



**USAID**  
FROM THE AMERICAN PEOPLE

# RESOURCE GUIDE FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

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## ACRONYMS

ADS	Automated Directives System
AOR	Agreement Officer's Representative
BEO	Bureau Environmental Officer
CEQ	Council on Environmental Quality
CITES	Convention on the International Trade of Endangered Species
CFR	Code of Federal Regulations
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMMP	Environmental Monitoring and Management Plan
ESIA	Environmental and Social Impact Assessment
FAA	Foreign Affairs Act
FAO	Food and Agriculture Organization
GIS	Geographic information system
IEE	Initial Environmental Examination
MEO	Mission Environmental Officer
NEPA	National Environmental Policy Act
NGO	Non-governmental organization
PEA	Programmatic Environmental Assessment
REA	Regional Environmental Advisor
SIA	Social Impact Assessment
TOR	Terms of Reference
USAID	United States Agency for International Development
USG	United States Government
VEC	Valued ecosystem component

## PURPOSE AND NEED

Environmental impact assessment (EIA) is a systematic and iterative process used to review proposed projects and analyze their potential environmental and social impacts. The goal of this process is to identify project-related impacts and avoid, minimize, and mitigate adverse impacts.

This *USAID Resource Guide for Environmental and Social Impact Assessment* explains USAID's EIA process; key terms and definitions; applicable laws and regulations; and useful resources for more detailed explanations on selected topics.

The purpose of the resource guide is to serve as a reference for the assessment of environmental and social impacts associated with a proposed project or activity and the preparation of related documents. Documents typically developed include the Initial Environmental Examination (IEE), an Environmental Assessment (EA) or Programmatic Environmental Assessment (PEA), and supporting documents such as an Indigenous Peoples Plans (IPP), Resettlement Action Plan (RAP), and/or Environmental Management Plan (EMP). The resource guide can also be used to inform the internal or external review of environmental and social compliance.

# I. INTRODUCTION AND BACKGROUND

The environmental impact assessment (EIA) process is an integral part of the decision-making process for major development projects and, because of its importance for analyzing potential project-related impacts, most countries and international finance institutions have guidelines for carrying out EIA.<sup>1</sup> A large body of EIA best practice and safeguard systems exists within USAID, international finance institutions, and domestic environmental policy. Despite the proliferation of EIA processes, they are generally similar in content and scope.<sup>2</sup> All guidelines recognize the importance of the iterative nature of the EIA process throughout all phases of a development project. This *USAID Resource Guide for Environmental and Social Impact Assessment* is intended to be a resource for the EIA process, specifically for USAID review of USG-funded projects.

USAID is required by court order, executive order, and statute to utilize an EIA process to evaluate the potential impact of USAID’s activities on the environment prior to implementation (see Section 2). The agency must “fully take into account” environmental sustainability in designing and carrying out its development programs.

USAID fulfills these requirements through the Agency’s environmental procedures. These consist of:

- Federal regulation (22 CFR 216), which defines USAID’s pre-implementation EIA process; and
- Mandatory operating policies set out in USAID’s Automated Directives System (ADS), which define implementation of this process and follow-through requirements during project implementation.

22 CFR 216 (Reg. 216) establishes the process for project scoping, screening, and evaluation in order to assess whether a proposed activity will have a significant impact on the environment and to ensure that environmental factors and values are integrated into the USAID decision-making process. As USAID increasingly partners with host governments, it is anticipated that there will be a need to review projects in the context of applicable Reg. 216 requirements and relevant host country requirements, as well as international best practice. This *USAID Resource Guide for Environmental and Social Impact Assessment* is intended for use by USAID Mission Environmental Officers (MEOs), Regional Environmental Advisors (REAs), Bureau Environmental Officers (BEOs), Contract or Agreement Officer’s Representative (COR/AORs), and any individual assessing, writing, or reviewing a project that potentially has adverse impacts on the environment—and the people living within that environment.

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<sup>1</sup> For overall review information, see: [http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IA\\_web.pdf](http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IA_web.pdf).

<sup>2</sup> The terminology used to refer to these assessments differs among various regulations, host countries, and international guidelines. This resource guide will use the terminology set forth by 22 CFR 216 (Reg. 216), as outlined in Section 3. Further, the term environmental impact assessment (EIA) will be used to refer to the assessment process and should not be taken as reference to a specific type of document.

This resource guide provides information on the USAID EIA process including:

- Regulatory framework and references to applicable laws and regulations and relevant standards (Section 2 and Annex 2);
- Key terminology (Section 3 and Annex 1);
- Project review process, including the scoping process (Section 4);
- Required content for a technically robust EA (Section 5); and
- Follow-on actions, including monitoring (Section 6).

## 2. REGULATORY FRAMEWORK FOR ENVIRONMENTAL IMPACT ASSESSMENT

This section provides an overview of the regulatory framework for EIA and references the applicable laws, regulations, and relevant standards that have informed USAID's EIA process.

The FAA (1961) Part I, Section 117 requires that USAID utilize an environmental impact assessment process to evaluate the potential impact of USAID's activities on the environment prior to implementation and to "take fully into account the impact of such programs and projects upon the environment and natural resources of developing countries."

The National Environmental Policy Act (NEPA) articulates the United States Government (USG) policy that favors protecting the quality of the "human environment" and requires USG agencies to consider the impacts of their proposed activities, programs, and projects on the quality of the environment. NEPA states that "human environment" shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment (See the definition of "effects" (NEPA, Sec. 1508.8)). Further, CEQ's Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500-1508) states that the "human environment" is to be "interpreted comprehensively" to include "the natural and physical environment and the relationship of people with that environment" (40 CFR 1508.14). Agencies need to assess not only so-called, "direct" effects, but also "aesthetic, historic, cultural, economic, social, or health" effects, "whether direct, indirect, or cumulative" (40 CFR 1508.8).<sup>3</sup>

The purpose of the NEPA process is to assist USG agencies in deciding whether to undertake a proposed action, considering all reasonable alternatives, including the alternative of taking no action. The process includes a public engagement approach whereby the review affords interested parties and the public opportunities to provide input on decision-making.<sup>4</sup> Since NEPA was developed for use domestically, some of its content may be less relevant for the

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<sup>3</sup> NOAA-NMFS. 1994. Guidelines and Principles for Social Impact Assessment. [http://www.nmfs.noaa.gov/sfa/social\\_impact\\_guide.htm](http://www.nmfs.noaa.gov/sfa/social_impact_guide.htm)

<sup>4</sup> The NEPA desk guide can be accessed here (<http://www.gsa.gov/portal/content/101194>). The purposes of NEPA and the general policy are found in Section 101 of the Act.

international development context; thus, these aspects could be adapted, if needed, for use in USAID projects, activities, and programs.

Furthermore, Executive Order 12114 (1979) “Environmental Effects Abroad of Major Federal Actions”<sup>5</sup> requires that USG agencies, including USAID, comply with the spirit of the National Environmental Policy Act (NEPA) when US government agencies undertake activities/projects in foreign countries, including the development of EA documentation.

22 CFR 216 (Reg. 216) was passed in 1975 and serves as the implementing instrument for Executive Order 12114 (1979) and Foreign Assistance Act (FAA) 117 (1961). Reg. 216 sets out the general procedures that USAID shall use to ensure that environmental factors and values are integrated into the USAID decision-making process. The procedures outlined in Reg. 216 assign responsibility to USAID to assess the environmental effects of their actions, programs, and activities. Because Reg. 216 is informed by NEPA, NEPA often used as a best practice standard.

*Note:* Most countries have domestic EIA requirements, thus project documentation must comply with both the host country’s requirements and those of USAID. Ideally, one document will be prepared that fulfills the requirements of both systems.

### 3. KEY TERMINOLOGY

This section identifies the key terminology used by USAID and throughout this resource guide and how it relates to the terminology used by other federal agencies, host-country governments, international finance institutions, and non-governmental organizations (NGOs).

As noted in Section 1, a large body of impact assessment frameworks exists within the USG, host-country governments, international finance institutions, and non-governmental organizations (NGOs). The various impact assessment frameworks utilize different terminology for the documents characterizing environmental impacts. General equivalency between terms is described in Table 1. For consistency with Reg. 216, this resource guide will use the Reg. 216 terminology (e.g., Initial Environmental Examination (IEE), Environmental Assessment (EA), Programmatic Environmental Assessment (PEA) and Environmental Impact Statement (EIS)).

**Table 1. General equivalencies between environmental compliance systems**

USAID (REG. 216)	NEPA	INTERNATIONAL
Initial Environmental Examination (IEE)	Environmental Assessment	Screening: Preliminary review for potentially significant impacts
Environmental Assessment (EA)	Environmental Impact Statement (EIS)	Environmental and Social Impact Assessment (ESIA)
Programmatic Environmental Assessment (PEA)	Programmatic Environmental Impact Statement (PEIS)	No parallel
Environmental Impact Statement (EIS)	Environmental Impact Statement (EIS)	Environmental and Social Impact Assessment (ESIA)

<sup>5</sup> Executive Order 12114 (1979) is available at: <http://www.archives.gov/federal-register/codification/executive-order/12114.html>

There are four types of analysis within the USAID EA process, each described below.<sup>6</sup> The environmental compliance documentation, whether an IEE, an EA, a PEA, or an EIS, should comply with Reg. 216 requirements and refer to the CEQ Regulations and other established EIA procedures.

### 3.1 INITIAL ENVIRONMENTAL EXAMINATION

As described in Reg. 216, an IEE is the first review of the reasonably foreseeable effects of a proposed action on the environment. Its function is to provide a brief statement of the factual basis for a recommended Threshold Decision as to whether an Environmental Assessment or an Environmental Impact Statement will be required. If the project is classified with a Positive Determination, then an EA, PEA, or EIS will be required.

### 3.2 ENVIRONMENTAL ASSESSMENT

As described in Reg. 216, an EA is a detailed study of the reasonably foreseeable significant effects, both beneficial and adverse, of a proposed action on the environment of a foreign country or countries. An EA is prepared when “the proposed action will have a significant effect on the environment” (22 CFR 216.3(a)(2)(iii)). The purpose of an EA is to provide the agency and host country decision makers with a full discussion of significant environmental effects of a proposed action, including alternatives which would avoid or minimize adverse effects or enhance the quality of the environment, so that the expected benefits of development objectives can be weighed against any adverse impacts upon the human environment or any irreversible commitment of resources.

An EA shall be based upon the scoping statement and specify the underlying purpose and need. There are some situations in which the analysis will indicate that “potential effects may extend beyond the national boundaries of a recipient country and adjacent foreign nations may be affected.” In these cases, USAID will encourage “the recipient country to consult with such countries in advance of project approval and to negotiate mutually acceptable accommodations” [22 CFR 216.6 (e)(7)].

An EA is characterized by the following:

- Prepared for projects that USAID views as having significant potential environmental and social impacts.
- Includes a detailed analysis that serves to ensure the policies and goals defined in Reg. 216 are integrated into the ongoing programs and actions of the agency.
- Includes a discussion of the significant environmental and social impacts and reasonable and comparable alternatives, including the No Action Alternative.
- Includes stakeholder engagement, such as public meetings, hearings, or other meaningful engagement with potentially affected persons.

Specific content required for Environmental Assessments can be found in 22 CFR 216.6 ([http://www.usaid.gov/our\\_work/environment/compliance/22cfr216#216.6](http://www.usaid.gov/our_work/environment/compliance/22cfr216#216.6)).

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<sup>6</sup> See further description at [http://www.usaid.gov/our\\_work/environment/compliance/regulations-procedures](http://www.usaid.gov/our_work/environment/compliance/regulations-procedures).

### 3.3 PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

A PEA is developed when the project may have broader impacts or is broader in scope than activities associated with an EA. A PEA may be prepared in the following circumstances:

- Assesses a portfolio of projects and provides a broad scale analysis. Its focus is on developing broad environmental policies, programs, or plans that would apply to many future projects in a particular sector, of which the details and location(s) are not yet known.
- May address such actions as policy or strategy, land use planning, or a large program.
- May be regional in scope, often covering numerous ecosystems.
- Typically includes a range of future scenarios, often with differing objectives.
- Emphasizes cumulative effects of multiple future activities.

A PEA often includes a set of policies and maps of possible future uses, a range of alternatives, including future land use scenarios, often with differing objectives. Often the PEA assesses the impacts of many future projects, the details and location of which are not yet known. It may be necessary to analyze the potential impacts for a sector (e.g., agriculture, construction, energy, etc.) or for a larger program that will eventually contain several projects or sub-grants [22 CFR 216.6 (d)]. Per Reg. 216, the PEA may be appropriate to a) assess the environmental effects of a number of individual actions and their cumulative environmental impact in a given country or geographic area; b) the environmental impacts that are generic or common to a class of agency actions; c) other activities which are not country-specific.

### 3.4 ENVIRONMENTAL IMPACT STATEMENT

An EIS is a detailed study of the reasonably foreseeable environmental impacts, both positive and negative, of a proposed USAID action and its reasonable alternatives on the United States, the global environment, or areas outside the jurisdiction of any nation (e.g., the oceans). The content of the EIS is prescribed and the required form and content is described in 22 CFR 216.7 *infra*. Per Reg. 216, the EIS generally follows the Council on Environmental Quality (CEQ) procedures.

An EIS shall be prepared when agency actions significantly impact:

- The global environment or areas outside the jurisdiction of any nation (e.g., oceans, atmosphere, transboundary impacts);
- The environment of the United States;
- Other aspects of the environment at the discretion of the Administrator.

