procedures to comply with the Order. The BOR in the DOI publishes a safety newsletter that includes seismic safety articles. The BLM in the DOI has begun a program to increase its ability in seismic design by using computers and structural software to perform dynamic analysis.

Recommendations
The following recommendations can assist Federal agencies in developing a strong and well-coordinated program at the agency level.

- Federal agencies should ensure greater consistency in the application of Executive Order 12699 through the development of agency-wide policy directives, regulations, and procedures.

- The designation of a responsible policy level official, together with an agency Seismic Safety Coordinator, will assist in providing overall leadership in the implementation of the Order.

- Federal agencies should establish plans and schedules for fully implementing the seismic safety program before February 1, 1993, and should establish regulations or procedures for ensuring compliance with Order requirements by regional offices, field offices, and bureaus.

Adoption of Standards

Assessment Overview
Executive Order 12699 requires the use by affected Federal agencies of nationally recognized private sector standards (the national model building codes). It is anticipated that the model codes, which now provide adequately for seismic safety, will become important resources for the design and construction of all new Federal and Federally assisted buildings. There is no Federal code for seismic safety in place and Federal agencies are not expected to develop their own standards and practices, except when required for unique agency missions. Federal agencies may use local building codes if the agency determines that the codes can provide adequately for seismic safety.

In assessing compliance in this area, FEMA first reviewed the agency reports for their adoption of the recommended ICSSC design and construction standards and practices transmitted to the agencies by FEMA. As the minimum standard for all Federal agencies, the ICSSC recommended the use of the most recent edition of those standards and practices that are substantially equivalent to or exceed the seismic safety levels in the most recent or immediately preceding edition of the *NEHRP Recommended Provisions*. Further, the ICSSC determined that the model codes provided adequately for seismic safety and were appropriate

for Federal agency use in implementing the Order. Other areas evaluated by FEMA with respect to the adoption of standards included assessment of risk; use of local building codes; establishment of standards for unique programs and requirements; and procedures for the review of the adequacy of local building codes.

From the information provided for this first reporting period, the strongest effort by most agencies has been in the adoption of seismic safety standards, a key requirement of Executive Order 12699. Of the 29 Federal agencies reporting on the execution of the Order, 16 agencies state that they have adopted one or more of the ICSSC recommended model codes that are substantially equivalent to the *NEHRP Recommended Provisions*; a number of agencies involved in the direct construction of new buildings report that they were already using one or more of the standards on issuance of the Executive Order. Six agencies state that they will adopt one or more of the standards in the near future. This widespread compliance with the Order's requirement for use of these nationally recognized private sector standards and practices is an extremely important step on the part of the Federal agencies toward meeting the intent and long-term goals of Executive Order 12699.

Most agencies, however, did not address their use of local building codes or their procedures for evaluating local building codes to determine whether they can provide adequately for seismic safety. Executive Order 12699 provides that local building codes may be used by Federal agencies **if** the codes have been determined by the agency or the ICSSC to provide adequately for seismic safety. The ICSSC *Guidelines* also provide that each agency accepting local building codes as part of its seismic safety program should institute a procedure for their evaluation, and that the evaluation criteria should be established at the department level to ensure uniformity within a program and among related or similar agency programs.

The Federal agencies that are using local building codes, particularly those that are providing financial assistance, **must** assess the seismic safety adequacy of these codes. If this is not being assessed, the agencies have not fully met their responsibilities under the Executive Order.

Findings

Since the early 1950's, DOE has required the use of the seismic requirements of the UBC of the ICBO, which is formalized in Order DOE 6430.1A, *DOE General Design Criteria*. In addition, through Order DOE 6430.1A and DOE Reactor Development and Technology Standards, DOE places increased seismic loads and construction quality standards on facilities where confinement of hazardous materials is required.

The GSA adopted the requirements of the latest issue of the UBC for seismic safety in September 1989. The GSA standards are contained in the *Facilities Standards for the Public Buildings Service* (PBS/PQ-100) and are used by all contracted architects/engineers commissioned by GSA to design new buildings. The *Facilities Standards* also is used by

GSA technical staff to conduct an owner's review and review for code compliance, as required by GSA policy.

