



February 18, 2010

MEMORANDUM FOR HEADS OF FEDERAL DEPARTMENTS AND AGENCIES

FROM: NANCY H. SUTLEY, Chair, Council on Environmental Quality

SUBJECT: DRAFT GUIDANCE FOR NEPA MITIGATION AND MONITORING

I. INTRODUCTION

In this memorandum, the Council on Environmental Quality (CEQ) proposes to provide guidance for departments and agencies of the Federal government on the mitigation and monitoring of activities undertaken in a National Environmental Policy Act (NEPA) process. Through guidance, CEQ seeks to enable agencies to create successful mitigation planning and implementation procedures with robust public involvement and monitoring programs. The Appendix to this proposed guidance provides an overview of the Department of the Army Regulation which demonstrates how an agency can exercise its responsibility to advance mitigation and monitoring when establishing its NEPA program and procedures. Agencies should consider adopting similar requirements when developing their NEPA programs and procedures. 40 C.F.R. §§ 1507.2, 1507.3.

The NEPA process was designed to ensure transparency and openness, and mitigation and monitoring should be transparent and open. This draft guidance is designed to serve that end. This draft guidance is issued pursuant to CEQ's duties and functions under Section 204 of NEPA, 42 U.S.C. § 4344, and Executive Order No. 11514 (Mar. 5, 1970) 35 Fed. Reg. 4247, *as amended by* Exec. Order No. 11991 (May 24, 1977)) and is intended to reinforce existing requirements and responsibilities. CEQ is providing this draft guidance for public review and comment. CEQ intends to issue final guidance expeditiously after reviewing public comment. CEQ does not intend for this guidance to become effective until issued in final form.

II. DISCUSSION AND GUIDANCE

Mitigation is an important mechanism for agencies to use to avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with their actions. 40 C.F.R. § 1508.2. Federal agencies typically rely upon mitigation to reduce environmental impacts through modification of proposed actions and consideration and development of mitigation alternatives during the NEPA process. Planned mitigation at times can serve to reduce the projected impacts of agency actions to below a threshold of significance or to otherwise minimize the effects of agency action. However, as identified in several studies, ongoing agency implementation and monitoring of mitigation measures is limited and in need of improvement. *See* CEQ, *NEPA: A Study of its Effectiveness After Twenty-Five Years* (Jan. 1997); NEPA Task Force, *Modernizing NEPA Implementation* (Sept. 2003); NEPA Roundtable Reports Oct. 2003-Jan. 2004 (available at <http://ceq.hss.doe.gov/ntf/roundtables.html>).

Implementing Federal agency actions and mitigation involves consideration of future impacts and conditions in an environment that is evolving and not static; therefore, monitoring can help decision-makers adapt to changed circumstances. Monitoring can also improve the quality of overall agency

decisionmaking by providing feedback on the effectiveness of mitigation techniques and commitments. With the opportunity for reducing environmental impacts through mitigation, a comprehensive approach to mitigation planning, implementation and monitoring will help ensure the integrity of the entire NEPA process.

Through this draft guidance, CEQ proposes three central goals to help improve agency mitigation and monitoring. First, proposed mitigation should be considered throughout the NEPA process. Decisions to employ mitigation measures should be clearly stated and those mitigation measures that are adopted by the agency should be identified as binding commitments to the extent consistent with agency authority, and reflected in the NEPA documentation and any agency decision documents. Second, a monitoring program should be created or strengthened to ensure mitigation measures are implemented and effective. Third, public participation and accountability should be supported through proactive disclosure of, and access to, agency mitigation monitoring reports and documents. Although these goals are broad in nature, implementing agency NEPA procedures and guidance should be employed to establish procedures that create systematic accountability and the mechanisms to accomplish those goals. 40 C.F.R. § 1507.3.

Agencies necessarily and appropriately rely upon the expertise and experience of their professional staff in determining mitigation needs, appropriate mitigation plans, and mitigation implementation. In making those determinations, the agency staff may refer to outside resources when establishing mitigation requirements in order to ensure the efficacy of the desired outcomes, including sufficient attention to ecosystem functions and values protected or restored by mitigation. A Federal agency may use outside experts when developing the mitigation and monitoring. The individuals helping to develop the measures and plans should have expert knowledge, training, and experience relevant to the resources potentially affected by the actions and, if possible, the potential effects from similar actions.