Within the USAID context, an EIS is required for actions whose impacts will transcend national boundaries or are outside any nation's jurisdiction, and/or will impact the global environment (22 CFR 216.7(a)). An EA in the USAID context is applicable if the anticipated impacts of an action are confined to the borders of a particular nation where the proposed action will occur. Both are full forms of environmental review.

## 4. ESSENTIAL STEPS

This section provides an overview of the essential steps in the EIA process, including a description of the approval process within USAID (Figure 1).

Developing a thorough and comprehensive EA is important for identifying, predicting, evaluating, and mitigating the environmental and social effects of project proposals prior to key decision-making. The process for evaluation of projects that may cause potentially significant adverse effects is described in 22 CFR 216.3 and 22 CFR 216.6. The steps in USAID’s process for developing an EA are designed such that the full range of potential environmental and social impacts and alternatives are evaluated by qualified experts in EIA (see Figure 1).

According to the International Association of Impact Assessment (IAIA), the objectives of the EA process are the following:<sup>7</sup>

- To ensure that environmental and social considerations are explicitly addressed and incorporated into the development decision-making process;
- To anticipate and avoid, minimize, or offset the adverse significant biophysical, social, and other relevant effects of development proposals;
- To protect the productivity and capacity of natural systems and the ecological processes that maintain their functions; and
- To promote development that is sustainable and optimizes resource use and management opportunities.

EAs often focus exclusively on environmental (e.g., biophysical) impacts, however, integrating social impacts into an EA is important for project planners and decision-makers to understand the full range of consequences of a project, plan, or program on the “human environment”. Assessing social impacts should be undertaken in parallel with the environmental impact assessment. Social impact assessment (SIA) is an integral part of the overall impact assessment process and may generate benefits for both the affected populations as well as the project proponent. Benefits can include: reduced impact on communities or individuals; enhanced benefits to those affected; avoidance of delays and obstruction; lowered costs; better community and stakeholder relationships; and improved project proposals generated from input via the SIA process.<sup>8</sup>

Social impacts can be defined as any action or activity that has an effect on how people live, work, play, relate to one another, organize to meet their needs, and function as individuals and/or society. They also refer to changes to culture, including changes to the norms, values, and beliefs. SIA is “a process that will analyze, monitor, and manage the intended and unintended social consequences, both positive and negative, of planned interventions and

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<sup>7</sup> See IAIA “Principles of Environmental Impact Assessment Best Practice at [http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IA\\_web.pdf](http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IA_web.pdf)

<sup>8</sup> UNEP. 2002. EIA Training Resource Manual. Topic 13: Social impact assessment. <http://www.unep.ch/etb/publications/EIAman/SecETopic13.pdf>

social change processes invoked by those interventions.”<sup>9</sup> The SIA process should engage communities and other stakeholders in the project development process and provide an opportunity to identify development goals, identify and maximize positive benefits, and promote a more participatory implementation process.

Social impacts are often associated with the following types of change:

- Demographic change (e.g., size and composition of resident population, influx of workers).
- Economic change (e.g., new patterns of employment).
- Environmental change (e.g., land use, natural habitat).
- Institutional change (e.g., structure of local government or traditional leadership, land tenure).

There are similarities in how social impacts and environmental impacts manifest throughout a project. All impacts can vary in:

- Desirability, ranging from the desirable to the adverse.
- Scale, extent, and duration in time and space (e.g., some may be of short duration, while others will be permanent).
- Intensity or severity as evaluated in the project context (e.g., loss of agricultural land may have a minor impact in a sparsely populated area, but it may create a more significant impact in an area where agricultural land is limited).

In order to adequately characterize social impacts, it is essential to understand the issues and potential impacts as they evolve throughout the project development process (Figure 1). Identification of stakeholders and engagement with potentially affected populations should begin in the project concept and pre-feasibility phase and should continue throughout all phases of the project. Just as environmental impacts are first considered in the early phases of project development and re-visited throughout the project, assessment of social impacts should follow the same process.

## RESOURCES

Asian Development Bank. 1997. Environmental Impact Assessment for Developing Countries in Asia, Vol. 1 – Overview. <http://www.adb.org/sites/default/files/publication/29779/eia-developing-countries-asia.pdf>

IAIA. 2015. Social Impact Assessment: Guidance for assessing and managing the social impacts of projects. <http://www.iaia.org/pdf/IAIA%202015%20Social%20Impact%20Assessment%20guidance%20document.pdf>

IAIA. 2003. Social Impact Assessment International Principles. <http://www.iaia.org/publicdocuments/special-publications/SP2.pdf>

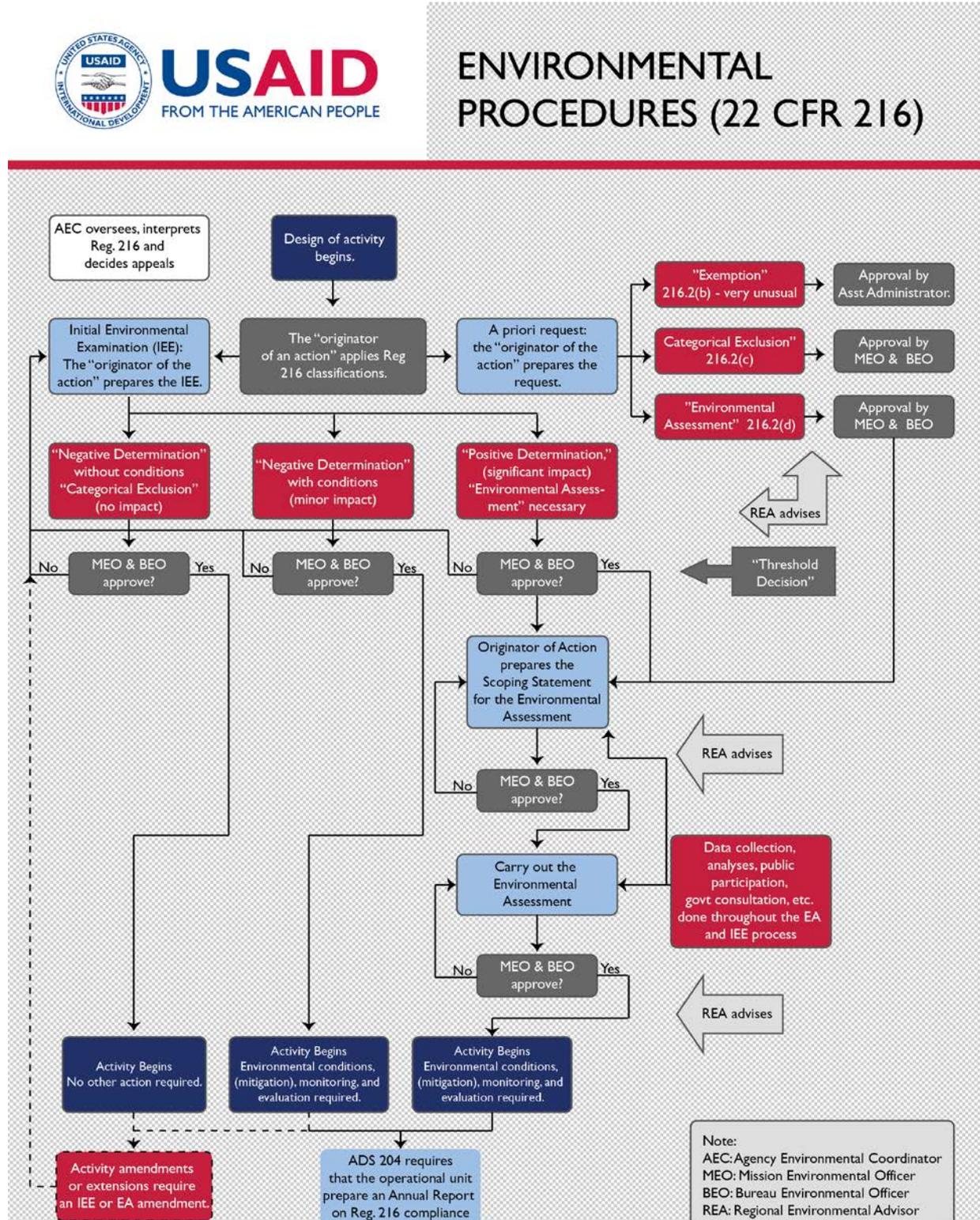
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<sup>9</sup> International Principles for Social Impact Assessment <http://www.iaia.org/publicdocuments/special-publications/SP2.pdf>

NOAA-NMFS. 1994. Guidelines and Principles for Social Impact Assessment. [http://www.nmfs.noaa.gov/sfa/social\\_impact\\_guide.htm](http://www.nmfs.noaa.gov/sfa/social_impact_guide.htm)

UNEP. 2002. EIA Training Resource Manual. Topic 13: Social impact assessment. <http://www.unep.ch/etb/publications/EIAman/SecETopic13.pdf>

Figure 1. USAID environmental compliance process when assessing a project with potential environmental and/or social impacts



## 4.1 SCREENING

The screening process is used to determine whether or not a proposal should be subject to further environmental review and, if so, at what level of detail. The output of the screening process is the IEE, which provides determinations for the projects within the portfolio of activities based on the project's reasonably foreseeable environmental and/or social impacts. The determination, referred to as a Threshold Decision, states whether a more detailed assessment will be required and the determination may be influenced by project size, duration, types of anticipated impacts, or other site- or project-specific information. Additionally, there may be country-specific requirements for additional assessment depending on the laws and norms applicable to the project.

According to 22 CFR 216.2(d), the activities listed in the accompanying textbox typically have significant adverse impacts on the environment and are likely to require an EA, PEA, or EIS.<sup>10</sup>

### **Activities that typically have significant adverse environmental impacts (216.2 (d)):**

- Programs of river basin development
- Irrigation or water management, including dams and impoundments
- Agricultural land leveling
- Drainage
- Large scale agricultural mechanization
- New lands development
- Resettlement
- Penetration road building or road improvement
- Power plants
- Industrial plants
- Potable water and sewage projects other than those that are small scale

### **Additional activities not listed in 22 CFR 216.2(d) that also typically have significant adverse environmental impacts:**

- Activities jeopardizing endangered and threatened plant and animal species, biodiversity or critical habitat
- Use or procurement of pesticides
- Activities adversely affecting relatively un-degraded tropical forest

## 4.2 SCOPING

The scoping process is used to identify the range of issues to be addressed by an EA, PEA, or EIS; it is perhaps the most important step in the EA process. Scoping occurs early in the project development process, at the design and pre-feasibility stages. The scoping process should involve persons with relevant expertise, including representatives of the host government, public and private institutions, USAID Mission staff, and contractors (22 CFR 216.3(a)(4)).

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<sup>10</sup> Environmental compliance documents for a range of USAID projects can be found in the Environmental Compliance Database (ECD) located <http://gemini.info.usaid.gov/egat/envcomp/>

*The purpose of scoping is to:*

- Identify the affected community, host government, and agency concerns and knowledge;
- Gather available baseline data and identify gaps;
- Identify key interest groups, project affected communities and to begin stakeholder engagement;
- Define alternatives to be evaluated;
- Identify significant effects and factors to be studied in detail;
- Define appropriate time and space boundaries of the EA study;
- Identify information needed for decision-making;
- Identify the key issues and alternatives that will be carried forward into the EA;
- Facilitate an efficient EA preparation process; and
- Develop the scope of work or terms of reference for the EA.

**TIMING:** Scoping should begin during the pre-feasibility and design phase and continue throughout all design phases and analysis.

#### 4.2.1 SCOPING PROCESS AND TOOLS

Scoping is an open and interactive process, including stakeholder engagement, used to identify major issues and impacts for use in decision-making and further evaluation in the EA. 22 CFR 216.6(e) requires consultation be held between USAID staff, the project-affected community, and the host government in the early stages of EA preparation (as well as later stages); therefore, consultation during scoping would be appropriate. .

Best practice typically requires stakeholder engagement with potentially affected peoples (PAP), vulnerable populations, community members, and civil society groups, among others as early as possible in the project. Stakeholder engagement should be proactive, informative, and communicative; collaborative, engaging, cooperative, inclusive, and equitable; attributable; and adapted to the context and culture.<sup>11</sup>

Stakeholder engagement may include site visits; culturally appropriate meetings with community leaders, communities or community groups, and vulnerable populations; interviews, in-person or via phone; and other types of outreach. A public hearing may be appropriate depending on the magnitude of the proposed project, the degree of public interest in the proposal, complexity of the issue, and the extent to which public involvement already has occurred via other means (22 CFR 216.8(a)).

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<sup>11</sup> See Public Participation Best Practices published by IAIA (2006) <http://www.iaia.org/publicdocuments/special-publications/SP4%20web.pdf>

The appropriate form(s) of stakeholder engagement may depend on the type of project, access to affected populations, and other considerations. In the international development context, public involvement **must** be adapted to be appropriate and culturally sensitive to the local environment. Meaningful stakeholder engagement should be conducted in the local language and use materials that will enable stakeholders to learn about the proposed project and provide their input; these materials may include posters or other visualization methods depicting the project in a culturally relevant and sensitive manner.

Another key tool used in scoping is a baseline study of the environment and social characteristics of the area. Baseline studies may gather data from published studies, databases, maps, and local knowledge, among other data sources. Data can be collected using checklists, matrices, and network diagrams.<sup>12</sup> An output of the scoping process is identification of additional in-depth studies for review and data collection needs. Specialists should be engaged in each key area identified to define the scope of the data collection, answer specific questions, and ensure that the baseline study is designed to answer those specific questions. Per the FAO, collection of baseline data should capture seasonal and annual variation of many environmental parameters. Baseline information gathering needs to be planned for in the scoping process.

