, assess the progress made to date, and identify and recommend changes for improvement. We reviewed and evaluated pertinent documents and held discussions with cognizant personnel from the Department. We reviewed the assignment of resources to the initiative, and assessed how Commerce agencies coordinated and collaborated on the overall NDRI effort.

The NDRI is an initiative and not a program established by laws and regulations. Therefore, a review of laws, regulations, and other requirements governing established programs or organizations was not relevant to our audit objectives. We did not rely on computer-processed data in performing the audit, therefore, we did not need to assess the reliability of such data. Our assessment of management controls showed that there was a weakness in the reporting on and monitoring of initiative milestones and objectives at the Department level. This subject is discussed in the findings and recommendations section of the report.

Our audit survey was conducted in the Washington, D.C. area from November 1998 to February 1999. The survey was conducted in accordance with generally accepted government auditing standards and was performed under the authority of the Inspector General Act of 1978, as amended, and Department of Commerce Organization Order 10-13, dated May 22, 1980, as amended.

## **FINDING AND RECOMMENDATION**

### **NDRI Adequately Supports National Plan, But Reporting and Monitoring Need Improvement**

We found that the Commerce initiative is in consonance with the overall natural disaster reduction plan for the nation issued by the NSTC. The Commerce strategy involves the coordinated efforts of the National Oceanic and Atmospheric Administration (NOAA), National Institute of Standards and Technology (NIST), Economic Development Administration (EDA), Bureau of Export Administration (BXA), and other Commerce bureaus in support of this initiative. However, there is no reporting to the Department by individual bureaus on accomplishment of established milestones and objectives related to NDRI. Consequently, the Department will not have adequate feedback from Commerce bureaus to determine if the NDRI

is properly implemented, adequately evaluated and maintained, and achieving the desired results in consonance with the overall natural disaster reduction initiative for the nation.

The reporting mechanism should be a periodic progress report to a designated Department official by each Commerce bureau. It should include a discussion of specific milestones and objectives that support NDRI. We do not anticipate that this will result in an elaborate reporting mechanism, but rather simplified reports that inform Department management of progress made towards accomplishment of the initiative. These reports could then form the basis for progress reports to the NSTC.

In February 1998, the Department issued *Out of Harm's Way* as the strategic framework for Commerce partnerships in natural disaster reduction. Commerce can play a major contributing role in implementing the overall national plan. It has much to offer in terms of capabilities and resources that can improve the nation's ability to reduce the impact of future natural disasters. Some of its unique capabilities that can contribute significantly to several aspects of disaster reduction are hazard identification, risk and cost assessments, forecasts and warnings, building resilience to natural disasters, community planning, and economic recovery. Also, the last twenty years have seen dramatic improvements in satellite, radar, and other remote sensing capability, computer processing and modeling capability of both storms and economic activity, and further development of information dissemination. As a result, Commerce agencies are better prepared today to model and predict natural disasters, provide warnings and forecasts, provide guidance on building standards and codes, provide data for economic assessments of natural disaster damage to both natural resources and communities, and provide data to help in the decisions required when rebuilding after a disaster.

The overall goal of NDRI is to significantly reduce the costs to society and U.S. commerce from natural disasters and the risks associated with loss of human life, injuries, and personal property, critical infrastructure systems, and natural resources. The initiative's eight objectives support the overall goal. The objectives and the milestones outlining the steps that individual bureaus will take to achieve the goal of the initiative are shown as Attachment 1 to this report.

The expected benefits from the initiative include improved lead times and accuracy of warnings and forecasts, improved hydrologic forecasts, better risk assessments, and improved mitigation guidance. The impact of the initiative on several specific industries also was noted. An example given for the communications industry, was that improved warnings of space weather events supported by the initiative could have saved a \$250 million communications satellite rendered inoperative by a solar flare.

Each participating Commerce bureau will measure results with its bureau-specific Government Performance and Results Act (GPRA) implementation. These performance measures did not change as a result of implementation of NDRI. Specific milestones outlining the steps the individual bureaus will take to achieve the objectives and the goal of the initiative have been

established. As stated above, this information is shown as an attachment to this report. For example, the funds NOAA received for the initiative in fiscal year 1999 were spread over five line offices and included as part of the following four strategic goals: Sustain Healthy Coasts, Advance Short Term Warning and Forecast Services, Build Sustainable Fisheries, and Predict and Assess Decadal to Centennial Change. NOAA has established agency performance measures for each strategic goal.

NOAA, NIST, and EDA requested budget increases to address natural disaster reduction in fiscal year 1999. Other bureaus, such as BXA, will be contributing to the initiative with existing/available funds. The amounts (in millions) requested and received were as follows:

Bureau	Requested	Received
NOAA	\$ 55.0	\$40.6
EDA	3.0	3.379
NIST	3.0	0

The largest part of the fiscal year 1999 NDRI budget received was \$23.9 million to maintain NOAA's National Weather Service operational budget infrastructure and ensure the provision of weather warnings and forecasts to the public. We were advised that for fiscal year 2000, NOAA will request \$42.1 million, and EDA and NIST will not receive any budgeted funds for NDRI. An EDA official said that EDA may subsequently receive a post-disaster supplemental appropriation.