Where appropriate, GSA incorporates seismic safety into its leasing process. As GSA begins or renews leases of 10,000 square feet or more in high seismic risk areas, it gives priority to space that meets its seismic standards, even if that space is more expensive than competing offers.

For the VA, prior mandates from Congress have resulted in the development of Handbook H-08-8, *Earthquake Resistant Design Requirements for VA Hospital Facilities*. All new VA buildings are designed using the more stringent requirements of H-08-8, or current local seismic code requirements. Since the VA's extensive seismic strengthening program was initiated in 1971, approximately 130 buildings have been strengthened, are being strengthened, or are presently in the design stage of a construction project to eliminate seismic risk.

All housing constructed under HUD's mortgage insurance, subsidy, assistance, and low-rent public housing programs are required to meet or exceed HUD-established *Minimum Property Standards (MPS)*. Provisions governing the health and safety criteria applicable to multifamily housing were revised in 1984 to rely on criteria already established in nationally recognized model building codes. This revision to the MPS also was extended to care-type housing insured under HUD programs. By a separate rule in 1985, the MPS applicable to one- and two-family dwellings were revised to rely on state or local codes or one of the nationally recognized model building codes. HUD currently has in Departmental clearance a proposed rule that would amend the MPS in 24 CFR Part 200, Subpart S, to specify that seismic design is a mandatory standard for applicable housing. In addition, the rule would update a reference to a private sector seismic design standard currently incorporated into the MPS. It is anticipated that the Proposed Rule will be published in the Federal Register for public comment in FY 1993. Subject to comment, revision, and final review, a Final Rule should be published and implemented in early 1993.

The Federal Manufactured Home Construction and Safety Standards are promulgated under a regulatory program mandated by the *National Manufactured Housing Construction and Safety Standards Act of 1974* (Public Law 93-383). Under Executive Order 12699, standards for new construction regulated by HUD also are required to be implemented by February 1, 1993. To provide seismic safety considerations in the design and construction standards for manufactured housing, a Proposed Rule will be drafted in FY 1993. This proposed revision will follow rulemaking procedures similar to those for the MPS.

For many years, the Army, Navy, and Air Force have been designing their facilities to comply with nationally recognized seismic standards. All three Services use the same DOD technical manual, *Seismic Design for Buildings*, which is based on the UBC and revised routinely to agree with the current edition of the model code. The manual was completely

revised in FY 1992 and meets the requirements of Executive Order 12699. Two other Tri-Services documents, *Seismic Design Guidelines for Essential Buildings* and *Seismic Design Guidelines for Upgrading Existing Buildings*, are being revised and will be published in the next 2 to 4 years. These documents will comply with the guidance developed by the ICSSC on standards for new and existing buildings.

The NRC reports that its staff ensure that seismic criteria for licensed facilities at least meet UBC requirements. For numerous areas in which seismic criteria are applicable, the NRC has been imposing criteria that are more stringent than those required by Executive Order 12699. For example, because the worst case accident analysis for reactors is based on an extremely conservative hypothesis, the loads associated with an assumed accident can exceed those from an earthquake.

At the DOI, most bureaus (BIA, BLM, NPS, and BOR) report using the UBC. The NPS plans to use other recommended design codes in regions of the country not familiar with the UBC. Implementation of the change will be made to the NPS-50, *Guideline on Loss Management* during the next revision cycle. In the interim, NPS will use its Staff directive approach (scheduled for October 1992) to make the revision. The BOM has reported that it will recommend that the UBC, NBC, and SBC be used in design and construction; the FWS reports that all engineering activities are using the *NEHRP Recommended Provisions*. The USGS is considering a formal policy to require that designs comply with recommended codes or with the *NEHRP Recommended Provisions*.

The TVA uses the 1991 ICBO UBC, the 1992 Amendments to the SBCC Building Code, and the NRC's regulatory guides. The standards are used internally by TVA designers and externally by TVA contractors. The TVA Valley Resource Center, which has technical oversight and administrative responsibilities for grant and loan programs, has begun to promote the use of model building codes to recipients. By January 1993, TVA will legally enforce through contract language the provisions of the Executive Order to contractors and loan and grant recipients for occupiable buildings.