## RESOURCES

CEQ Scoping Guidance <http://ceq.hss.doe.gov/nepa/regs/scope/scoping.htm>

FAO. Corporate Document Repository—Baseline data.  
[http://www.fao.org/docrep/v8350e/v8350e06.htm#baseline studies](http://www.fao.org/docrep/v8350e/v8350e06.htm#baseline%20studies)

FAO. Corporate Document Repository—  
Matrices. <http://www.fao.org/docrep/v8350e/v8350e07.htm#matrices>

FAO. Corporate Document Repository—Network diagrams.  
[http://www.fao.org/docrep/v8350e/v8350e08.htm#network diagrams](http://www.fao.org/docrep/v8350e/v8350e08.htm#network%20diagrams)

IAIA. 1999. Principles of Environmental Impact Assessment Best Practice. [http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IAIA\\_web.pdf?AspxAutoDetectCookieSupport=1](http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IAIA_web.pdf?AspxAutoDetectCookieSupport=1)

IAIA. 2006. Public Participation International Best Practice Principles. <http://www.iaia.org/publicdocuments/special-publications/SP4%20web.pdf>

UNEP. 2002. Topic 5: Scoping. <http://www.unep.ch/etb/publications/EIAman/SecETopic5.pdf>

## 4.2.2 SCOPING STATEMENT

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<sup>12</sup> See Annex 3 for examples of these tools.

The results of scoping are presented as a formal report, a Scoping Statement, to the Bureau

*Scoping Statement Content*

- Identify the important issues to be considered in the EA, such as environmental features that may be impacted, social impacts, and/or other sensitive bio-physical or social features that may be affected by the proposed action.
- Include conceptual models of receptors.
- Appropriate time and geographic boundaries of the EA study.
- Information needed for decision-making, i.e., data gaps.
- Define alternatives to be evaluated.
- Significant effects and factors to be studied in detail.
- Outlines the Terms of Reference (TOR) of the EA, including:
  - a) Requirements related to data on ecological resources within the defined geographic zone;
  - b) Time frames for all phases of the project;
  - c) Information gaps/survey needs that should be addressed in order to assess potential impacts and their significance.

Environmental Officer (BEO).

The BEO must approve the Scoping Statement prior to initiation of the EA, PEA, or EIS. Based on the information gathered and presented in the Scoping Statement, the proposed scope of the EA, PEA, or EIS may change, and in turn, the EA, PEA, or EIS builds off the information in the Scoping Statement.

### 4.3 ALTERNATIVES ANALYSIS

Based on the outcome of the scoping report, the alternatives analysis should focus on the range of alternatives identified via the scoping phase. Per Reg. 216 (22 CFR 216.6) the EA must include a discussion of alternatives which would avoid or minimize adverse effects or enhance the quality of the environment. The alternatives analysis is a core element in the EIA process as it provides a framework to evaluate the range of possible actions that would fulfill the project purpose and need. An alternatives analysis involves the steps presented in Figure 2.

**Figure 2. Steps involved in an alternatives analysis**



The goal of the alternatives analysis is to provide environmental and social impact information on a range of project alternatives to decision-makers for more fully informed decision-making

that allows the same objectives to be achieved in a more sustainable method. A rigorous and objective alternatives analysis is essential to understanding the possible impacts and range of costs and benefits associated with project alternatives. Alternatives may include variations on site selection, location within a particular site, design, materials used, project sequencing, engineering alternatives, and others.

Once scoping is completed, analytical methods should be defined and identified alternatives should be described with equivalent detail so that the alternatives analysis can be balanced. Any preliminary alternatives that do not meet the objectives of the proposed project should be screened out; this will result in a list of preliminary alternatives. The next step involves detailed analysis of the proposed action and alternatives, including the No Action alternative,<sup>13</sup> the potential impacts, and development of any appropriate mitigation measures not already included in the proposed action or alternatives. Finally, the conclusions of the alternatives analysis should be summarized and interpreted and a preferred alternative identified. The analysis and selection of a preferred alternative will be subject to external review by the relevant regulatory agencies and the public.

Tools used in alternatives analysis include conceptual models, ranking schemes (i.e., low, moderate, and high), Leopold matrices,<sup>14</sup> cost-benefit analyses, and/or checklists.<sup>15</sup> These tools enable the practitioner to compare the relative positive and negative impacts and the magnitude of alternatives in an iterative and logical approach and provides decision-makers information in a concise format to assess possible alternatives.

**TIMING:** During the project design phase and EA development (including scoping), all reasonable alternatives or the range of reasonable alternatives should be considered and discussed at a substantive, equivalent, and comparable level of detail to avoid any indication of a bias toward a particular alternative. The purpose is to ensure comparable, equivalent, and commensurate analyses of the range of reasonable alternatives.

## RESOURCES

22 CFR 216.6 [http://www.usaid.gov/our\\_work/environment/compliance/22cfr216#216.6](http://www.usaid.gov/our_work/environment/compliance/22cfr216#216.6)

CEQ/NEPA Sec. 1502.14 <http://ceq.hss.doe.gov/nepa/regs/ceq/1502.htm#1502.14>

FAO. Environmental impact assessment and environmental auditing. Section 2: Environmental impact assessment. <http://www.fao.org/docrep/005/v9933e/v9933e02.htm>

UNEP. 2002. UNEP Environmental Impact Assessment Training Resource Manual, Second Edition Topic 5 Scoping. <http://www.unep.ch/etb/publication/EIAMan/SecETopic5.pdf>. See also <http://www.unep.ch/etb/publications/EIAMan2editionToc.php> for all training materials.

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<sup>13</sup> The 'no action' alternative has two distinct interpretations a) it signifies "no change" from the current management direction or management intensity, when in the context of a management plan for a particular area, or b) related to project proposals whereby the "no action" means the proposal would not occur and resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward. (USFWS. NEPA Handbook. NEPA's Forty Most Asked Questions. [http://www.fws.gov/r9esnepa/NEPA\\_Handbook/40\\_Asked\\_Questions.pdf](http://www.fws.gov/r9esnepa/NEPA_Handbook/40_Asked_Questions.pdf))

<sup>14</sup> The Leopold matrix is a two-dimensional matrix that cross-references the activities linked to the project that are predicted to have an impact on humans and the environment and the existing environmental and social conditions that could possibly be affected by the project. See Annex 3.

<sup>15</sup> For examples of these methods and tools, see Annex 3.

## 4.4 AFFECTED ENVIRONMENT

The affected environment section “shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives” (40 CFR 1502.15).<sup>16</sup> Data and analyses should be commensurate with the significance of the impact (22 CFR 216.6(c)(4)). This evaluation may involve collection of additional baseline data, particularly for data gaps identified in the Scoping Statement, through field surveys, stakeholder engagement, and site visits. Useful data may include data on air quality, population studies, habitat studies, climate records, water quality records, terrestrial surveys, soil and sediment. It may also involve modeling of potential impacts (e.g., modeling of the different flow regimes predicted under various hydropower project alternatives).

## 4.5 ENVIRONMENTAL CONSEQUENCES

The analysis of potential impacts and mitigation measures for the project alternatives is the basis for the alternatives analysis described in section 4.3. The environmental consequences section should “include the environmental impacts of the alternatives, including the proposed action; any adverse effects that cannot be avoided should the proposed action be implemented; the relationship between the short-term uses of the environment and the maintenance and enhancement of long-term productivity; and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented” (22 CFR 216.6(c)(5)). The analysis should include consideration of both environmental and social impacts and mitigation measures for each, as appropriate.

### 4.5.1 IMPACT ANALYSIS

Per 22 CFR 216.6(c)(5), impact analysis is the process of identifying the future consequences of a proposed action and alternatives against an environmental baseline. The impact analysis should include an evaluation of the direct, indirect, and cumulative impacts<sup>17</sup> for all project phases (pre-construction through decommissioning as well as connected actions). Direct, indirect, and cumulative impacts are defined as follows:

- **Direct impacts** are caused by the action and occur at the same time and place. An example of a direct impact is a change in land use because of the project action.
- **Indirect impacts** are caused by the action and occur later in time or farther removed in the distance, but are still reasonably foreseeable. An example of an indirect impact is associated growth with a project, for example rehabilitation of a road may cause changes in population density in an area.

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<sup>16</sup> NOAA. 2012. Guidance on Describing Affected Environment in EAs and EISs. Issue Number 1, 2012. <http://www.greateratlantic.fisheries.noaa.gov/nepa/docs/nmfsneronepaguidanceaffectedenvironment.pdf>

<sup>17</sup> The terms “impact” and “effect” are often used interchangeably in impact assessment and are used synonymously in this guide.

- **Cumulative impacts** are those that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions

*Impact evaluation process*

1. Understand the activities being proposed and describe why those activities are relevant to the project.
2. Research the potential adverse impacts (i.e., direct, indirect, and cumulative) typical of these activities and assess how they arise.
3. Understand the project affected area
4. Based on the potential impacts, identify which elements of the baseline situation would change and described the significance of those changes to the baseline.
5. Characterize the changes from the alternatives to baseline elements quantitatively and explain why those changes cannot be avoided.
6. Determine impacts of concern based on a) changing baseline conditions, b) project design, and c) the magnitude, likelihood that impacts will occur.

regardless of what actor undertakes those actions. For example, if conducting an EA of a project involving commercial thinning of a timber stand, the cumulative impact analysis should consider whether future development is planned for an adjacent parcel (regardless of the owner) and the cumulative impacts of development of the two adjacent parcels on sensitive species, habitat structure, water temperature, erosion, and other factors to understand the synergistic effects of the alternatives.

The analysis should examine the environmental and social impacts of all alternatives, “including the proposed action and no-action alternatives; any adverse effects (e.g., irreversible or irretrievable commitments of resources) that cannot be avoided should the proposed action be implemented; mitigation actions; and the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity.”<sup>18</sup> Impacts should be quantified as much as possible in terms of context, duration, and intensity. For example, an impact could be described as “suspended solids in the stream could increase from 10-15ppm to 1000 ppm during the one-month construction period,” which quantifies the duration an intensity of the impact (increase in suspended solids). Describing the context requires using information on the relevant water quality requirements and the magnitude and duration of the impact not only on water quality, but on species, habitat, and other receptors. The magnitude of this impact would then be entered into the assessment tool – whether a checklist, a matrix, network diagram, or GIS, among others.

A core component of impact analysis is the use of data to support the statement of impact and baseline conditions. Impacts vary over space and time, thus analyses often accounts for the following in the impact prediction and decision-making process:<sup>19</sup>

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<sup>18</sup> See NEPA Part 1502.16 Environmental Consequences <http://www.fws.gov/r9esnepa/CEQNEPARregs/1502.pdf>

<sup>19</sup> See UNEP. 2002. EIA Training Resource Manual. Topic 6: Impact Analysis. <http://www.unep.ch/etb/publications/EIAman/SecETopic6.pdf>

- Nature (type of impact [direct, indirect, cumulative])
- Magnitude (severe, moderate, low)
- Extent and location (footprint of impacted area, distribution)
- Timing (which phase of the project, how often, etc.)
- Duration (short-term, long-term, intermittent, continuous)
- Reversibility/irreversibility
- Likelihood (uncertainty or confidence in the predicted impact)
- Significance (local, regional, global)

In order to characterize the likely impacts, the analysis will pull from information presented in the **Affected Environment** section on the environmental and social characteristics of the project-affected environment and use analytical tools to predict the expected impacts of a proposed activity. These tools may include baseline studies; quantitative predictions of impact magnitude and area/people affected; description of significance of impacts, from each alternative, based on clear criteria; comparison of environmental impacts related to each alternative using matrices, tables, and/or weighting schemes; and preparation of an impact management plan.

In order to achieve these goals, the section should include the following content:

1. Methodology: Discuss methods used to predict impact, including description of assumptions, define data or data interpretation, and define terms used to describe impacts.
2. Regulations and policies: Describe relevant laws, regulations, and/or policies for each impact topic.
3. Direct and indirect impacts: Describe the potential indirect and direct impacts of each alternative.
4. Cumulative impacts: Describe-cumulative impacts *to each resource and for each alternative*. This section should account for past, present, and reasonably foreseeable future actions that may impact resources affected by the proposed project and alternatives as well as the uncertainty associated with each of the potential impacts.
5. Conclusions: At the end of the discussion of the impacts of each alternative on each impact topic/resource, a brief conclusion section should summarize major findings, including a summary of both the magnitude and significance of the impacts.

## RESOURCES

EPA. 1999. Consideration of Cumulative Impacts in EPA Review of NEPA Documents. USEPA, Office of Federal Activities. EPA 315-R-99-002/May 1999.

<http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf>

European Commission. 2009. EC Impact Assessment Guidelines [http://ec.europa.eu/smart-regulation/impact/commission\\_guidelines/docs/iag\\_2009\\_en.pdf](http://ec.europa.eu/smart-regulation/impact/commission_guidelines/docs/iag_2009_en.pdf)

IAIA. 2009. What is Impact Assessment? [http://www.iaia.org/publicdocuments/special-publications/What%20is%20IA\\_web.pdf](http://www.iaia.org/publicdocuments/special-publications/What%20is%20IA_web.pdf)

UNEP. 2004. Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach <http://www.unep.ch/etb/publications/envimpass/textonubr.pdf>

UNEP. 2002. UNEP Environmental Impact Assessment Training Resource Manual, Second Edition Topic 6 Impact Analysis <http://www.unep.ch/etb/publications/EIAMan2editionToc.php>

#### 4.5.2 MITIGATION MEASURES

Mitigation is the implementation of measures designed *to avoid, reduce, or offset the adverse effects* of a proposed action on the environment and for social impacts. Mitigation measures follow a hierarchy of to first avoid, then minimize, next mitigate, then, rehabilitate and finally, compensate. Mitigation measures usually include an array of techniques and may require re-design of an aspect of a project to modify and/or eliminate specific problematic areas. Monitoring the effectiveness and performance of mitigation measures is an essential step to monitor the success of the mitigation measures and provide information for adaptive management of the measures.