To inform performance expectations, mitigation goals should be stated clearly by specifying whether they are intended to reduce the impacts to a particular level, as in a mitigated FONSI, or adopted to achieve an environmentally preferable outcome. These should be carefully specified in terms of measurable performance standards to the greatest extent possible. The recommendation for measurable performance standards was one of the key National Research Council recommendations incorporated into the 2008 Final Compensatory Mitigation Rule promulgated jointly by the Corps of Engineers and EPA.¹

A. Mitigation in NEPA Analyses and Decisions

CEQ NEPA regulations identify mitigation in the NEPA process as measures to avoid, minimize, rectify, reduce, or compensate for environmental impacts. 40 § C.F.R. 1508.20. The CEQ regulations provide for mitigation in the form of alternatives (see 40 C.F.R. §§ 1502.14(f), 1508.25(b)(3)) and NEPA itself requires agencies to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” (42 U.S.C. § 4332(2)(E)). Furthermore, NEPA was enacted to promote efforts that will prevent or eliminate damage to the human environment.

¹ For example, in 2001, the Committee on Mitigating Wetland Losses, through the National Research Council, conducted a nationwide study evaluating compensatory mitigation, focusing on whether the process is achieving the overall goal of “restoring and maintaining the quality of the nation’s waters.” Committee on Mitigating Wetland Losses et al., *Compensating for Wetland Losses Under the Clean Water Act* 2 (2001) (“NRC”). Many of the NRC’s recommendations from the 2001 report are incorporated into the 2008 Final Compensatory Mitigation Rule promulgated jointly by the Corps of Engineers and EPA. See *Compensatory Mitigation for Losses of Aquatic Resources*, 73 Fed. Reg. 19594 (April 10, 2008) (“Compensatory Mitigation Rule”)

In addition to considering mitigation alternatives, the NEPA analysis can also consider mitigation as an integral element in the design of the proposed action. Mitigation measures included in the project design are integral components of the proposed action, are implemented with the proposed action, and should be clearly described as part of the proposed action. An example of measures that are typically included as part of the proposed action and don't involve alternatives are agency standardized best management practices such as those developed to prevent stormwater runoff or fugitive dust emissions at a construction site.

(1) Mitigation Alternatives in Environmental Impact Statements

In situations where an agency is preparing an Environmental Impact Statement (EIS), the agency will be considering reasonable alternative mitigation measures that should be included in that analysis. 40 C.F.R. §§ 1502.14(f), 1508.25(b)(3). The EIS should, and the Record of Decision must, describe those mitigation measures that the agency is adopting and committed to implementing. 40 C.F.R. § 1505.2(c).

(2) Mitigation Alternatives in Environmental Assessments

When an agency develops and makes a commitment to implement mitigation measures to avoid, minimize, rectify, reduce, or compensate for significant environmental impacts (40 C.F.R. § 1508.20), then NEPA compliance can be accomplished with an Environmental Assessment (EA) coupled with a Finding of No Significant Impact (FONSI). Using mitigation to reduce potentially significant impacts to support a FONSI enables an agency to conclude the NEPA process, satisfy NEPA requirements, and proceed to implementation without preparing an EIS. In such cases, the basis for not preparing the EIS is the commitment to perform those mitigation measures identified as necessary to reduce the environmental impacts of the proposed action to a point or level where they are determined to no longer be significant. That commitment should be presented in the FONSI and any other decision document. CEQ recognizes the appropriateness, value, and efficacy of providing for mitigation to reduce the significance of environmental impacts; consequently, when that mitigation is available and the commitment to perform it is made, there is an adequate basis for a mitigated FONSI.²

(3) Implementing Mitigation

To provide for the performance of mitigation, agencies should create internal processes to ensure that mitigation actions adopted in any NEPA process are documented and that monitoring and appropriate implementation plans are created to ensure that mitigation is carried out.³ Agency NEPA implementing procedures should require clearly documenting the commitment to mitigate the measures necessary in the environmental documents prepared during the NEPA process (40 C.F.R. § 1508.10) and in the decision