It is the current policy of the FDIC in new building construction to use the 1992 Supplement to the BOCA NBC, the latest revision of the BOCA Code, and/or any applicable local building code as long as the local code is determined by the FDIC to provide adequately for seismic safety.

The USPS applies the latest issue of three model codes, which currently are the 1991 ICBO UBC, the 1992 Supplement to the BOCA NBC, and the 1992 Amendments to the SBCC SBC.

In June 1991, the Smithsonian Institution issued a revision to its *Special Conditions for A/E Services*. This document, which is a part of every A/E contract, specifies the codes, standards, and regulations to be used in the design of facilities. The revised document

requires full compliance with the most recent edition of the BOCA NBC. The *Special Conditions* document will be updated by August 1992 to include the 1991 ICBO UBC and the SBCC SBC with 1992 Amendments. Because Smithsonian facilities are located in several states, the *Special Conditions* document will identify the code to be used in each state.

At the National Endowment for the Arts, the General Terms and Conditions that are distributed at the time a Challenge program grant is awarded lists the seismic safety regulations (the 1991 ICBO UBC, the 1992 Supplement to the BOCA NBC, and the 1992 Amendments to the SBCC SBC) that must be followed by grantees. To satisfy the requirement, the grantees are required to submit with their final report a certification signed by a qualified architect or engineer that the building has been designed or constructed in accordance with one of the three codes.

At FEMA, Disaster Assistance Programs is in the process of developing a method to evaluate the adequacy of the seismic safety provisions of local codes. This evaluation method will be formalized in their Public Assistance regulations.

At the EPA, building and laboratory construction standards are being developed to include implementation of the codes acceptable to achieve substantial equivalency with the most recent or immediately preceding edition of the *NEHRP Recommended Provisions*. The standards, which will be applied to all new construction for EPA, will be final by the second quarter of FY 1993.

The CIA is reviewing the recommended building codes and plans to implement seismic safety procedures.

The DHHS references the applicable national building codes through the PHS Facilities Manual. Additional amendments to the PHS Facilities Manual are in draft form and are soon to be adopted.

The DOC is reviewing various design guidelines and building codes in an effort to ascertain the procedures necessary to implement Executive Order 12699. The DOC expects to have the procedures in place and regulations issued by October 1, 1992.

The Architect of the Capitol reports that it will voluntarily follow the 1992 Supplement to the BOCA Code in the design of new buildings.

DOJ reports that it plans to adopt, at a minimum, the UBC of the ICBO. DOS has already adopted this standard.

The USDA, DOT, SBA, NSF, and DOEd do not mention the codes that they are using or those they plan to adopt.

Recommendations
The following recommendations are made to improve compliance with the requirements relating to the establishment of standards.

- All Federal agencies should adopt and consistently use one or more of the ICSSC recommended model codes found appropriate for implementation of the Order by the ICSSC.

- Federal agencies that use local building codes, particularly those agencies providing financial domestic assistance, should establish procedures and criteria for evaluating the local building codes for substantial equivalency to the seismic safety level contained in the most recent or immediately preceding edition of the *NEHRP Recommended Provisions*.

- Evaluation procedures and criteria for evaluation and use of local building codes should be established at the agency level to ensure uniformity within a program and among related or similar programs.

- Guidance should be developed to establish evaluation procedures and criteria for local building codes that are consistent across all Federal agency programs.

- Federal agencies should incorporate the requirements of Executive Order 12699 governing new building construction into their grants application and contracts requirements documents.

Program Implementation

Assessment Overview
This very broad area of assessment was based on Federal agency reporting of establishment of policies, procedures, and criteria for identifying existing and future programs, documenting and assessing compliance, ensuring uniform application of the Executive Order, and reviewing regulations and procedures every 3 years; impediments to implementation; budget initiatives; exemption criteria; unique mission requirements; notification to responsible parties of the required minimum standards and certification or statement of compliance as proof of compliance with the required minimum standards; procedures for building plan reviews; and reporting across agencies and within agencies.