Mitigation of potential impacts is required by ADS 204 and Reg. 216 as well as NEPA (1508.20). ADS 204.6.3 states that activity managers must allocate adequate resources for “effective monitoring and mitigation to ensure compliance with 22 CFR 216 throughout the life of an activity.” 22 CFR 216.6 requires that mitigation measures are appropriately designed for the activity and analyzed as effective means to mitigate adverse environmental impacts. The mitigation measures should be described for all alternatives evaluated in the alternatives analysis.

NEPA defines the mitigation measures as follows:

- Avoid: Fully prevent an impact/risk;
- Minimize: Partially prevent an impact or a risk by limiting the degree or magnitude of the action and its implementation;
- Rehabilitate: Repair or restore the environment after impact has occurred;
- Mitigation: Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;
- Compensate: Offset adverse impacts in one areas with improvements in another. In general, USAID does not offset impacts as a practice unless the Agency is able to ensure the long-term success of the offset.

**Mitigation and monitoring plans** are essential for making the EA effective as they assign responsibilities, establish monitoring parameters and schedules, and delineate reporting requirements, responsible parties, and budget. These parameters are often summarized in an Environmental Mitigation and Monitoring Plan (EMMP) or an Environmental Management Plan (EMP); it is an essential component of project environmental management (See Section 5.7). The requirement to implement these plans should be a deliverable of any contract, agreement or mechanism of commitment with USAID.

#### RESOURCES

USAID Environmental Mitigation and Monitoring Plans (EMMPs) <http://www.usaidgems.org/Workshops/MalawiMay2013Materials/Chapters/STEMMP.pdf>

European Commission. June 2001. Guidance on EIA Scoping. <http://ec.europa.eu/environment/eia/eia-guidelines/g-scoping-full-text.pdf>

## 4.6 CONTINUOUS CONSULTATION AND REVIEW OF THE EA

While consultation is initiated during the screening and scoping phase of the EA process, it should continue throughout the preparation of the EA and into project implementation. Consultation will be held between USAID staff, the project-affected community, and the host government in the early stages of project development, after the EA is completed to discuss the results and significance, and during project implementation. Missions shall encourage the host government to make the EA available to the general public of the recipient country. The draft EA shall be circulated to affected foreign governments for information and comment (22 CFR 216.6(e)).

## 5. EA REQUIRED CONTENT

This section describes the required content for an EA developed by USAID in more detail and will be useful for practitioners writing and/or reviewing EAs for USAID. The purpose of the EIA process is to systematically identify and evaluate the environmental and social impacts of proposed actions and projects; as documented in the EA. The EA should provide the agency, project affected community, and host country decision makers with a full discussion of significant environmental effects of a proposed action, including alternatives and mitigation measures. Note that preparation of the EA and any other applicable environmental documentation is the responsibility of the project proponent (e.g., an implementing partner). In cases where an activity is funded by USAID, the documentation should comply with both the host country's EA and USAID requirements.<sup>20</sup> In the EIA process, a broad definition of environment is used and includes social, cultural, and health effects.

Reg. 216 and international best practice require specific content that must be included in the EA. When an EA is written to fulfill both USAID and the host country requirements, the reviewer should confirm that the content fulfills both sets of requirements. When the EA is prepared to comply with specific guidance for the host country, the reviewer should ensure the USAID-required elements are adequately addressed as well. The order in which the essential EA elements are presented is less important, than ensuring the content is included. 22 CFR 216.9 indicates that USAID may substitute other bilateral or multilateral environmental studies relevant to the project if it meets the substantive requirements of the regulation.

The primary components of an EA are illustrated below in Figure 3. Specific elements of an EA are discussed in more detail following the figure.

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<sup>20</sup> Examples of environmental documentation, including PEAs, EAs, and IEEs, can be found in the USAID Environmental Compliance Database (<http://gemini.info.usaid.gov/egat/envcomp/index.php>). USAID Mission responsibilities for the life of the project are described in detail on the USAID-GEMS website. (<http://www.usaidgems.org/rolesRespons.htm>, [Environmental Procedures Briefing for Mission Staff.](#))

**Figure 3. The primary components required in an EA developed by USAID**



## 5.1 PURPOSE AND NEED

The purpose and need section is in many ways the most important chapter of an environmental assessment; it establishes why the agency is proposing the project. A clear, well-justified purpose and need section, including criteria for selection of an alternative, explains to the public and decision-makers that a project is necessary and how the appropriate alternative will be selected. In addition, where significant environmental impacts are expected related to the project, the purpose and need section should justify why impacts are acceptable based on the project's importance.

Text describing the agency's identified need or needs should be simple and clear. Lay readers (including a judge) should be able to review the listed needs and conclude that the agency has a credible rationale for proposing actions in the project area. Such a description of needs should not become a biased justification for the agency's proposed action. At the same time, readers of an EA should see clearly why the agency is proposing actions in the project area.

As importantly, the project purpose and need drives the process for alternatives consideration, in-depth analysis, and ultimate selection. Without a well-defined, well-established and well-justified purpose and need, it will be difficult to determine which alternatives are reasonable, prudent and practicable, and it may be impossible to dismiss the no-build alternative.

## 5.2 PROJECT DESCRIPTION

**The project description should include all phases (including pre-construction, construction, operations, closure, decommissioning and monitoring) as well as connected and ancillary activities** as the basis for the identification and evaluation of impacts. For example, clear mapping of the full project footprint, including all associated activities (e.g., an access road needed to build a facility, transmission line to carry electricity from a generating facility), can be an effective way to communicate the scope of the project. The description

should also include criteria on how environmental and/or social considerations were incorporated into planning and decision-making criteria.

**a. Thorough description of project phases and any staging of additional works**

- Description of any **pre-construction phase** impacts, such as land speculation and ownership, testing and surveys that might affect the human environment.
- Description of the project **construction phase scenario** or scenarios, including transport, storage, laydown and use of resources, as the basis for identification, prediction and assessment of construction phase impacts.
- Description of **operations** and the magnitude thereof (e.g., number of vehicles travelling a road or access roads, consumptive use of water, maintenance needs).
- Description of the expected life and impacted area of the project and needs for post project **decommissioning and monitoring**.

**b. Economic viability**

An EA should consider the relationship between short-term uses of the environment and maintenance or enhancement of long-term productivity. The EA describe the economic viability through indicators including long-term employment, development opportunities, and energy provision.

While Reg. 216 does not specifically call for cost-benefit analysis (CBA), CBA can help determine whether expected benefits justify anticipated costs (financial, social, and environmental) and identify key drivers of costs and benefits. An analysis of ecosystem services—the short and long-term benefits people receive from ecosystems—can assist in quantifying the costs and benefits of the project.<sup>21</sup>

Other questions to ask include: What are the projected economic impacts of the proposed project (e.g., jobs, royalties, and spillover impacts) in light of the project’s purpose and need? What ecosystem services will be lost and/or reduced and what needs will that cause? What ecosystem services will be gained and/or enhanced and what benefit do they provide? A Project Appraisal Document (PAD) may be a useful source of economic viability information for the EA/EIA.

## 5.3 EVALUATIONS OF DIRECT, INDIRECT, AND CUMULATIVE IMPACTS FOR ALL PROJECT PHASES

The EA should include an evaluation of the impacts (direct, indirect, and cumulative) of a proposed action and its alternatives for all project phases (pre-construction through decommissioning and connected actions/ facilities).

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<sup>21</sup> UNEP. Ecosystems and their Services. <http://www.unep.org/maweb/documents/document.300.aspx.pdf> Ecosystem services include provisioning services, such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on earth.

In the discussion of each impact type, category, or alternative, it is good practice to note the following:

- Methodology used and citation of sources relied upon;
- Adverse effects that cannot be avoided;
- Relationship between short-term uses and the maintenance and enhancement of long-term productivity (sustainability);
- Irreversible or irretrievable commitments of resources;
- Incomplete or unavailable information that may cast doubt on the validity of the assessment of a particular impact.

Impact evaluation relies on a suite of tools to organize and assess potential social and environmental impacts. Such tools include matrices, conceptual models, comparative tables, expert opinions, weighting of significance of impacts, and spatial analysis, among others. Tables comparing the various impacts of each alternative are particularly useful for summarizing the results of the impact evaluation.

Refer to definitions of direct, indirect, and cumulative impacts in Annex 1. General Terminology.

## 5.4 EVALUATION OF IMPACT SIGNIFICANCE

“Significant effect” in the Reg. 216 context means “a proposed action has a significant effect on the environment if it does significant harm to the environment.” When preparing an EA, the significance of impacts must be analyzed. The significance of the action must be analyzed in for its short-and long-term effects on a given resource (e.g., an affected region, interrelated factors, etc.). Significance should be analyzed based on *both project context and intensity*. The intensity refers to the severity of the effect, including duration and overall impact on the resource.

Criteria to evaluate whether or not adverse impacts are significant include:

- Environmental loss and deterioration (e.g., reduction in species diversity, habitat fragmentation, loss of threatened or endangered species or adversely modifying species’ critical habitat, impairment of ecological integrity);
- Social impacts resulting directly or indirectly from environmental change (e.g., threats to human health, decline in locally important species or resources, displacement of people, pressure on services, decline in urban quality, decline in historic and cultural resources and the design of the built environment);
- Lack of consistency with established environmental standards and policies (e.g., limits on waste, emissions, discharges, and/or concentrations, water quality standards).

Refer to 40 CFR 1508.27 [http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr1508\\_main\\_02.tpl](http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40cfr1508_main_02.tpl)

## 5.5 IDENTIFICATION, ASSESSMENT, AND COMPARISON OF ALTERNATIVES

The alternatives analysis should evaluate the range of reasonable alternatives identified in the Scoping Report. The range of alternatives refers to the alternatives discussed in the environmental documents and includes all reasonable alternatives. Reasonable alternatives are

those which would feasibly achieve most of the basic objectives of the project while avoiding or minimizing any of the significant effects of a particular project. When there are a number of alternatives, only a reasonable number of alternatives, covering the full spectrum of alternatives, must be analyzed and compared (40 CFR 1505.1(e)). Alternatives that could not be implemented if they were chosen, or that do not resolve the need for action and fulfill the stated purpose in taking action to a large degree, should be eliminated as unreasonable before impact analysis begins. Unreasonable alternatives may be those that are unreasonably expensive; that cannot be implemented for technical or logistic reasons; that are inconsistent with carefully considered, up-to-date statements of purpose and significance or management objectives; or that have severe environmental impacts—although none of these factors automatically renders an alternative unreasonable. The range of alternatives should not be decreased to only those alternatives that are cheap, easy, or the preferred approach. Rather, feasibility is an initial measure of whether the alternative makes sense and is achievable. The no-action alternative must be included in the analysis.

This section should include a substantive, comparative, and objective analysis of the identified alternatives, including the preferred alternative and the no-action alternative. Each alternative should be described in substantial detail, including a comparison of their advantages and disadvantages. Furthermore, for alternatives that were eliminated from detailed analysis, the rationale for eliminating those alternatives should be briefly discussed (See 22 CFR 216.6(3)).

Useful questions to frame the alternatives analysis include the following:

1. Are alternative technologies, designs, construction techniques, and siting (including for access roads, construction camps, quarry sites, and other associated works) considered and described?
2. Are alternatives for phasing and operation considered?
3. Is a set of criteria put forth as a way to compare the alternatives, including the alternatives that can eliminate or mitigate adverse impacts?
4. Is reference made to studies prior to the EA, such as a Master Plan, Siting Study or Strategic EA, that considered and evaluated a range of alternatives and are these studies summarized/incorporated by reference?

Refer to Section 4.3 for the alternatives analysis framework.

## 5.6 IDENTIFICATION OF ALL APPLICABLE HOST COUNTRY LAWS, POLICIES, AND PERMITS AND APPLICABLE TREATIES AND CONVENTIONS

Provide a list of the applicable laws, regulations, permits and licenses required by the host country or other notifications with a brief narrative.

The brief narrative should include:

- i. Description of the requirements
- ii. Description of compliance with host country environmental law
- iii. Mitigation and monitoring requirements

The most stringent requirements should be followed, whether they are those of USAID or the host country.

International conventions and protocols to which the host country or the United States is signatory to or has adopted must be followed. These conventions and protocols include, but not limited to, the following: Convention on Biodiversity, CITES, Montreal Protocol, Stockholm Convention on Persistent Organic Pollutants, Aarhus Convention, Basel Convention, Ramsar Convention, Convention on Long-range Transboundary Air Pollution and Kyoto Protocol.

## 5.7 ENVIRONMENTAL MANAGEMENT PLAN

USAID's mandatory environmental procedures apply to all USAID-funded and USAID-managed activities. The procedures mandate reporting on the implementation of any environmental conditions and required mitigation measures. EMMPs provide a basis for systematic implementation of IEE and EA conditions and a framework for environmental compliance reporting. The EMMP should include discussion of appropriate mitigation measures to avoid, minimize, or offset impacts, not already described in the proposed action or alternatives.