² CEQ previously stated that it would issue guidance on the propriety of an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) rather than requiring an Environmental Impact Statement (EIS) when the environmental effects of a proposal are significant but that, with mitigation, those effects are reduced to less than significant levels (1987-88 CEQ Annual Report available at <http://www.slideshare.net/whitehouse/august-1987-1988-the-eighteenth-annual-report-of-the-council-on-environmental-quality>). This proposed draft guidance approves of the use of the "mitigated FONSI" when the NEPA process results in enforceable mitigation measures and thereby amends and supplements the previously issued CEQ guidance in the 1981 Questions and Answers About the NEPA Regulations (commonly referred to as the 40 Forty Most Asked Questions, available at <http://ceq.hss.doe.gov/nepa/regs/40/40P1.HTM>).

³ See *Aligning NEPA Processes with Environmental Management Systems* (CEQ 2007) at 4 (discussing the use of environmental management systems to track implementation and monitoring of mitigation). http://ceq.hss.doe.gov/nepa/nepapubs/Aligning_NEPA_Processes_with_Environmental_Management_Systems_2007.pdf (<http://www.slideshare.net/whitehouse/aligning-nepa-processes>)

documents such as the Record of Decision. When an agency identifies mitigation in an EIS and commits to implement that mitigation to achieve an environmentally preferable outcome, or commits in an EA to mitigation to support a FONSI and proceeds without preparing an EIS, then the agency should ensure that the mitigation is adopted and implemented.

Methods to ensure implementation should include, as appropriate to the agency's underlying authority for decisionmaking, appropriate conditions in financial agreements, grants, permits or other approvals, and conditioning funding on implementing the mitigation. To inform performance expectations, mitigation goals should be stated clearly. These should be carefully specified in terms of measurable performance standards to the greatest extent possible. The agency should also identify the duration of the agency action and the mitigation measures in its decision document to ensure that the terms of the mitigation and how it will be implemented are clear.

If funding for implementation of mitigation is not available at the time the decision on the proposed action and mitigation measures is made, then the impact of a lack of funding and resultant environmental effects if the mitigation is not implemented warrant disclosure in the EA or EIS. In cases where, after analyzing the proposed actions with or without the mitigation, the agency determines that mitigation is necessary to support the FONSI or committed to in the ROD, and the necessary funding is not available, the agency may still be able to move forward with the proposed action once the funding does become available. The agencies should ensure that the expertise and professional judgment applied in determining the appropriate mitigation measures is reflected in the administrative record, and when and how those measures will be implemented are analyzed in the EA or EIS.

(4) Mitigation Failure

Mitigation commitments should be structured to include adaptive management in order to minimize the possibility of mitigation failure. However, if mitigation is not performed or does not mitigate the effects as intended by the design, the agency responsible should, based upon its expertise and judgment regarding any remaining Federal action and its environmental consequences, consider whether taking supplementary action is necessary. 40 C.F.R. 1502.9(c). In cases involving an EA with a mitigated FONSI, an EIS may have to be developed if the unmitigated impact is significant. If an EIS is required, the agency must avoid actions that would have adverse environmental impacts or limit its choice of reasonable alternatives during the preparation of an EIS. 40 C.F.R. § 1506.1(a).

A substantial mitigation failure, in either implementation or effectiveness, should trigger a response from the agency. The manner of response depends on whether there is any remaining Federal action and, if so, the opportunities that remain to address the effects of mitigation failure. In those cases where there is no remaining agency action, and the mitigation has not been effective or fully implemented, then it may be appropriate for future NEPA analyses to address the environmental consequences of the mitigation failure to ensure it is not repeated in subsequent decisions that rely on that mitigation and that environmental baselines reflect true conditions.

B. Monitoring

Under NEPA, a federal agency has a continuing duty to gather and evaluate new information relevant to the environmental impact of its actions. See 42 U.S.C. § 4332(2)(A). For agency decisions based on an EIS, the regulations require that, "a monitoring and enforcement program shall be adopted...where applicable for mitigation." 40 C.F.R. §1505.2(c). In addition, the regulations state that agencies may "provide for monitoring to assure that their decisions are carried out and should do so in important cases." 40 C.F.R. §1505.3. Monitoring plans and programs should be described or incorporated by reference in the agency decision documents.