The reporting by the Federal agencies on progress in the area of program implementation varied greatly in the level of detail provided. Although few agencies have a formal seismic safety implementation plan in place to provide for assessment of progress and the impact of the Order on agency operations, most agencies reported the establishment of implementation

policies and procedures. Approximately one-half of the agencies reported that they have established written procedures for program implementation, including the construction agencies which already had technical staffs in place for the design and monitoring of projects at the time of the issuance of the Order. However, few agencies have formalized procedures and criteria for identifying existing and future programs or for assessing compliance with Executive Order 12699. A significant number of agencies also do not appear to be making an adequate effort to meet their responsibilities under the Executive Order with respect to Federal assistance programs.

No Federal agency affected by Executive Order 12699 reported any impediments to the implementation of the Order or significant increases or adjustments to its budget that would assist in its execution. While the Federal agencies may not be experiencing major impediments to implementation at present, impediments may arise as a result of limitations in agency budgets. If the Federal agencies can devise ways to handle anticipated impediments, their ability to implement Executive Order 12699 will certainly be facilitated.

Only a few Federal agencies, such as HUD, GSA, EPA, FEMA, DOI, TVA, and the National Endowment for the Arts, provided information on the procedures and documentation required for monitoring compliance with building code standards. The ICSSC *Guidelines* provide detailed information on the procedures for complying with this important requirement of the Executive Order. The Federal agencies also did not address the requirement of the Executive Order on the need to review regulations and procedures at least every 3 years to incorporate new standards and practices.

Findings

A number of agencies reported the establishment of policies, procedures, and criteria for identifying existing and future programs affected by the Order. For example, at the DOE, Order DOE 6430.1A has been revised (Version 1B) to include references to the ICSSC *Guidelines* and Executive Order 12699. In addition, DOE has updated UCRL-15910, *Design and Evaluation Guidelines for Department of Energy Facilities Subjected to Natural Phenomena Hazards*. As noted above, DOE also has established a strong leadership, management, and training program to implement Executive Order 12699. Over 1,000 engineers, safety analysts, and program managers have been provided with training since 1989 in seismic safety policy, requirements, standards, and practices.

NSF will notify its grantees of the requirements of Executive Order 12699 through its standard documents: the Grant Policy Manual and the Grant General Conditions Manual, both of which are received by all grantees and their institutions.

The DHHS is in the process of developing a comprehensive seismic safety program, one purpose of which will be to identify existing and future programs.

At NASA, the Seismic Safety Coordinator has issued a department-wide letter stating that all new NASA facilities should be constructed in accordance with the ICSSC *Recommendation*. The letter also states that special seismic standards and practices may be required for unique Center missions.

DOJ reports that it will establish an implementation guideline through the Justice Property Management regulations for new construction and leasing programs. According to the DOJ report, the guideline will ensure full compliance with the Executive Order.

The Smithsonian Institution has issued a revision to its *Special Conditions,* which is made a part of every A/E contract and specifies the codes, standards, and requirements to be used in the design of facilities.

At the DOS, the current FBO criteria document, *Architectural and Engineering Design Guidelines and Criteria for New Embassy Buildings*, continues to require structural design in conformance with UBC seismic requirements.

To comply with the requirements of Executive Order 12699, the affected SBA offices, in conjunction with the SBA Office of the General Counsel, have been working on amendments to appropriate agency Standard Operating Procedures (SOP's). The SBA also reports that compliance certification will be inserted in its loan authorization form establishing the required minimum seismic safety standards to which borrowers will be held.

FEMA reports that the OE Civil Preparedness Guide (CPG) 1-3 will be reissued this year and has been revised to include eligibility conformance to seismic safety requirements. In addition, CPG 1-20, which contains technical design guidance, will be revised to reference the model codes. Steps are underway to add seismic safety requirements to all applications for FEMA financial assistance, including contracts and grants.

GSA has added recommended changes to model codes (from the ICSSC *Guidelines*) to its Seismic Design Guidelines. These changes are undergoing a peer review and will be formalized this year. Chapter 12 of the *Facilities Standards* has been revised and a new Chapter 4, Structural Engineering (including seismic design), is scheduled for publication in August 1992. For the design of buildings, standards for new construction also were adopted for lease/purchase and lease/construction in August 1990. In February 1991, a draft policy memorandum for leased space, including existing buildings, was issued. The policies are being used in the San Francisco regional office for lease acquisitions in high risk zones.