### *Contents of Mitigation Section*

1. Identify and analyze impacts;
2. Describe all reasonable mitigation measures and the rationale for each;
3. Propose design changes to avoid and/or minimize impacts;
4. Define the indicators to measure performance of the mitigation measures and the monitoring plan.
5. Describe the effectiveness of proposed mitigation measures based on the monitoring and mitigation plan.

Mitigation measures should be discussed for each alternative presented.

The EMMP is an essential tool for mitigation of environmental impacts. It specifies the actions that will be taken to satisfy the IEE or EA conditions. For an EA, the EMMP is derived from the results of the Environmental Consequences and Alternatives Analysis. The monitoring component sets out the indicators or criteria that will be used to monitor 1) whether the mitigation actions have been implemented, and 2) whether they are effective and sufficient. Furthermore, the EMMP identifies roles and responsibilities, institutional arrangements, need for capacity building, timing/duration, schedule, costs, use of the data that monitors efficacy of mitigation measures, and use of monitoring data.

EMMPs are often in table form and include the basic elements identified in Figure 4.

Figure 4. Basic format and elements of an EMMP.

**EMMP for Project XXX**

**Person Responsible** for Overseeing EMMP:  
[name, contact information]

Activity I: [name of activity] [briefly describe activity & summarize potential adverse environmental impacts]			
<b>IEE or EA Condition</b> (reproduced or summarized from the IEE or EA)	<b>Mitigation</b> <i>Specific actions</i> to be taken to comply with the condition.  (if an IEE or EA condition is already specific to the project/ activity and implementation actions self-evident, this “translation step” can be omitted)	<b>Monitoring</b>  How will the project verify that mitigation is being implemented and is both effective and sufficient? What are the indicators? What is the monitoring schedule?	<b>Timing and Responsible Parties</b>  Who is responsible for mitigation, monitoring, reporting? What will be the timing and frequency of the monitoring? What is the budget for the monitoring?

EMMPs can provide a framework for environmental compliance reporting requirements and enable A/CORs to fulfill their mandated responsibility to “actively manage and monitor” compliance with EA conditions.

- Effective EMMP Implementation should:
- **Accountability:** Assigning oversight responsibility
  - **Work plan:** Identifying how the EMMP actions will be integrated into into the project work plan
  - **Indicator:** Identify indicators that may be used to measure avoidance or mitigation of the impact and the protection of the target resource or community.
  - **Budget integration:** Integrate EMMP requirements into the budget based on frequency and duration of monitoring as well as potential corrective measures
  - **Management commitment and staff awareness:** Awareness of applicable environmental conditions for the project should be communicated to all staff.

## 5.8 CONSULTATION, STAKEHOLDER INVOLVEMENT, AND PUBLIC AVAILABILITY

Consultation is a process to disclose information about a project and promote dialogue between the project proponent and the stakeholders. The consultation and stakeholder involvement process is an opportunity to learn how a project will likely affect other parties and how those parties view the project and its associated risks, impacts, opportunities, and mitigation measures. During the consultation process, stakeholders may identify previously unrecognized impacts or risks that may inform the design process.

Consultation and stakeholder involvement must include a comprehensive stakeholder analysis and engagement with stakeholder groups in the planning process. These activities should ensure that the stakeholders understand the context and purpose of the consultations and their

role in the process. Consultation processes at the subnational level should be developed so as to be culturally relevant and utilize existing networks, organizations, NGOs, or civil society groups to engage stakeholders. While public meetings are often not practical in a development context, stakeholder involvement can involve engaging the affected communities through various communication channels. Stakeholder engagement should continue for the life of the project as part of the long-term monitoring plan.

This section should include a description of consultations and meetings held, including information such as meeting dates, number and type of participants (or participation lists), and a description of the nature of the discussion. Specifically, participation by women and other vulnerable groups in the consultations and/or stakeholder involvement should be noted. Copies of public notices, dates of publication or advertisement of meetings and documents, and transcribed notes and comments received during the process should be included.

Executive Order 12898 (1994) emphasized the importance of using the NEPA review processes to promote environmental justice; it directs federal agencies to analyze the environmental effects, including human health, economic, and social effects of their proposed actions on minority and low-income communities. See also <http://www.epa.gov/Compliance/nepa/nepaej/index.html>

The International Finance Corporation's Stakeholder Engagement handbook summarizes key stakeholder engagement process steps for defining:

1. **Purpose:** What are the strategic reasons for consulting with stakeholders at this particular phase of the project?
2. **Requirements:** Are there requirements for consultation that need to be met at this stage of the process?
3. **Stakeholders:** Who are the key stakeholder groups that need to be consulted during this phase of the project?
4. **Scoping of priority issues:** Are there any high risk groups or issues requiring special attention at this stage?
5. **Techniques:** Which techniques and methods will be most effective in communicating with the different stakeholder groups?
6. **Responsibilities:** Who within the company (or externally) is responsible for what activities?
7. **Documentation:** How will the results of the process be captured, recorded, tracked, and disseminated?

Free, Prior, and Informed Consent (FPIC) is a stakeholder participation process that fully engages the project-affected communities to ensure their rights in regard to land, development, cultural heritage, resettlement, and others are respected. The FPIC methodology is designed to facilitate dialogue between communities and the project developers. It is the principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy, or otherwise use. It is a key principle in international law and jurisprudence related to indigenous peoples. USAID may use the principles of FPIC as a model of best practice.

USAID should, to the extent feasible, consult with other donors to enhance program impacts and/or reduce duplicative efforts.

## RESOURCES

IFC's Stakeholder Engagement: A Good Practice Handbook  
([http://www.ifc.org/wps/wcm/connect/5a4e740048855591b724f76a6515bb18/PartOne\\_StakeholderConsultation.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/5a4e740048855591b724f76a6515bb18/PartOne_StakeholderConsultation.pdf?MOD=AJPERES))

BSR. 2012. Engaging with Free, Prior, and Informed Consent. [http://www.bsr.org/reports/BSR\\_Engaging\\_With\\_FPIC.pdf](http://www.bsr.org/reports/BSR_Engaging_With_FPIC.pdf)

# 6 EA FOLLOW-ON ACTIONS

## 6.1 MONITORING

After completion of the EA, follow-up in the form of monitoring and adaptive management is essential to ensure the decisions made during the process are implemented in the field and mitigation measures are functioning as intended. Follow-up includes both presenting information in the EA to stakeholders, monitoring mitigation measures, and continuing stakeholder engagement. 22 CFR 216.3(a)(8) states that projects and programs for which EISs or EAs have been prepared should include monitoring to measure any changes in environmental quality, positive or negative, during implementation. Importantly, this requires recording of baseline data prior to initiating the project (baseline data collection is also an essential step for preparation of a Scoping Statement).

On-going monitoring of the project implementation is essential to identify if and how anticipated environmental and social impacts are occurring; determine whether the impacts are within the anticipated range of magnitude, duration, and intensity as described in the EA; ensure that the project benefits are being achieved; and provide information to inform future project-related decisions. If unanticipated impacts are detected during monitoring, Reg. 216 requires that the EIA process be implemented to analyze the action and the unanticipated impacts. Finally, monitoring reports are an important communication tool for decision-makers and stakeholder groups, especially when unanticipated impacts (whether positive or negative) occur.

The principle tools used for evaluating EA implementation and monitoring mitigation measures include:

- Surveillance and supervision via regular or periodic site inspections to verify compliance, observe progress, and discuss any challenges or unexpected developments;
- Monitoring via collection of data based on the indicators identified in the monitoring and mitigation plan, specifically, to detect changes that can be attributed to the project. Monitoring for effects should occur during all project phases, including project construction, implementation, and operation. Compliance with conditions set out in the EA or EMMP or related to host-country requirements should be identified in the EMMP and measured at specified frequencies.
- Audits, implemented by a third-party, on implementation of EA conditions, the impact of the project related to predictions in the EA, or compliance.

## 6.2 COMMUNICATION

Communication to stakeholders, including Mission staff, host country government entities, NGOs, the project affected community and community groups, and other stakeholders is

essential throughout the project development and EA process. In particular, briefings are useful to summarize progress after the pre-feasibility study and feasibility studies are complete, after the design phase, and prior to implementing the project as well as during the construction and closeout phases. It is a valuable step of the project development process to clarify any questions or concerns. The briefings should summarize specific conclusions and recommendations related to the project phase and objectives in a succinct manner. Use of maps and/or photographs are important tools to use in communicating and describing the issues. The briefings help inform stakeholders while providing an opportunity for feedback and on-going stakeholder engagement, which is essential for the long-term success of a proposed project.

Based on 216.10 Records and reports, USAID posts EAs on the Agency Environmental Compliance Database. It is a proactive way of ensuring that all EA records are available to the public under the Freedom of Information Act.

### RESOURCES

UNEP. 2002. EIA Training Resource Manual. Topic 11: Implementation and Follow-up. [http://www.unep.ch/etu/publications/EIA\\_2ed/EIA\\_E\\_top11\\_body.PDF](http://www.unep.ch/etu/publications/EIA_2ed/EIA_E_top11_body.PDF)

## ANNEX I: GLOSSARY

### ***Affected environment***

The environment of the areas to be affected or created by the alternatives under consideration, including geographic and temporal boundaries and direct, indirect, and cumulative impacts (22 CFR §216.6)

### ***Alternatives Analysis***

USAID defines a "range of alternatives" as a set of reasonable alternative courses of action that meet the goals and objectives of the action, including those that seek to avoid and minimize the impact of the proposed action. When reviewing an alternatives analysis in an EIA or ESIA, USAID evaluates whether the document systematically compared the magnitude of an alternative's environmental impacts against the proposed action and no action alternative. The analysis should include the no action alternative, alternative means of achieving the project objectives, and alternatives based on differing site and design approaches (including alternative locations, methodologies and engineering strategies), as well as those alternatives that manage the potential impacts on humans, including indigenous peoples, and the environment. All MDBs include an alternatives analysis in their EIAs or ESIA. They do not always include a no action alternative, such as when the consequences of not implementing the project appear self-evident. Nor do they always include an alternative means of achieving development outcomes. Alternative means to achieve development objectives can be addressed in country strategies and/or in the project document presented to the Board of Directors.

- 22 CFR 216: Alternatives are defined as actions that would avoid or minimize adverse effects or enhance the quality of the environment so that the expected benefits of development objectives can be weighed against any adverse impacts upon the human environment or any irreversible or irretrievable commitment of resources (22 CFR 216.6(a)). This section should present the environmental impacts of the proposal and its alternatives in comparative form, thereby sharpening the issues and providing a clear basis for choice among options by the decision-maker. This section should explore and evaluate reasonable alternatives and briefly discuss the reasons for eliminating those alternatives which were not included in the detailed study; devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits; include the alternative of no action; identify the Agency's preferred alternative or alternatives, if one or more exists; include appropriate mitigation measures not already included in the proposed action or alternatives.
- U.S. (NEPA/CEQ): As referred to in Sec 1505.1(e) the range of alternatives refers to all reasonable alternatives, which must be rigorously explored and objectively evaluated, as well as those other alternatives, which are eliminated from detailed study with a brief discussion of the reasons for eliminating them. <http://energy.gov/sites/prod/files/G-CEQ-40Questions.pdf>

### **Associated Facilities**

There is no internationally agreed definition of associated facilities. USAID defines associated facilities as those new, added or expanded facilities that are connected for the functioning of, or are dependent on, the proposed project. USAID bases its definition of associated facilities on the CEQ definition of connected actions, which are those that:

- Automatically trigger other actions which may require environmental impact statements.
- Cannot or will not proceed unless other actions are taken previously or simultaneously.
- Are interdependent parts of a larger action and depend on the larger action for their justification (40 CFR 1508.25)

Most MDBs apply a narrower concept of associated facilities, such as the IDB definition, which is of "new or additional works and/or infrastructure that are essential for the MDB-financed project to function."

### **Baseline Data**

Baseline data are a multi-disciplinary set of site data surveys conducted and collected prior to the disturbance and commencement of project activities and identify present conditions such as site environmental systems, contamination, and occupancy.

Baseline data represent a fundamental component of an EIA, as they establish a benchmark for the comparison of the potential environmental impacts of alternatives. Such data are also critical for cumulative impact assessments and associated facilities analyses and for identifying methods and activities that avoid, minimize or mitigate impacts. USAID believes baseline data should have been, and should continue to be, gathered over a relevant and sufficient period of time to be able to identify daily, seasonal and year-to-year variations of flora and fauna and of habitat use. USAID also evaluates the data and analysis of land and resource use to determine if the project has the potential to impact indigenous peoples.

All MDBs require baseline data but recognize that obtaining comprehensive baseline data is a common challenge across many developing countries, given the low capacity for conducting periodic statistical surveys.

### **Biodiversity**

The variability among living organisms from all sources including, *inter alia*, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems. (Convention on Biological Diversity)

### **Carrying capacity**

The capacity of an ecosystem to support healthy organisms while maintaining its productivity, adaptability and capability of renewal.

In ecological terms, the carrying capacity of an ecosystem is the size of the population that can be supported indefinitely upon the available resources and services of that ecosystem. Living within the limits of an ecosystem depends on three factors: the amount of resources available in the ecosystem, the size of the population, and the amount of resources each individual is consuming.

Assessment of carrying capacity is especially important when evaluating project that may cause in-migration to an area or may affect habitat, such as development of eco-tourism projects. The IUCN provides a useful discussion on different types of carrying capacity (e.g., tourism, socio-cultural, ecological, etc.) as well as methodologies to address carrying capacity in impact assessment (<https://portals.iucn.org/library/efiles/html/Tourism/section9.html>).