The following are examples of factors that should be considered when prioritizing monitoring activities:

- Legal requirements from statutes, regulations, or permits;
- Protected resources (e.g., threatened or endangered species or historic site) and the proposed action's impacts on them;
- Degree of public interest in the resource or public debate over the effects of the proposed action and any reasonable mitigation alternatives on the resource; and
- Level of intensity of impacts.

Agencies have the discretion to select the form and method for monitoring, but should be sure to identify the monitoring area and establish the appropriate monitoring system.⁴ Subsequently, an effective program should be implemented, followed by a system for reporting results. For mitigation monitoring commitments that warrant rigorous oversight, an Environmental Management System (EMS), or other data or management system could serve as a useful way to integrate monitoring efforts effectively.⁵ The form and method of monitoring can be informed by the agency's past monitoring plans and programs that tracked impacts on similar resources, and plans and programs used by other agencies or entities, particularly those with an interest in the resource being monitored. Monitoring methods include agency-specific environmental monitoring, compliance assessment or auditing systems and can be part of a broader system for monitoring environmental performance, or a stand-alone element of an agency's NEPA program. Consistent with the Open Government Directive, efficient systems for reporting should make use of existing agency websites to the maximum extent practicable. OMB Memo Dec. 8 2009 (available at <http://www.whitehouse.gov/open/documents/open-government-directive>).

(1) Implementation monitoring

Implementation monitoring is designed to ensure that the mitigation measures are being performed as described in the NEPA documents and related decision documents. The responsibility for development of an implementation monitoring program depends in large part upon who will actually perform the mitigation: a cooperative non-Federal partner; a cooperating agency; the lead agency; applicant; grantee; permit holder; other responsible entity; or a combination of these. The lead Federal agency should ensure that responsible parties, mitigation requirements, and any appropriate enforcement clauses are included in documents such as authorizations, agreements, permits or contracts.⁶ Monitoring responsibility can be shared with joint lead or cooperating agencies or other entities so long as the oversight is clearly described in the NEPA documents or associated decision documents.

⁴ The Department of the Army regulations provide an example at 32 C.F.R. § 651 app. C.

⁵ An EMS provides a systematic framework for a Federal agency to monitor and continually improve its environmental performance through audits, evaluation of legal and other requirements, and management reviews. The potential for EMS supporting NEPA work is further described in "Aligning National Environmental Policy Act Processes with Environmental Management Systems" available at http://ceq.hss.doe.gov/nepa/nepapubs/Aligning_NEPA_Processes_with_Environmental_Management_Systems_2007.pdf. Fort Lewis provides an example of an effective environmental management system for monitoring purposes. (See <https://sustainablefortlewis.army.mil>) In 2001, the Department of the Army announced that they would implement a recognized environmental management standard, ISO 14001, across Army installations. ISO 14001 represents a standardized system to plan, track, and monitor environmental performance within the agency's operations.

⁶ Such enforcement clauses, including appropriate penalty clauses, should be developed based on a review of the agency's statutory and regulatory authorities.

(2) Effectiveness monitoring

Effectiveness monitoring measures the success of the mitigation effort given the expected outcomes and resulting environmental effects. Just as the identification and evaluation of mitigation measures involves the use of agency experts familiar with the predicted environmental impacts and can involve outside experts, so too can developing the means for monitoring the effectiveness of the mitigation. Sources of information within the agency, in other agencies,⁷ in State agencies as well as non-governmental sources such as local academic institutions and public groups should be considered in helping to both identify and monitor potential mitigation measures.

C. Role of the Public in Mitigation Monitoring

Equally important for purposes of this guidance, engaging the public in the environmental aspects of federal decisionmaking is a key aspect of NEPA and opportunities for public involvement in the development and implementation of monitoring plans and programs should be provided.⁸ Monitoring reporting should be used for assessing agency performance and incorporated into future agency planning and documentation.