The CIA is in the process of coordinating its efforts with the GSA to develop appropriate leasing language to conform to the requirements of Executive Order 12699.

The National Endowment for the Arts has printed language in its guidelines to make applicants aware of the need to comply with the Executive Order if they pursue a grant for

new construction or restoration. The same language is included by the National Endowment in the General Terms and Conditions it issues at the time a grant is awarded.

At the National Archives, the requirements of Executive Order 12699 are being incorporated into its Presidential Libraries Manual.

The USPS seismic policy directives currently in effect were issued by the Facilities Department in October 1987 to ensure that the design and construction of all new Postal facility projects comply with the latest seismic provisions of one of the three model building codes.

Bureaus within the DOI have taken different approaches to identifying future and existing programs. For example, the FWS conducted a survey to determine if the appropriate procedures and requirements were being implemented. The OSM is in the process of compiling a list of state building code requirements in the states with SMCRA primacy to ensure that those states comply with the enforcement of the latest seismic provisions of one of the three model building codes. The BIA also is conducting a comprehensive survey of its managers and programs to assess the impact of the Order on the agency and to determine how best to implement the Executive Order.

No Federal agency affected by Executive Order 12699 reported any impediments to its implementation, the need for specific mechanisms to facilitate execution of the Order, or the establishment of exemption criteria for buildings under its jurisdiction. Some agencies addressed unique missions that require exceptional safety requirements, such as the NRC. As described above, the NRC has seismic safety requirements in place for a number of its program areas that are more stringent than those imposed by the Order.

With regard to documentation requirements, HUD reported that monitoring of compliance with proposed regulatory design and construction standards will be conducted under current review and evaluation procedures by its regional and field offices.

With regard to leased and grant-funded buildings, NASA intends to provide suggested standard language to its procurement and legal offices for insertion into new leases and grants. Facility designs at NASA are checked by a Center's in-house engineering staff for A/E contracted work and by peer review for in-house designs.

The National Archives will obtain written verification of compliance with the Order through the design and construction phases of its projects.

The National Endowment for the Arts will require certification by a qualified architect or engineer that the building has been designed in accordance with one of the three codes.

According to GSA, all contracted architects and engineers who are commissioned by GSA to design any of its new buildings use its *Facilities Standards for the Public Buildings Service* (PBS/PQ-100). GSA's technical staff also use PBS/PQ-100 to conduct an owner's review and review for code compliance, as required by GSA policy.

At the EPA, a proposed Architecture/Engineer guidance document created by FMSD includes a special requirement that completed design for all new construction projects shall be submitted with proper certification from the Registered Structural Engineer that the previous substantial equivalency has been met. The guidance document is scheduled for completion by the end of this fiscal year.

For building plan reviews, TVA uses a Hydro Board of Consultants to evaluate recommended new seismic modifications to dams and appurtenance structures.

FEMA reports that design contracts with A/E firms and Memoranda of Agreements (MOA's) with other Federal agencies are reviewed by its Office of Facilities Management.

At the DOI, FWS conducts formal reviews of design and construction; BIA designs are reviewed by agency structural engineers; and each regional engineer for BOR is provided with a copy of ICSSC RP 2.1-A to ensure that all new building construction initiated by regional offices complies with the requirements of the Order.

Three agencies addressed internal procedures for meeting the reporting requirements to FEMA. At DOI, the Seismic Safety Coordinator and agency contacts will provide the means for collecting and documenting seismic safety information. TVA reports that collecting, documenting, assessing, and reporting to FEMA is centrally coordinated through the Dam Safety Department in the Resource Group. GSA reports that procedures are in place for collecting and documenting agency seismic safety information.

Recommendations

The following recommendations may assist the Federal agencies in addressing these issues. Each Federal agency should:

- develop a Seismic Safety Plan that includes ways of assessing program progress and the impact of the Order on agency operations.
- assess its responsibilities under Federal domestic assistance programs, particularly as compliance relates to the issuance or amendment of existing regulations or procedures.
- incorporate the costs for the execution of Executive Order 12699 into its usual budget process.