Refer to USAID Natural Resources Management and Development Portal <http://rmportal.net/help/additonal-help-docs/archive/natural-resource-management-glossary-and-keywords/nrm-glossary/#E>

### ***Critical Habitat***

USAID defines critical habitats as a subset of both natural and modified habitat that include areas with high biodiversity value, including areas with the following criteria: (i) habitat required for the survival of Critically Endangered and/or Endangered species, areas having special significance for endemic and/or restricted-range species/subspecies, sites that are critical for the survival of migratory species, areas supporting globally significant concentrations or populations of congregatory species/subspecies; (ii) areas with regionally unique assemblages of species and/or highly threatened ecosystems; (iii) areas which are associated with key evolutionary processes or provide ecosystem services; and (iv) areas having biodiversity of significant social, economic or cultural importance to local communities. All the MDBs have definitions for critical habitats but they differ in technical detail from one another and from that applied by USAID.

The U.S. Fish and Wildlife Service (USFWS) defines critical habitat as areas that are believed to be essential to the species' conservation. It includes specific geographic areas that contain features essential to the conservation of an endangered or threatened species and that may require special management and protection. Critical habitat may also include areas that are not currently occupied by the species but will be needed for its recovery. Features used to assess critical habitat include:

- Space for individual and population growth and for normal behavior;
- Cover or shelter;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Sites for breeding and rearing offspring; and
- Habitats that are protected from disturbances or are representative of the historical geographical and ecological distributions of a species.

Refer to the USFWS for further details: <http://www.fws.gov/endangered/what-we-do/critical-habitats-faq.html>

### ***Cumulative Impacts***

USAID defines cumulative impacts analysis as an evaluation of aggregate and additive effects of past, present and reasonably foreseeable actions. USAID's evaluation of cumulative impacts is based on the CEQ regulation definition and CEQ guidance for incorporating cumulative effects analysis in environmental assessments. The CEQ regulation's definition of "cumulative impact" is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking

place over a period of time." All MDBs, in practice, require an assessment of cumulative impacts, but none includes a specific reference to "reasonably foreseeable" actions.

- **USAID/ 22 CFR 216.6(d):** 22 CFR 216.6(d) Program Assessment: "A Program Assessment may be appropriate in order to assess the environmental effects of a number of individual actions and their cumulative environmental impact." (Related specifically to pesticide use).
- **US EPA/CEQ: 40 CFR 1508.7,** Cumulative Impact: An impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. (40 CFR 1508.7)
- International best practice considers the assessment of cumulative impacts of a proposed action an essential component of the EA process. It is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place in a particular place and within a particular time.

*Cumulative impact analysis should begin early in project development, usually during the scoping process.* The cumulative impact analysis is refined as information and data are gathered.

### **Direct Impacts**

**22 CFR 216: Significant Effect.** With respect to effects on the environment outside the United States, a proposed action has a significant effect on the environment if it does significant harm to the environment. (See 22 CFR 216.1(c)(11))

**U.S. (NEPA/CEQ): Direct effects** and their significance (40 CFR 1508.8). Direct effects are caused by the action and occur at the same time and place. *Direct effect example:* a change in land use (conversion of wetlands to industrial land), effects on threatened or endangered species and loss of habitat.

- **World Bank:** [http://siteresources.worldbank.org/INTTRANSPORT/Resources/336291-1107880869673/chap\\_6.pdf](http://siteresources.worldbank.org/INTTRANSPORT/Resources/336291-1107880869673/chap_6.pdf)
- **Asian Development Bank:** [http://www.adb.org/sites/default/files/pub/2003/Environmental\\_Assessment\\_Guidelines.pdf](http://www.adb.org/sites/default/files/pub/2003/Environmental_Assessment_Guidelines.pdf), See Section 103; and see Section 105, [http://www.adb.org/sites/default/files/pub/2003/Environmental\\_Assessment\\_Guidelines.pdf](http://www.adb.org/sites/default/files/pub/2003/Environmental_Assessment_Guidelines.pdf)

### **Ecosystem services**

The USAID Biodiversity policy defines ecosystem services as the short-and long-term benefits people obtain from ecosystems. Loss of biodiversity may cause ecosystems to become less resilient and the production of ecosystem services can be threatened. The USAID biodiversity policy and the Millennium Ecosystem Assessment (<http://www.unep.org/maweb/en/index.aspx>) describe ecosystem services in the following way:

**Provisioning Services** or the provision of food, fresh water, fuel, fiber, and other goods;

**Regulating Services** such as climate, water, and disease regulation as well as pollination;

**Supporting Services** such as soil formation and nutrient cycling; and

**Cultural Services** such as educational, aesthetic, and cultural heritage values as well as recreation and tourism.

**Effects and/or impacts:** Effects and impacts are used interchangeably. Effects include ecological (such as effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

- *Direct effects* and their significance (40 CFR 1508.8). *See direct impacts, above.*
- *Indirect effects* and their significance (40 CFR 1508.8). *See direct impacts, below.*
- *Cumulative effects* (40 CFR 1508.7): *See cumulative impacts, above.*

### **Environment**

Comprehensively includes the natural and physical environment and the relationship of people with that environment (40 CFR 1508.1), containing the biophysical environment, the natural world, the architectural or built environment, and the environment's social, cultural, and economic aspects, its aesthetics, and its implications for human health.

### **Environmental Flows**

The term “environmental flows” is defined as the quantity, timing, and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on these ecosystems (International WaterCentre, 2007). Environmental flow science has progressed to the point where **scientists warn that maintaining minimum low flows is necessary but insufficient** to maintain healthy river ecosystems and that a naturally variable pattern of water flow is needed to sustain biodiversity and the ecosystem services provided by rivers (World Bank, 2009c).

### **Exemption**

Exempted activities usually include emergency situations, including international disaster assistance, other emergency situations as approved by the USAID Administrator or Assistant Administrator, or circumstances with “exceptional foreign policy sensitivities.”

### **Human environment**

Comprehensively includes the natural and physical environment and the relationship of people with that environment (40 CFR 1508.1), containing the biophysical environment, the natural world, the architectural or built environment, and the environment's social, cultural, and economic aspects, its aesthetics, and its implications for human health.

### **Indigenous Peoples**

USAID is guided by approaches used in the UN system and other international contexts which generally favor an understanding based on a variety of characteristics, including self-identification at the individual level, a strong link to territories and surrounding natural resources,

a distinct language, culture, belief and social, economic, or political system, different from those of dominant groups of the society. The MDBs use similar approaches.

The working definition used by the United Nations is as follows:<sup>22</sup>

“Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system.

“This historical continuity may consist of the continuation, for an extended period reaching into the present of one or more of the following factors:

- a) Occupation of ancestral lands, or at least of part of them;
- b) Common ancestry with the original occupants of these lands;
- c) Culture in general, or in specific manifestations (such as religion, living under a tribal system, membership of an indigenous community, dress, means of livelihood, lifestyle, etc.);
- d) Language (whether used as the only language, as mother-tongue, as the habitual means of communication at home or in the family, or as the main, preferred, habitual, general or normal language);
- e) Residence on certain parts of the country, or in certain regions of the world;
- f) Other relevant factors.

“On an individual basis, an indigenous person is one who belongs to these indigenous populations through self-identification as indigenous (group consciousness) and is recognized and accepted by these populations as one of its members (acceptance by the group).

“This preserves for these communities the sovereign right and power to decide who belongs to them, without external interference”.<sup>23</sup>

### ***Indirect Impacts***

**Indirect effects** and their significance (40 CFR 1508.8). Caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. *Indirect effect example 1*: land development occurring after a project is constructed. This may occur because of access to previously undeveloped property or as a result of changes in traffic patterns.

### ***Mitigation***

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<sup>22</sup> From PFII/2004/WS.1/3 UN Workshop on Data Collection and Disaggregation for Indigenous Peoples (2004). See also the United Nations Declaration on the Rights of Indigenous Peoples [http://www.un.org/esa/socdev/unpfii/documents/DRIPS\\_en.pdf](http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf).

<sup>23</sup> *Supra* 1, paragraphs 379-382.

The implementation of measures designed to first avoid, then mitigate, restore or rehabilitate and offset the undesirable effects of a proposed action on the environment.

### ***Mitigation Hierarchy***

The U.S. Government generally uses an order of priority for selecting mitigation measures. This order is:

1. Avoid the impact altogether by not taking certain action or parts of an action,
2. Minimize impacts by limiting the degree or magnitude of the action and its implementation,
3. Rectify the impact by repairing, rehabilitating, or restoring the affected environment,
4. Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action, and
5. Compensate for the impact by replacing or providing substitute resources or environments.

### ***Monitoring***

Regular and periodic measurements of specific metrics and/or indicators, such as water quality testing, soil testing, etc., to indicate whether mitigation measures are being implemented and sufficient and effective.

### ***No Action Alternative***

There are two distinct types of "no action" that must be considered, depending on the nature of the proposal being evaluated. The first type of "no action" might involve the continuance of ongoing actions, even as new plans are developed. In these cases "no action" is "no change" from current management direction or level of management intensity. This type of no action is not the cessation of currently ongoing actions. Therefore, the "no action" alternative may be thought of in terms of continuing with the present course of action until that action is changed. Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan. In this case, alternatives would include management plans of both greater and lesser intensity, especially greater and lesser levels of resource development.

The second type of "no action" in a case where the proposal is a new activity. "No action" in such cases would mean the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

The no action analysis provides an important benchmark for other proposed alternatives, enabling decision-makers to compare the magnitude of environmental effects of the action alternatives.

### ***Significance***

Requires an assessment of both context and intensity. Context refers to an analysis in several contexts, such as society as a whole, the affected region, the affected interests, and the locality. Intensity refers to the severity of the impact.

### ***Spatial Boundaries***

The impact assessor defines the spatial boundaries based upon the context and location of the proposed project and connected actions. EPA reviewers should recommend that the proper spatial scope of the analysis include geographic areas that sustain the resources of concern. (Consideration of Cumulative Impacts in EPA Review of NEPA Documents, US. EPA, Office of Federal Activities, May 1999 <http://ceq.hss.doe.gov/NEPA/ccenepa/ccenepa.htm>)

### **Temporal Boundaries**

**USAID/ 22 CFR 216.6(d) and US EPA/CEQ:** Temporal boundaries are defined by the life of the project and/or the projects occurring that are connected to the project. The most common temporal scope is the life of the project. This may not be appropriate if the effects last longer than the project's useful life. (Consideration of Cumulative Impacts in EPA Review of NEPA Documents, US. EPA, Office of Federal Activities, May 1999 <http://ceq.hss.doe.gov/NEPA/ccenepa/ccenepa.htm>)

## **ANNEX 2: REFERENCE MATERIALS**

### **A2.1 KEY EA TOPICS AND REFERENCES**

1. **Natural Resources.** For the purposes of the environmental review standard, natural resources are defined broadly as renewable and non-renewable resources that are material sources of wealth, such as forests, lands, water or mineral deposits occurring in a natural state and having economic value. Areas considered critical habitat automatically prohibit action in the area.
  - a. Does the EA consider how the construction and operation of the proposed project will use or degrade non-renewable resources, e.g., rock quarries, agricultural lands, and renewable resources, e.g., forests, rivers, aquifers (these could also be non-renewable)?
  - b. Does the EA consider how natural resources can be preserved?

Generally speaking, the topics considered by most EAs should include geology, soils, sediment, surface and underground hydrology, water quality and quantity, air, forests cover, natural resources, biodiversity.

2. **Natural and Physical Environment.** The EA should evaluate the proposed project's potential impacts on the natural and physical environment. Generally, this includes air, water quantity and quality, soil, sediment, vegetation, wetlands, forest, water bodies, etc. The EA should evaluate potential impacts of all alternatives and all project phases on the natural and physical environment.
3. **Ecosystem services.** Services provided by ecosystems and ecological processes, including regulation of water flows and maintenance of water quality; the formation of soil, prevention of soil erosion, and nutrient cycling that maintains soil fertility; degradation of wastes and pollution; pest and pathogen control; pollination; and climate regulation through carbon storage and sequestration. (As defined in the USAID Natural Resources Management and Development Portal <http://rmportal.net/help/additonal-help-docs/archive/natural-resource-management-glossary-and-keywords/nrm-glossary/#E>)

The Millennium Ecosystem Assessment (MA) defined ecosystem services as "the benefits people obtain from ecosystems." Within the general definition, MA identified four

categories of ecosystem services -- supporting, provisioning, regulating and cultural. For further information on the categories of ecosystem services, please refer to the Millennium Assessment's Summary document (<http://www.millenniumassessment.org/documents/document.356.aspx.pdf>).

The Federal Resource Management and Ecosystem Services Guidebook provides a useful framework on how ecosystem services can be integrated into the assessment framework (<https://nespguidebook.com/assessment-framework/how-to-read-this-section-of-the-guidebook/>).

4. **Forests** warrant particular attention in the standard for environmental review as FAA 118(e) establishes programming mandates prioritizing conservation and sustainable management of tropical forests. FAA 118(e) requires an environmental analysis of potential impacts on tropical forest of proposed development projects. Thus, the environmental documentation should fully address the presence and extent of tropical forests at the project site and potential impact of proposed activities on forests both at the project site, and by related to activities that may impact forests, and forested areas in the region. Deforestation is one of the drivers of climate change and intact forests are particularly important for livelihoods, food security, and the agricultural sector. Generally, impacts to intact forests by USAID-funded development projects are prohibited.