It is the responsibility of the lead agency to make the results of relevant monitoring available to the public. 40 C.F.R. § 1505.3(d). NEPA incorporates the Freedom of Information Act (FOIA) by reference and ensures public access to documents reflecting mitigation monitoring and enforcement. 42 U.S.C. § 4332(2)(C). The “basic purpose of [the] FOIA is to ensure an informed citizenry, vital to the functioning of a democratic society, needed to check against corruption and to hold the governors accountable to the governed.” Department of Justice, *Guide to the Freedom of Information Act* 1 (2009) (citing *NLRB v. Robbins Tire & Rubber Co.*, 437 U.S. 214, 242 (1978)). Consistent with CEQ regulations, the FOIA requires agencies to make available, through “computer telecommunications” (e.g., agency websites), releasable NEPA documents and monitoring results which, because of the nature of their subject matter, are likely to become the subject of FOIA requests. 5 U.S.C. § 552(a)(2); 40 C.F.R. § 1506.6(f).

Public involvement is a key component of the NEPA review process procedural requirements, and should be fully integrated into agencies’ mitigation and monitoring processes in order to assist NEPA compliance. Mitigation and monitoring reports, access to documents, and responses to public inquiries should be readily available to the public through online or print media, as opposed to being limited to requests made directly to the agency. Consistent with the Open Government Agenda, agencies should, to the maximum extent practicable, use their web sites and information technology capabilities to make available and disseminate useful information available under FOIA, so as to promote transparency and accountability in these efforts. The methods and techniques used to provide the mitigation and monitoring information should be commensurate to the importance of the action and resources at issue.

⁷ This includes offices responsible for overseeing impacts to specific resources. Examples include the U.S. Fish and Wildlife and National Marine Fisheries Services for evaluating potential impacts to threatened and endangered species, State Historic Preservation Officers for evaluating potential impacts to historic structures, and the U.S. Army Corps of Engineers for evaluating potential wetlands impacts.

⁸ “Agencies shall: (a) Make diligent efforts to involve the public in preparing and implementing their NEPA procedures.” 40 C.F.R. § 1506.6. Furthermore, NEPA requires all agencies of the Federal government to make “information useful in restoring, maintaining, and enhancing the quality of the environment” (including information on mitigation monitoring of potentially significant adverse environmental effects) “available to States, counties, municipalities, institutions, and individuals.” 42 U.S.C. § 4332(2)(G). The CEQ regulations also require agencies to be “capable (in terms of personnel and other resources) of complying with the requirement ... (to) fulfill the requirements of section 102(2)(G).” 40 C.F.R. § 1507.2(f).

In addition to advancing accountability and transparency, public interest and input may also provide insight or perspective for improving any mitigation activities as well as providing actual monitoring assistance.

APPENDIX

Case Study: Existing Agency Mitigation Regulations & Guidance

A number of agencies already have taken actions to improve their NEPA monitoring of mitigation commitments. An example of this approach, the Department of the Army NEPA regulation, is highlighted below, because it is instructive as to how agencies may meet the goals of this Guidance.

The Department of the Army has promulgated regulations implementing NEPA for military installations and programs that include a monitoring and implementation program. These regulations are notable for their comprehensive approach to ensuring that mitigation proposed in the NEPA review process is completed and monitored for effectiveness.

a. *Mitigation Planning*

Consistent with existing CEQ guidelines, the Army's mitigation regulations place significant emphasis on the planning and implementation of mitigation measures throughout the environmental analysis process. The first step in mitigation is avoiding or minimizing harm. *See* 40 C.F.R. § 1508.2. However, when the analysis proceeds to an EA or EIS, Army regulations require that any mitigation measures be "clearly accessed and those selected for implementation will be identified in the FNSI or the ROD." 32 C.F.R. § 651.15(a)(5)(b). This is notable as the mitigation measures are binding commitments documented in the agency NEPA decision. In addition, the adoption of mitigation measures that reduce environmental impacts below the NEPA significance threshold (32 C.F.R. § 651.35(g)) are similarly binding upon the agency. When these mitigation measures result in a FNSI in a NEPA analysis, the measures are considered legally binding. 32 C.F.R. § 651.15(a)(5)(c). Because these regulations create a clear obligation for the agency to carry out any proposed mitigation adopted in the environmental review process, there is assurance that mitigation will lead to a reduction of environmental impacts in the implementation stage and include binding mechanisms for enforcement.