- address future organizational, staffing, and budgetary implications of compliance with Executive Order 12699. As necessary, specific mechanisms should be devised to facilitate execution of the Order.

- incorporate the seismic safety requirements of Executive Order 12699 into its contract and grant application forms.

- establish review procedures to ensure that, when needed, new standards and practices are incorporated into agency regulations and procedures. The review should be conducted at least once every 3 years.

- ensure that its Seismic Safety Coordinator is technically trained, i.e., has structural engineering experience and a seismic background.

- provide other agencies with information copies of regulations, policies, standards, and procedures. This information sharing can be accomplished through the ICSSC.

Formulation of Regulations or Procedures

Assessment Overview

An important requirement of Executive Order 12699 governs the development of regulations or procedures. Under Section 4(b) of the Order, each agency must issue or amend existing regulations **or** procedures to comply with the Order by January 5, 1993. Section 8(a) of Public Law 101-614 also requires the issuance by all Federal agencies of final regulations required by Section 4(b) of the Order before February 1, 1993.

From the agency submissions, it is evident that certain issues may control whether an agency elects to formulate regulations or procedures to implement the requirements of Executive Order 12699, *i.e.*, the mission of the agency and whether the agency's construction program is implemented by regulation or controlled by internal design policy. Some Federal agencies indicate that they are not planning to develop formal regulations because they are not staffed for regulation promulgation and because they are trying to control design costs with professional staffs trained in the use of current codes and standards. Only DOE, TVA, the DOC, HUD, FEMA, DOT, and the CIA have stated that they are in the process of enacting regulations.

Since the development of regulations may not always be the best approach to implementing the Order, each agency should conduct, at a minimum, a formal assessment to determine whether procedures **or** regulations are the best method for executing Executive Order 12699. For the most part, the submissions from the agencies did not address this issue.

Findings

The TVA plans to have regulations in place by February 1, 1993 that will include seismic safety provisions for domestic assistance programs for Federal grants and loans to the private sector. The 3-year rule to implement contractually will occur in January 1993. Until then, the TVA is suggesting the use of model building codes to private sector grant and loan recipients.

The DOT is making excellent progress toward developing rules for implementing Executive Order 12699. In the near future, the DOT's Notice of Proposed Rule Making (NPRM) will be published in the Federal Register. In August 1992, DOT issued a draft Preliminary Regulatory Evaluation (PRE) for the rule implementing the Order. The PRE indicates that the proposed rule would be cost effective in terms of lives saved, buildings saved, and the value of transportation functions that would be preserved.

The DOE reports that it expects implementing procedures for new rules for financially-assisted construction to be in place by FY 1993. (Final rule changes were published by DOE in January 1992.)

Both the CIA and the DOC report that they will have regulations in place by February 1, 1993.

Disaster Assistance Programs within FEMA is drafting regulations that will require the jurisdiction with authority to either have in place or adopt a seismic code that exceeds or substantially equals the most recent or immediately preceding edition of the *NEHRP Recommended Provisions*. This will be required before project approval for FEMA funding of new building construction after a Presidentially-declared disaster. However, the regulations probably will not be in place by the deadline. On February 1, 1993, and until final regulations are implemented, FEMA will comply with the Executive Order by issuing procedural guidance. This guidance will require new construction that receives disaster assistance to be built using one of the model codes which are substantially equivalent to the *NEHRP Recommended Provisions*.

HUD intends to develop separate regulations at 24 CFR Part 37 to provide a master reference to seismic design and construction provisions of the latest editions of the model building codes. Part 37 would then be referenced in all affected Department handbooks and regulations, including those for Public and Indian Housing, Community Planning and Development, and Housing.

Recommendations
The following recommendations can assist the Federal agencies in complying with the requirement governing the establishment of regulations or procedures to implement the Executive Order.