Specifically, cumulative impacts assessment may be particularly useful to identify further potential impacts to forests. [<http://www.usaidgems.org/lawsRegsPolicies/faa.htm>]

Refer to Best Practices for Biodiversity and Tropical Forest Assessments [http://pdf.usaid.gov/pdf\\_docs/PNADE673.pdf](http://pdf.usaid.gov/pdf_docs/PNADE673.pdf)

5. **Biodiversity** is treated separately because of the specific requirements outlined in USAID Regulation 216 – Protection of endangered or threatened species and their critical habitats and in FAA 119.

22 CFR 216.5 Endangered Species requires that USAID programs must be sensitive to the protection of endangered or threatened species and their critical habitats. If a proposed project, activity, or program will negatively impact an endangered or threatened species or adversely modify its critical habitat, an EA or EIS must be completed.

USAID, per FAA 119, shall analyze the actions necessary to conserve biological diversity in a given country and evaluate the impacts of proposed development projects on biodiversity. Thus, any environmental documentation should fully address biodiversity at the project site and potential impact of proposed activities on biodiversity by related activities. Loss of biodiversity is considered “an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike.” Preservation of biodiversity, including plant and animal species as well as their habitats, through limiting impact of development activities, support of wildlife management and plant conservation programs, wildlife sanctuaries, reserves, and parks, support of biodiversity studies, and support of anti-poaching measures are all important requirements of USAID under FAA 119. [<http://www.usaidgems.org/faa118119.htm>]

In addition, NEPA requires evaluation of impacts to critical habitat for threatened and endangered species at all levels of environmental documentation; the level of analysis is influenced by the scope of the project, ecological importance and distribution of the affected species, and the intensity of potential impacts of the project. NEPA and the

Endangered Species Act (ESA) interact in the early phases of the environmental analysis.

The World Bank prohibits support for projects which would lead to the significant loss or degradation of any Critical Natural Habitats, whose definition includes those natural habitats which are either: legally protected, officially proposed for protection, or unprotected but of known high conservation value. In other (non-critical) natural habitats, significant loss or degradation only when there are no feasible alternatives to achieve the project's substantial overall net benefits; and acceptable mitigation measures, such as compensatory protected areas, are included within the project.

### **Resources**

IFC A Guide to Biodiversity for the Private Sector. [http://www.ifc.org/wps/wcm/connect/296ae980488551f5aa0cfa6a6515bb18/ESI\\_A.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/296ae980488551f5aa0cfa6a6515bb18/ESI_A.pdf?MOD=AJPERES)

USAID Best Practices for Biodiversity and Tropical Forest Assessments [http://pdf.usaid.gov/pdf\\_docs/PNADE673.pdf](http://pdf.usaid.gov/pdf_docs/PNADE673.pdf)

USAID Biodiversity Policy <http://www.usaid.gov/sites/default/files/documents/1865/USAID-Biodiversity-Policy-Draft-6-7-13.pdf>

6. **Exotic and Invasive Species.** Exotic and invasive species can be unintentionally introduced to ecosystems and cause long-term significant ecological and public health impacts and loss of agricultural productivity, among others. Executive Order 13112 (<http://www.invasivespeciesinfo.gov/laws/execorder.shtml>) calls for the “prevention of the introduction of invasive species and provision for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.” USAID has responsibility for ensuring that USG development assistance programs do not lead to the introduction of invasive species in other nations. In particular, agricultural development and forestry projects must be rigorously assessed to confirm the proposed projects will not introduce or support the growth of exotic or invasive species.
7. **Pollution Control.** Small to medium size enterprises as well as large enterprises may generate pollutants that negatively impact the environment. Thus, pollution prevention and control is important at all scales to minimize negative impacts related to development on the environment and public health. The environment, as defined by IFC, includes air, noise, water and finite resources which may be impacted by various sectors, e.g., agribusiness, forestry, oil and gas. There are three goals related to pollution prevent and control: 1) To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; 2) To promote more sustainable use of resources, including energy and water; 3) To reduce project-related GHG emissions. The U.S. Environmental Protection Agency’s (EPA) pollution control guidance may be referred to as a best practice standard.

The U.S. Department of Treasury developed guidance regarding coal-fired power generation in multilateral development banks. This guidance curtails U.S. support for MDB funding for overseas coal projects, except in narrowly defined circumstances.

### **Resources**

U.S. Department of Treasury. 2013. Guidance for U.S. Positions on MDBs Engaging with Developing Countries on Coal-Fired Power Generation. October 29, 2013. [http://www.treasury.gov/resource-center/international/development-banks/Documents/CoalGuidance\\_2013.pdf](http://www.treasury.gov/resource-center/international/development-banks/Documents/CoalGuidance_2013.pdf)

USAID GEMS Sectoral Guidance: <http://www.usaidgems.org/mse/leatherProcessing.htm>

U.S. EPA. Drinking Water Contaminants <http://water.epa.gov/drink/contaminants/index.cfm>

U.S. EPA. National Ambient Air Quality Standards (NAAQS). <http://www.epa.gov/air/criteria.html>

U.S. EPA. Soil Screening Guidance. <http://www.epa.gov/superfund/health/conmedia/soil/>

8. **Pest Management.** USAID environmental regulations require that the 12 factors outlined in the Pesticide Procedures (22 CFR 216.3(b)(1)(i)(a-l)) must be addressed in the environmental documentation for any program that includes assistance for the procurement or use of pesticides. USAID requires preparation of the Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) to describe the host country's pesticide regulation and safety systems, compliance, risk management options, IPM options, and implementation of recommendations. Through the PERSUAP, actions to reduce the risk of pesticide usage can be analyzed. The World Bank Pest Management Guidance explicitly states that "rural development and health sector projects have to avoid using harmful pesticides" and encourages use of Integrated Pest Management techniques.
9. **Pesticides and Pollution Control:** USAID typically refers to USEPA regulations and/or standards for pesticides and pollution control, however in the context of an international development those regulations and procedures specified are unlikely to be met. Thus, international regulations concerning pest management (IFC or World Bank) and pollution control (World Bank Group Environmental, Health and Safety Guidelines) are a more practical standard.

USAID

Guidance: [http://www1.usaid.gov/our\\_work/environment/compliance/ane/workshops/Jordan2007/day1/D/Reg216PestProc.pdf](http://www1.usaid.gov/our_work/environment/compliance/ane/workshops/Jordan2007/day1/D/Reg216PestProc.pdf)

10. **Public Health.** Title XIII 1303 identifies public health as an important consideration assessment of project impacts. This section should address issues related to HIV/AIDS and STDs, particularly related to construction camps and the import of labor for large projects, attention to how a project affects the risks of diseases such as malaria, schistosomiasis or other water-related or water-borne diseases, analysis of any changes in access to safe drinking water and adequate sanitation, changes in disease vector breeding places and similar and possible effects on sexual customs and tolerance.
11. **Occupational and Community Health and Safety.** USAID expects its construction projects to attain a level of protection of workers and public health as close to US standards as the local situation will allow. On USAID-funded projects, compliance with applicable host country requirements is mandatory. In cases where local requirements are non-existent or unclear, the minimum level of safety practices are expected to be as close to US standards as possible.

USAID GEMS Visual Field Guide: Construction -

<http://www.usaidgems.org/fieldGuides.htm>

International Finance Corporation – World Bank Group, Environmental, Health, and Safety (EHS)

Guidelines [http://www.ifc.org/wps/wcm/connect/Topics\\_Ext\\_Content/IFC\\_External\\_Corporate\\_Site/IFC+Sustainability/Sustainability+Framework/Environmental,+Health,+and+Safety+Guidelines/](http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Sustainability+Framework/Environmental,+Health,+and+Safety+Guidelines/)

## 12. Labor and Human Rights.

Democracy, human rights, and governance are essential foundations for sustainable socioeconomic development. As such, USAID projects should be consistent with USAID Strategy on Democracy, Human Rights and Governance

([http://www.usaid.gov/sites/default/files/documents/1866/USAID%20DRG\\_%20final%20final%206-24%203%20\(1\).pdf](http://www.usaid.gov/sites/default/files/documents/1866/USAID%20DRG_%20final%20final%206-24%203%20(1).pdf)). In cases where national law and USAID policy conflict, the more stringent and thus, protective policy shall prevail.

International labor standards are summarized in a comprehensive body of instruments and policies here. (<http://www.ilo.org/global/standards/lang--en/index.htm>)

## 13. Indigenous Peoples.

Undertake a screening to determine whether Indigenous Peoples are present in, or have a collective attachment to the project areas. The UN process for identification of indigenous groups encourages a modern understanding of the term based on seven specific criteria

([http://www.un.org/esa/socdev/unpfii/documents/5session\\_factsheet1.pdf](http://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf)).

If impacts to Indigenous Peoples are anticipated, then an Indigenous Policy Plan (or Framework) should be prepared that “fosters full respect for Indigenous Peoples’ identity, dignity, human rights, livelihood systems, and cultural uniqueness as defined by the Indigenous Peoples themselves so that they (i) receive culturally appropriate social and economic benefits, (ii) do not suffer adverse impacts as a result of projects, and (iii) can participate actively in projects that affect them.” The project documentation should also require that consultation be demonstrated and there be a grievance mechanism.

Under US federal law and in NEPA, meaningful consultation with tribal groups, identified as Native American tribes and Alaska Native entities, is required. GSA’s “Policy toward Native American and Alaskan Tribes”

([http://www.gsa.gov/graphics/pbs/GSA\\_ADM\\_1072.1.pdf](http://www.gsa.gov/graphics/pbs/GSA_ADM_1072.1.pdf)) committed the GSA “to practices of meaningful consultation and communication with Native American tribal governments down to the agency’s regional and local levels.” NEPA specifically calls for the federal government to invite the participation of any affected Native American tribe in the environmental review process. Translated into a development context, the intent to integrate affected indigenous communities into the consultation process should be carried over into USAID project development work.

Stakeholder engagement is an ongoing process, starting the earliest stages of project planning and continue throughout the life of the project; it involves public disclosure of appropriate information, meaningful consultation with stakeholders, (i.e., in a culturally relevant manner, using the local language, addressing relevant community members, accounting for gender differences and decision-making structures, etc.); an effective procedure or mechanism by which people can make comments or raise grievances.

(EBRD PR 10 <http://www.ebrd.com/who-we-are/our-values/environmental-and-social-policy/performance-requirements.html%20>).

FPIC is a stakeholder participation process that fully engages the project-affected communities to ensure their rights in regard to land, development, cultural heritage, resettlement, and others are respected. The FPIC methodology is designed to facilitate dialogue between communities and the project developers. It is the principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands they customarily own, occupy or otherwise use. It is a key principle in international law and jurisprudence related to indigenous peoples. USAID may use the principles of FPIC as a model of best practice.

Refer to the EBRD Performance Requirement 7 and Guidance Note (<http://www.ebrd.com/downloads/research/guides/indp.pdf>)

14. **Involuntary Resettlement.** Involuntary resettlement refers to both physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) (EBRD PR 5 [http://www.ebrd.com/downloads/about/sustainability/ESP\\_PR05\\_Eng.pdf](http://www.ebrd.com/downloads/about/sustainability/ESP_PR05_Eng.pdf)). Resettlement is considered involuntary when affected individuals or communities do not have the right to refuse land acquisition that results in displacement. The mechanisms under which this may occur include lawful expropriation or restrictions on land use based on eminent domain and/or negotiated settlements in which the buyer can resort to expropriation or impose legal restriction on land use if negotiations with the seller fail (from EBRD PR 5). A Resettlement Action Plan or Framework should be prepared that demonstrates that the livelihoods of those affected is restored or preferably improved. As with Indigenous Peoples, require that consultations be demonstrated to have occurred and that an independent grievance mechanism is provided for.

Asian Development Bank Policy on Involuntary Resettlement <http://www.adb.org/site/safeguards/safeguard-categories#section1>

EBRD Performance Requirement 5. [http://www.ebrd.com/downloads/about/sustainability/ESP\\_PR05\\_Eng.pdf](http://www.ebrd.com/downloads/about/sustainability/ESP_PR05_Eng.pdf)

IFC Performance Standard 5: Land Acquisition and Involuntary Resettlement [http://www.ifc.org/wps/wcm/connect/3d82c70049a79073b82cfaa8c6a8312a/PS5\\_English\\_2012.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/3d82c70049a79073b82cfaa8c6a8312a/PS5_English_2012.pdf?MOD=AJPERES)

World Bank Involuntary Resettlement <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEV/ELOPMENT/EXTINVRES/0,,menuPK:410241~pagePK:149018~piPK:149093~theSitePK:410235,00.html>

15. **Cultural Resources and Cultural Heritage.** USAID refers to the National Historic Preservation Act of 1966 as a best practice standard when addressing preservation of historical and archeological sites, including physical cultural resources (as in the World Bank safeguard) or intangible aspects of cultural heritage (dance, music or similar). Cultural resources are not defined in NEPA, however there are several other policies that refer to protection of resources that are “cultural” in character.

Culturally valued aspects of the environment generally include historic properties, other culturally valued pieces of real property, cultural use of the biophysical environment, and such "intangible" sociocultural attributes as social cohesion, social institutions, lifeways, religious practices, and other cultural institutions. Both the World Bank and IFC provide guidance on preservation of cultural resources and heritage.

According to IFC Performance Standard 5, cultural heritage refers to (i) tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values; (ii) unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls; and (iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles.

The EA should account for potential impacts on cultural heritage and provide appropriate mitigation measures designed with input from the stakeholder engagement process.