Another important mechanism in the Army's regulations to assure effective mitigation results is the requirement to fully fund and implement proposed mitigation measures. It is acknowledged in the regulations that "unless money is actually budgeted and manpower assigned, the mitigation does not exist." 32 C.F.R. § 651.15(a)(5)(d). As a result, a proposed action cannot proceed until all adopted mitigation measures are fully resourced or until the lack of funding is addressed in the NEPA analysis. 32 C.F.R. § 651.15(a)(5)(d). This is an important step in the planning process as mitigation benefits are unlikely to be realized unless financial and planning resources are committed through the NEPA planning process.

b. *Mitigation Monitoring*

The Army regulations recognize that monitoring is an integral part of any mitigation system. 32 C.F.R. § 651.15(a)(5)(i). As the Army regulations require, monitoring plans and implementation programs should be summarized in NEPA documentation, and should consider several important factors. These factors include anticipated changes in environmental conditions or project activities, unexpected outcomes from mitigation measures, controversy over the selected alternative, potential impacts or adverse effects on federally or state protected resources, and statutory permitting requirements. 32 C.F.R. §§ 651.15(a)(5)(h)(1-4); 651 App. C. Consideration of these factors can help prioritize monitoring efforts and anticipate possible challenges.

The Army regulations distinguish between implementation monitoring and effectiveness monitoring. Implementation monitoring ensures that mitigation commitments made in NEPA documentation are implemented. To further this objective, the Army regulations specify that these conditions must be written into any contracts furthering the proposed action. In addition, the agency or unit proposing the action is ultimately responsible for the performance of the mitigation activities. 32 C.F.R. § 651.15(a)(i)(1). In a helpful appendix to its guidance, the Army outlines guidelines for the creation of an implementation monitoring program to address contract performance, the role of cooperating agencies and responsibilities of the lead agency. 32 C.F.R. § 651 App. C.

The Army's effectiveness monitoring addresses changing conditions inherent in evolving natural systems and the potential for unexpected environmental mitigation outcomes. For this monitoring effort, the Army utilizes its Environmental Management System based on the standardized ISO 14001 protocols. *See also, Aligning NEPA Processes with Environmental Management Systems* (CEQ 2007). The core of this program is the creation of a clear and accountable system for tracking and reporting both quantitative and qualitative measures of the mitigation efforts. An action-forcing response to mitigation failure is essential to the success of any mitigation program. According to the Army regulations, if any "identified mitigation measures do not occur, so that significant adverse environmental effects could be reasonably expected to result, the [agency actor] must publish a NOI and prepare an EIS." 32 C.F.R. § 651.15(c). This is an essential response measure to changed conditions in the proposed agency action. In addition, the Army regulations address potential failures in the mitigation systems identified through monitoring. If mitigation is ineffective, the agency entity responsible should re-examine the mitigation measures and consider a different approach to mitigation. However, if mitigation measures required to reduce environmental impacts below significance levels (32 C.F.R. § 651.35(g)) are found to be ineffective, the regulations contemplate the issuance of a NOI and preparation of an EIS. 32 C.F.R. 651.15(k).

The Army regulations also provide guidance for the challenging task of defining parameters for effectiveness monitoring. These include identifying a source of expertise, using measurable and replicable technical parameters, conducting a baseline study before mitigation is commenced, using a control to isolate mitigation effects and importantly, providing timely results to allow the decision-maker to take corrective action if necessary. 32 C.F.R. § 651 App. C (g)(1-5). In addition, the regulations call for the preparation of an environmental monitoring report to determine the accuracy of the mitigation impact predictions made in the NEPA planning process. 32 C.F.R. § 651.15(l). The report is essential for agency planning and documentation and promotes public engagement in the mitigation process.

c. *Public Engagement*

The Army regulations seek to integrate robust engagement of the interested public in the mitigation monitoring program. Its regulations require the entity proposing the action to respond to inquiries from the public and other agencies regarding the status of mitigation measures adopted in the NEPA process. 32 C.F.R. § 651.15(b). In addition, the regulations find that "concerned citizens are essential to the credibility of [the] review" of mitigation effectiveness. 32 C.F.R. § 651.15(k). The Army specifies that outreach with the interested public regarding mitigation efforts is to be coordinated by the installation's Environmental Office. 32 C.F.R. § 651.15(j). These regulations bring the public a step closer to the process by designating an agency source responsible for enabling public participation and acknowledging the important role the public can play to ensure the integrity and tracking of the mitigation process. The success of agency mitigation efforts will be bolstered by public access to timely information on NEPA mitigation monitoring.