Natural disaster reduction involves Commerce bureaus and other outside agencies cooperating to increase the overall effectiveness and productivity of federal agency programs to reduce deaths, injuries, and economic and social disruptions from natural hazards. Natural hazards kill and inflict human suffering; destroy property, economic productivity, and natural resources; harms the environment; and diverts assets from investments in our nations future. The nation's natural disaster reduction plan is extremely important to the nation and represents a major priority of the Administration for science and technology. Therefore, it is important that the Department monitor and evaluate the progress being made on implementation of its natural disaster reduction initiative. Having a standard, periodic progress reporting system will allow Department officials to monitor the accomplishment of milestones and objectives by individual Commerce bureaus to ensure that the initiative is properly implemented, adequately evaluated and maintained, and achieving the desired results in consonance with the overall natural disaster reduction plan for the nation. In addition, progress reports on the status of accomplishing the initiative will assist the Department in justifying its budget requests linked to the initiative.

## **RECOMMENDATION**

We recommended that the Senior Advisor to the Secretary for Business and Environment establish standard, periodic progress reports that each Commerce bureau will submit to a designated Department official for the Commerce NDRI.

## **AGENCY RESPONSE**

In response to our draft audit report, the Senior Advisor to the Secretary agreed with our finding that there is a need for a reporting mechanism to the Department level and concurred conceptually with our recommendation. As a matter of practical implementation, however, the Senior Advisor thought it would be most appropriate to house the reporting function in NOAA which had been the focus of much of the leadership of the NDRI effort, and the recipient of most of the resources. With the response to our report, the Senior Advisor asked the Under Secretary of Commerce for Oceans and Atmosphere to work with the bureaus to ensure that such reports are developed and submitted to the Office of Policy and Strategic Planning, Office of the Secretary.

## **OIG COMMENT**

We concur with the Senior Advisor's response to our recommendation.

Attachments

cc: Dr. D. James Baker, Under Secretary  
for Oceans and Atmosphere

**MILESTONES OUTLINING THE STEPS THAT COMMERCE BUREAUS WILL TAKE TO ACHIEVE  
THE GOAL OF THE INITIATIVE**

**Objective 1 - To identify natural hazards and assess their associated risks and costs.**

**Milestones:**

- Prepare coastal hazard risk atlases for specific locations. (NOAA) (FY 99-03)
- Develop local/regional hazard vulnerability assessment models. (NOAA) (FY 99-03)
- Interagency study of relationship of extreme events to climate variability. (NOAA) (FY 00-01)
- Prepare risk assessments for wind, floods in non-coastal areas. (NOAA) (FY 00-02)
- Prepare risk assessments for seismic disturbances, floods, droughts. (NOAA) (FY 02-03)

**Objective 2- To apply new technologies to local and regional warning and dissemination systems.**

**Milestones:**

- Complete NWS modernization (including the Advanced Weather Interactive Processing System deployment). (NOAA) (FY 01)
- Complete replacement of radiosonde network. (NOAA) (FY 99-02)
- Complete conversion of profiler network. (NOAA) (FY 01-03)
- Complete integration of Gulf stream surveillance and reconnaissance. (NOAA) (FY 00-02)
- Create integrated coastal and offshore observing system with deployment of buoys and drifters. (NOAA) (FY 00-03)
- Implement Operational Probabilistic and extend forecasts to 72 hours. (NOAA) (FY 00-01)
- Develop hurricane observing systems & models for motion & intensity change. (NOAA) (FY 00-02)
- Develop severe weather warning decision support system. (NOAA) (FY 02)
- Develop and maintain a real-time internal and external warning and forecast coordination capability. (NOAA) (FY 00-03)

**Objective 3 - To improve predictive capabilities and understanding of natural hazards.**

**Milestones:**

- Develop improved water-level statistics that reflect 1) existing hydrologic and hydraulic conditions; 2) the long lag response of the lakes to meteorological variability; 3) changes in climatic regimes; and 4) the needs of diverse Great Lakes decision-makers. (NOAA) (FY 00-02)
- Evaluate and develop structural and non-structural components and systems used in residential, commercial and public construction for resistance to hazard-induced loads and the ability to protect the structure's envelope. (NOAA) (FY 00-03)
- Coastal disaster mitigation manual for state and local governments. (NOAA) (FY 00)
- Conduct National Shoreline Policy Forum. (NOAA) (FY 00)
- Complete project to develop non-regulatory incentives for disaster mitigation. (NOAA) (FY 00)
- National Data Centers will develop a quick response information dissemination system to deliver timely information about ongoing events in the context of longer term trends. NOAA) (FY 00-03)
- Implement seasonal hydrologic forecasts using statistical El Nino-Southern Oscillation links. (NOAA) (FY 98-00)
- Implement program to quantify forecast skills. (NOAA) (FY 00-03)
- Implement program to integrate agency tool kits. (NOAA) (FY 00-03)
- Implement program to optimize water resource management schemes. (NOAA) (FY 00-03)