- All affected Federal agencies should consider whether the policies and procedures implemented can satisfy the intent of Executive Order 12699, *i.e.*, each agency should assess whether regulations are necessary. Another approach to the same issue is to assess the effectiveness of the procedural approach; if procedures do not appear to be working, the agency must consider the development of regulations to execute Executive Order 12699.

- Some forum should be established whereby Federal agencies writing regulations or procedures can meet to develop consistent solutions to common problems, and to prevent contradictory approaches.

- Procedures and policy statements that have a significant impact on the public should go through the rulemaking (public review and comment) process.

Coordination

Assessment Overview
Certain aspects of coordination have received a great amount of emphasis on the part of the Federal agencies. For example, the majority of the agencies reporting have appointed a Seismic Safety Coordinator and most of the agencies are participating on the ICSSC. While these two activities are commendable, they are insufficient to fully implement Executive Order 12699. The appointment of a Seismic Safety Coordinator and participation on the ICSSC are important steps toward the establishment of a framework for coordinating the implementation of Executive Order 12699. However, a number of agencies did not provide information on the mechanisms that the Seismic Safety Coordinator, or other individuals and groups, are using to coordinate implementation of the requirements of the Order. Of all the Federal agencies reporting, DOE provided the most information on its coordination activities, including those branches responsible for oversight and coordination and the procedures by which the agency plans to ensure compliance with the Order.

Findings
Twenty-three agencies report the appointment of a Seismic Safety Coordinator, and most report that the Coordinator is a member of the ICSSC. At the DOI, the Seismic Safety Coordinator is from the BOR; however, each DOI agency also has appointed a seismic safety contact person.

The DOJ has assigned a Seismic Safety Coordinator and each bureau has assigned a seismic safety contact person.

The following agencies have not provided information on coordination activities or on the appointment of a Seismic Safety Coordinator: DOEd, and DOT.

The NRC reports that it is in the process of deciding whether to appoint a Coordinator.

The GSA reports that it does not see the need to appoint a Coordinator because it has complied with all the requirements of the Executive Order in advance of the February 1, 1993 deadline.

Some of the affected Federal agencies have established a structured administrative framework for coordinating their seismic safety programs. For example, at the DOE, the Office of Environment, Safety, and Health is responsible for representing DOE in ICSSC/NEHRP matters and for coordinating the involvement of DOE Program Offices in ICSSC activities. This Office and the Office of Nuclear Safety provide oversight of implementation of ICSSC/NEHRP requirements.

FEMA is providing technical assistance in the implementation of Executive Order 12699 through bi-monthly coordination meetings with affected FEMA program offices.

The CIA reports that its Seismic Safety Coordinator will assimilate projects to determine the applicability of building codes for a particular area. In addition, the CIA Coordinator will review construction projects so that seismic safety design and construction standards can be incorporated into construction documents.

The EPA is in the process of preparing recommendations on the most effective administrative structure for fully and properly implementing the requirements of Executive Order 12699. The recommendations will be complete before the end of this fiscal year.

At the DHHS, the Seismic Safety Coordinator has identified a network of engineers in PHS regional engineering offices. These engineers assist in coordinating DHHS seismic safety activities through their participation in ICSSC committees and workshops.

TVA interfaces with agency representatives in seismic safety through five subcommittees: Standards for New and Existing Buildings; Lifelines; Evaluation of Site Hazards; Federal Domestic Assistance Programs; and Post-Earthquake Response. TVA also holds bi-monthly coordination meetings to discuss program implementation progress throughout the agency. The TVA Seismic Safety Coordinator can issue agency-wide policies and procedures on seismic safety.

The Air Force has established a seismic screening program at the Air Force Civil Engineering Support Agency (AFCESA), Tyndall AFB, Florida.

Recommendations
The following recommendations address issues in the area of coordination.

- Consideration should be given to the designation of an agency or group, such as the ICSSC, that would take a lead role in coordination of Executive Order execution.

- At a minimum, the ICSSC should increase its efforts in coordination of Executive Order activities by the Federal agencies.

- All Federal agencies should work more closely with the ICSSC as they develop additional policies, guidelines, and procedures to comply with Executive Order 12699.