IFC Performance Standard 8: Cultural Heritage [http://www.ifc.org/wps/wcm/connect/dd8d3d0049a791a6b855faa8c6a8312a/PS8\\_English\\_2012.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/dd8d3d0049a791a6b855faa8c6a8312a/PS8_English_2012.pdf?MOD=AJPERES)

National Historic Preservation Act 16 USC 470 et seq. <http://www.law.cornell.edu/uscode/text/16/470>

World

Bank <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,contentMDK:20543961~menuPK:1286639~pagePK:64168445~piPK:64168309~theSitePK:584435,00.html>

16. **Gender Equality.** Per USAID’s Gender Equality and Female Empowerment Policy, seven guiding principles should be integrated into project actions to “improve the lives of citizens around the world by advancing equality between females and males, and empowering women and girls to participate fully in and benefit from the development of their societies.” To that end, the impact assessment process should integrate actions, such as results from a gender analysis, into project planning and mitigation actions.

Please see USAID’s Gender Equality and Female Empowerment Policy [http://transition.usaid.gov/our\\_work/policy\\_planning\\_and\\_learning/documents/GenderEqualityPolicy.pdf](http://transition.usaid.gov/our_work/policy_planning_and_learning/documents/GenderEqualityPolicy.pdf)

17. **Trafficking in Persons.** Trafficking in persons (TIP) is an international crime involving the acquisition of a human being through the use of force, fraud, or coercion for the purpose of exploiting the individual for profit through forced labor or prostitution which affects millions of men, women, and children globally and is an egregious violation of human rights. Specifically, trafficking in persons can impede efforts to improve health, increase economic growth, achieve gender equality and women’s empowerment and can pose a threat to lifetime prospects for youth. Thus, the impact assessment should consider if the host country has specific trafficking issues (i.e., is it on the Tier 1, Tier 2 or Tier 3 list?) and does the project have potential to exacerbate trafficking (as in roads, ports, projects requiring large labor supplies not available in a local vicinity)? If so, the impact assessment must include measures to avoid, minimize, and/or mitigate TIP [USAID Counter-Trafficking in Persons Policy [http://pdf.usaid.gov/pdf\\_docs/PDACT111.pdf](http://pdf.usaid.gov/pdf_docs/PDACT111.pdf) ]

## A2.2 ADDITIONAL RESOURCES

### GENERAL

USAID Environmental Compliance Resources <http://www.usaidgems.org/>

USAID Environmental Compliance Database <http://gemini.info.usaid.gov/egat/envcomp/>

International Finance Corporation Performance Standards [http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbfd1a5d13d27/PS\\_English\\_2012\\_Full-Documents.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbfd1a5d13d27/PS_English_2012_Full-Documents.pdf?MOD=AJPERES)

World Bank Environmental Guidelines

<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,contentMDK:20543912~menuPK:1286357~pagePK:64168445~piPK:64168309~theSitePK:584435,00.html>

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTENVASS/0,,menuPK:407994~pagePK:149018~piPK:149093~theSitePK:407988,00.html>

### NEPA/CEQ

NEPA Desk Guide [http://ceq.hss.doe.gov/ceq\\_regulations/regulations.html](http://ceq.hss.doe.gov/ceq_regulations/regulations.html)

Sample NEPA checklist: [www.fws.gov/forms/3-2185.pdf](http://www.fws.gov/forms/3-2185.pdf)

Programmatic Environmental Assessment versus an EIA [http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning\\_and\\_Renewable\\_Resources/presentations.Par.64982.File.pdf/Differences\\_Between\\_Programmatic\\_and\\_Project-level\\_NEPA.pdf](http://www.blm.gov/pgdata/etc/medialib/blm/wo/Planning_and_Renewable_Resources/presentations.Par.64982.File.pdf/Differences_Between_Programmatic_and_Project-level_NEPA.pdf)

### ECOSYSTEM SERVICES

USDA Office of Ecosystem Services <http://www.fs.fed.us/ecosystems-services/>

The International Development Bank (IDB) has a Biodiversity and Ecosystems Services Program (BSE) focused on valuation of natural capital and ecosystem services in Latin America and the Caribbean. The BSE supports measures that account for the economic value of biodiversity and ecosystem services in key sectors. <https://publications.iadb.org/handle/11319/7096>

The World Bank supported development the Wealth Accounting for Valuation of Ecosystem Services (WAVES) framework to develop accounting standards for natural capital and ecosystem services. ([http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/06/28/000445729\\_20130628122618/Rendered/PDF/768110REPLACEMENT0FILE0same0box00PUBLIC0.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/06/28/000445729_20130628122618/Rendered/PDF/768110REPLACEMENT0FILE0same0box00PUBLIC0.pdf))

The Natural Capital Project has developed tools for evaluation of ecosystem services. <http://www.naturalcapitalproject.org/>

## A2.3 EA APPLICABLE LAWS, POLICIES, AND REGULATIONS

22 CFR 216 Environmental Compliance Regulations and Procedures [http://www.usaid.gov/our\\_work/environment/compliance/regulations-procedures](http://www.usaid.gov/our_work/environment/compliance/regulations-procedures)

40 CFR 1500-1508 (NEPA) <http://www.gpo.gov/fdsys/granule/CFR-2011-title40-vol33/CFR-2011-title40-vol33-part-id1102/content-detail.html>

Council on Environmental Quality NEPA Information [www.nepa.gov](http://www.nepa.gov)

Environmental justice (Executive Order 12898) -- <http://www.archives.gov/federal-register/executive-orders/pdf/12898.pdf>

Foreign Assistance Act Sections 118 and 119 <http://www.usaidgems.org/faa118119.htm>

International Labor Organization (ILO), Convention No. 169, Indigenous and Tribal Peoples. <http://www.ilo.org/indigenous/Conventions/no169/lang--en/index.htm>

NEPA Handbook: <http://www.gsa.gov/portal/content/101194>

Title XIII of the International Financial Institutions Act of 1977, [http://www.usaid.gov/our\\_work/environment/compliance/title13](http://www.usaid.gov/our_work/environment/compliance/title13)

- Section 1301—Sustainable use of natural resources and the protection of the environment, public health, and the status of indigenous peoples.
- Section 1302—Vigorously promote mechanisms to strengthen the environmental performance of MDBs, including strengthening organizational, administrative, and procedural arrangements within the banks
- Section 1303—Economic viability, adverse impacts on the environment, natural resources, public health, and indigenous peoples, and recommendations as to measures, including alternatives, that could eliminate or mitigate adverse impacts.
- Section 1307 (Pelosi amendment)—Assessment of Environmental Impact of Proposed Multilateral Development Bank Actions: associated and cumulative impacts, alternatives and requirement for assessment or summary available to affected groups, and local NGOs and notice of its availability in the country and on the bank's website.

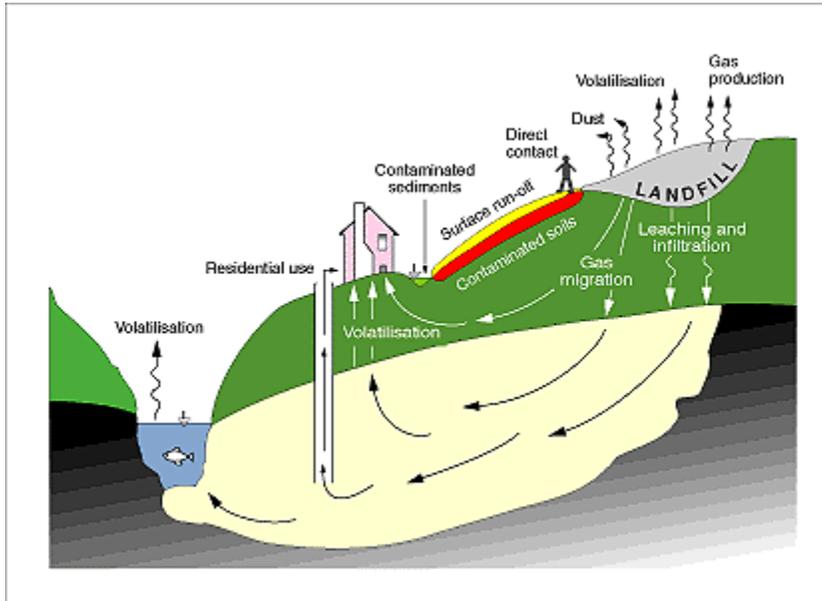
Trafficking in Persons, as defined by the U.S. Department of State <http://www.state.gov/j/tip/rls/tiprpt/2013/210543.htm>

USAID Policy on Gender <http://www.usaid.gov/sites/default/files/documents/1870/GenderEqualityPolicy.pdf>

USAID Environmental Mitigation and Monitoring Plans (EMMPs) <http://www.usaidgems.org/Workshops/MalawiMay2013Materials/Chapters/STEMMP.pdf>

## ANNEX 3: EIA ANALYTICAL TOOLS

**Conceptual model** of landfill exposure sources and environmental pathways (source - Petts, J and Edulgee, G. Environmental Impact Assessment for Waste Treatment and Disposal Facilities. p 229. John Wiley and Sons, Chichester. 1994)



Sample Table for **Alternatives Analysis** to analyze and compare each alternative

	<i>Flora</i>	<i>Fauna</i>	<i>Surface Water</i>	<i>Soil</i>	<i>Surface Water</i>
<i>Alternative 1</i>					
<i>Alternative 2</i>	<b>Briefly describe (quantify if possible) the potential impacts here</b>				
<i>No Action</i>					

Sample table for **Alternatives Analysis** - extent each alternative meets the criteria for purpose & need.

	<i>Selection Criteria 1</i>	<i>Selection Criteria 2</i>	<i>Selection Criteria 3</i>		
<i>Alternative 1</i>					
<i>Alternative 2</i>	<b>Describe the extent that each alternative meets the criteria</b>				
<i>No Action</i>					

### A3.1 THE LEOPOLD MATRIX

Section reference: FAO Environmental Impact Assessment and Environmental Auditing  
<http://www.fao.org/docrep/005/v9933e/v9933e02.htm>

The Leopold matrix is the best known matrix methodology available for predicting the impact of a project on the environment.

It is a two dimensional matrix cross-referencing:

- the activities linked to the project that are supposed to have an impact on man and the environment.
- the existing environmental and social conditions that could possibly be affected by the project.

The activities linked to the project are listed on one axis: raw material production, building construction, water supply, energy supply, raw material preparation, pulp and paper mills processing, gaseous emissions, liquid effluents, cooling water discharges, noise, solid wastes treatment and disposal, transportation.

The environmental and social conditions are listed on the other axis, and divided in three major groups:

- physical conditions: soil, water, air...
- biological conditions: fauna, flora, ecosystems...
- social and cultural conditions: land use, historical and cultural issues, populations, economy...

The Leopold matrix proposes a three-step process to estimate the impact:

**First step:**

For all the interactions considered significant by the authors, the first step is to mark the corresponding boxes in the matrix with a diagonal line.

**Second step:**

Once the boxes with supposed significant interactions are slashed, the author evaluates each box by applying a number from 1 to 10 (1 is the minimum and 10 the maximum) to register the magnitude of the interaction. This number is transferred to the upper left hand corner. It represents the scale of the action and its theoretical extent.

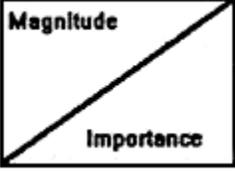
**Third step:**

The final step for this method is to mark (from 1 to 10), in the lower right hand corner, the real importance of the phenomenon for the given project. It then gives an evaluation of the extent of the environmental impact according to the assessor's judgement.

Once the matrix is established the EIA gives a precise description of each important impact in the matrix (with the larger numerical values for magnitude and importance). The discussion must also address columns and rows with large numbers of interactions. They show activities, or elements, in connection with the environment which are particularly significant or sensitive.

The Leopold matrix proposes a framework for all developers but, on one hand, it is too detailed for pulp and paper projects, and on the other not precise enough for such projects. It is generally more efficient to accommodate it as needed and to develop a customized matrix for the project. An example of a possible matrix for the pulp and paper industry is given in Figure 5.

Figure 5. Example of matrix for the pulp and paper industry (Leopold method).

Evaluation method 			ACTION												
			RAW MATERIAL PRODUCTION	BUILDING OPERATIONS	WATER SUPPLY	ENERGY SUPPLY	RAW MATERIAL PREPARATION	INDUSTRIAL PROCESSES	GASEOUS EMISSIONS	LIQUID EFFLUENTS	COOLING WATER DISCHARGES	SOLID WASTES TREATMENT	TRANSPORTATIONS	TOTAL	
ENVIRONMENTAL / SOCIAL CONDITIONS	PHYSICAL	SOIL	SOIL QUALITY												
			EROSION												
			GEOMORPHOLOGY												
		WATER	RIVERS												
			COASTAL ZONE												
			SUBSURFACE WATER												
	AIR	SEA QUALITY													
		AIR QUALITY													
		ODOURS													
	BIOLOGICAL	FLORA	NOISE												
			FORESTS												
			CROPS												
			WETLANDS												
			SEA-GRASSES												
		FAUNA	RIVER FLORA												
			MAMMALS												
			BIRDS												
			FISH												
OTHERS VERTEBRATES															
INVERTEBRATES															

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SOCIAL	ECOSYSTEMS	ECOSYSTEMS QUALITY																	
		ECOSYSTEMS DESTRUCTION																	
	LAND USES	RURAL																	
		FISHERIES																	
		URBAN																	
		INDUSTRIAL																	
		RECREATIONAL USES																	
	PATRIMONY	LANDSCAPE																	
		HISTORICAL/CULTURAL																	
		HERITAGE																	
		WILDERNESS QUALITY																	
	SOCIAL	POPULATION DENSITY																	
		EMPLOYMENT																	
		HAZARDS																	
				TOTAL															