**Objective 4 - Transfer technology for natural disaster reduction to public sector managers and private sector business and institutions.**

**Milestones:**

- Develop and implement national Advanced Hydrological Prediction System via selected demonstration projects. (NOAA) (FY 99-03)
- Develop and disseminate information on the protection of critical infrastructure systems in cooperation with trade and professional associations. (NIST) (FY 99-03)
- Continue to develop new user display capabilities for critical information products. (NOAA) (FY 00-03)

**Objective 5 - To enhance natural disaster reduction awareness through training/education/outreach.**

**Milestones:**

- Develop and conduct an outreach program for coastal disaster mitigation guidance. (NOAA) (FY 00-01)
- Respond to state requests for disaster mitigation training. (NOAA) (FY 00-03)
- Expand outreach and training capabilities to include a cadre of coastal disaster specialist/agents.(NOAA) (FY 00-03)
- Develop and implement educational programs to inform, government, the private sector and the general public of the true individual, business and societal costs of natural disaster events. (NOAA) (FY 00-03)
- Create and implement communications strategies to encourage acceptance by the region's citizenry of the need to take personal responsibility for protecting themselves, their property and their community against losses due to natural disasters. (NOAA) (FY 00-03)
- Continue customer workshops for the development of new service products and dissemination capabilities. (NOAA) (FY 99-03)
- Continue disaster awareness consortium. (NOAA) (FY 99-03)
- Continue NOAA/FEMA emergency manager educational outreach effort. (NOAA) (FY 99-03)

**Objective 6 - To strengthen disaster mitigation capabilities of industry and local, state and Federal governments.**

**Milestones:**

- Develop guidance for state coastal management programs on use of implementation funds. (NOAA) (FY 00)
- Develop and implement disaster expertise matching program. (NOAA) (FY 00-03)
- Develop and disseminate recommendation for standards and codes for buildings, lifelines, and computer communications systems. (NIST) (FY 99-03)

**Objective 7 - To enhance post-disaster response and recovery capabilities.**

**Milestones:**

- Develop and disseminate testing and evaluation methods for condition assessment of critical infrastructure systems. (NIST) (FY 99-03)
- Participate in the establishment and operation of Commerce-wide team on mitigation technology. (NIST/NOAA/other DOC bureaus) (FY 99-03)
- Implement regulation for industrial priorities support for pre-catastrophic disaster preparation and post-catastrophic disaster response and recovery. (BXA) (FY 00-03)

**Objective 8 - To increase the export of natural disaster reduction technologies.**


**Milestones:**

- Work with industry to promote expansion of U.S. global market share for natural disaster reduction technologies and equipment. (BXA and other DOC bureaus) (FY 00-03)
- Enhance industry awareness of current licensing requirements for the export of natural disaster reduction technologies and equipment. (BXA) (FY 00-03)



June 14, 1999

MEMORANDUM TO: George E. Ross  
Assistant Inspector General for Auditing

FROM: David Festa   
Senior Advisor to the Secretary

SUBJECT: NDRI Audit/Survey

This constitutes my formal response to the audit/survey on the Natural Disaster Reduction Initiative (NDRI) carried out by your office this past winter. I very much appreciate the effort that went into the study by David Petrocci and Ozzie Boutin.

I agree with your finding that there is a need for a reporting mechanism to the Department level. This will allow us to monitor milestones and objectives, and ensure that the initiative is properly implemented, adequately evaluated and maintained, and achieving the desired results.

I concur conceptually with your recommendation that the Office of Policy and Strategic Planning (OPSP) should establish standard, periodic progress reports that each participating Commerce bureau will submit to a designated Department official for the Commerce NDRI. As a matter of practical implementation, it will be most appropriate to house this function in one of the bureaus.

Currently, the National Oceanic and Atmospheric Administration has been the focus of much of the leadership of the effort, and the recipient of most of the resources. For example, for the past eighteen months, William H. Hooke has been responsible for monitoring day-to-day progress of the NDRI at the Departmental level. Accordingly, it makes most sense to house this function in NOAA. With this memorandum I am asking that Dr. D. James Baker, Under Secretary of Commerce for Oceans and Atmosphere, work with me and the bureaus to ensure that such reports are developed and submitted to the Office of Policy and Strategic Planning annually. As you note, this should not be an elaborate reporting mechanism, but instead generate simplified reports that inform department management of progress made toward accomplishment of the initiative.

I apologize for the delayed format reply to our exit conference, which I found quite helpful. For the past month Bill has been wrapping up his format detail with OPSP, and during the transition our responsiveness slowed considerably.