Agency Impact

Assessment Overview
Another assessment criterion for the Federal agencies was the impact of Executive Order 12699 on agency budgets and on internal agency operations. The majority of the Federal agencies reported limited or no impact on their agency budgets. Some Federal agencies, such as DOS, reported that there would be no budget impact because existing requirements surpass seismic design costs. Other agencies, such as TVA, reported that funds for the program are currently derived from existing organizational overhead budgets or from reprogramming. DOE reported that while it anticipates no increases in its budget for owned buildings, the impact of compliance could be major for its financial assistance programs. Finally, some agencies, such as the CIA, FEMA, and DOJ, discussed possible increases in construction costs because of the need to comply with the seismic safety standards.

Most agencies reported that compliance with Executive Order 12699 would result in minimal or no impact on agency operations, and that no additions to staff or significant additional funding will be required.

Similar to the discussion on possible impediments to implementation under *Program Implementation*, there was limited response on agency impact. While the Federal agencies currently may not be experiencing any impact on their organization, staffing, and budgets as a result of compliance with the Order, it is likely that, for many, there will be an impact in the future. Once again, if the Federal agencies can devise ways to anticipate the impact of

compliance on staffing, organization, and budgets, their ability to implement Executive Order 12699 will be facilitated.

Findings

In terms of impact on agency budgets, the NSF and the Army reported that there would be no impact as a result of compliance with Executive Order 12699.

The DOS reports that impact would in most cases be minimal because special physical security typically influences structural costs to a greater degree than seismic requirements. To the degree that FBO projects have included seismic criteria since the late 1970's, FBO project budgets, past and present, include costs associated with appropriate seismic design.

Some agencies reported that construction costs may rise as a result of compliance with the Order. For example, the National Preparedness Directorate within FEMA stated that construction costs for new buildings or additions may increase 1 to 5 percent based on ICSSC information. Disaster Assistance Programs within FEMA reports that total building costs could rise by 2 percent.

The CIA reports that the costs of construction contracts will increase as a result of adherence to the seismic requirements. The CIA plans to coordinate with its Comptroller's Office to ensure that appropriate funds are allocated to cover any increases in construction costs.

DOE reports that it anticipates no increases in its budget for owned buildings. However, it believes that the impact of compliance could be major where DOE provides financial assistance. According to DOE, most projects will now have to be designed and constructed to seismic standards, which will add to costs and lengthen construction schedules.

The DOJ reports that compliance with the Order may reduce competition and increase costs by requiring designers to use codes with which they are unfamiliar.

At the TVA, funds presently are derived from organizational overhead, its training budget, or from reprogramming of other funds.

GSA reports that each prospectus for a new building is submitted to Congress for approval. Cost estimates and the resulting budget, which are part of the same prospectus, are based on buildings that comply with the standards and codes adopted by GSA.

EPA will implement the Order in its budgeting for new buildings and facilities.

The FDIC will accommodate the implementation of the policy in its budget process at the time new construction projects are authorized by its Board of Directors.

According to HUD, direct appropriations are not required for compliance with Executive Order 12699. The agency's current Housing S&E budget provides for enforcement testing and data collection for manufactured housing, and limited staff resources to coordinate interagency and intra-agency activities.

DOC reports that any increases will be accommodated through the usual budget process by means of approved funding levels and authorized staffing levels.

Most agencies reported that compliance with the Order would result in minimal or no impact on agency operations. For example, five of the DOI bureaus reported there would be no impact.

According to DOE, compliance with the Executive Order may result in increased reporting requirements at DOE sites.

TVA reports that its seismic safety staff currently includes a Coordinator, a civil engineer, and a geophysicist. Compliance with the Executive Order has required TVA to centralize its focus and reassess its seismic safety efforts.

At FEMA, Disaster Assistance Programs will assume the new responsibility for evaluating local building codes for seismic safety in those Presidentially-declared disaster area jurisdictions where funds are requested for new building construction. This will require additional manpower on a contract, temporary, or permanent basis.

Recommendations

The following recommendations may assist the Federal agencies in addressing these issues.

- All Federal agencies should monitor and assess the impact of compliance with Executive Order 12699 on organization, staffing, and budgets.

- Current organizational, staffing, and budget planning should take future seismic safety requirements into account.