

PURPOSE

These Best Practice Principles are intended to lead to better consideration of climate change in decisions and render them more sustainable. In particular, they are intended to help practitioners integrate climate change considerations into both project-level and strategic-level impact assessments (IA). By doing so, they also help ensure that decision makers' and stakeholders' concerns about climate change are addressed in development planning and analysis.

The systematic application of IA alerts decision makers to risks, to actions required to maintain local, regional and global ecosystems, and to steps needed to ensure the long-term success of development activities.

BACKGROUND

These Best Practice Principles were developed by an international group of IAIA members following two special symposia on climate change and impact assessment organized by the IAIA and held in Aalborg, Denmark, and Washington, D.C., in 2010.

The 2018 update is in keeping with IAIA's 2017 Conference, "Impact Assessment's Contribution to the Global Efforts in Addressing Climate Change" (Montréal, Québec, Canada).

Comments are welcome at any time and should be forwarded to info@iaia.org.

HOW TO CITE THIS PUBLICATION

Byer, P., Cestti, R., Croal, P., Fisher, W., Hazell, S., Kolhoff, A., and Kørnø, L. (2018) *Climate Change in Impact Assessment: International Best Practice Principles*. Special Publication Series No. 8. Fargo, N.D., USA: International Association for Impact Assessment.

AUTHORS

Principal Author: Philip Byer.

Co-authors: Rita Cestti, Peter Croal, Weston Fisher, Stephen Hazell, Arend Kolhoff, and Lone Kørnø.

Updated 2018 by Philip Byer, Weston Fisher, and Arend Kolhoff.

-
-
-
-
-
-
-

INTERNATIONAL ASSOCIATION for IMPACT ASSESSMENT

Headquarters
1330 23rd Street South, Suite C
Fargo, ND 58103-3705 USA
Phone +1.701.297.7908
info@iaia.org | www.iaia.org

Climate Change in Impact Assessment

IAIA statement on climate change and impact assessment

Climate change represents a key challenge to the sustainability of global ecosystems and human prosperity in the twenty-first century. The impacts of climate change combined with natural climate variability are predominantly adverse, and often exacerbate other environmental challenges such as degradation of ecosystems, loss of biodiversity, and air, water and land pollution. At the historic UN climate summit in Paris in December 2015, the nations of the world acknowledged the threats and risks of climate change to humanity.

Climate change is a **development** issue: it diminishes stocks of natural capital and undermines efforts to alleviate poverty. Climate change is a **security** issue: it threatens food production and water supplies and thereby potentially destabilizes the most severely affected states. Climate change is a **health** issue: rising temperatures, changes in precipitation, and altered coastlines affect the presence and spread of diseases. Climate change is also an **equity** issue: it primarily affects the livelihood of the poorest in developing countries and diminishes the ability of future generations to meet their basic needs.

Impact assessment has much to contribute in assisting governments with meeting their international commitments to address human-induced climate change, and in assisting industry and the public understand the environmental and social consequences of climate change. IA tools and methodologies can also be useful in formulating *mitigation* measures to reduce greenhouse gas emissions, and *adaptation* measures to reduce and manage adverse effects and enhance any potential benefits for proposed policies, programs, plans and projects. In particular, Strategic environmental assessment (SEA) may be vitally important in integrating mitigation of emissions and adaptation to climate change into policy-making.

To properly address climate change, IA practitioners should address the following for every IA of a proposed policy, program, plan or project (hereafter "proposal"). Some of these principles apply to all IAs; other principles are applicable to those addressing either mitigation or adaptation.

Best practice principles

Scoping

As a first step in an IA, it is necessary to identify whether and how:

- i) The proposal will, directly or indirectly, increase or decrease greenhouse gas (GHG) emissions.
- ii) The proposal may be beneficially or adversely affected by, and vulnerable to, climate change either directly or indirectly.
- iii) Climate change may affect elements of the environment that are potentially affected by the proposal.
- iv) The proposal could be used to identify measures to mitigate and/or adapt to climate change.

IA should explicitly address potentially significant effects in each area above, with the level of detail consistent with the potential significance of the effects.

Mitigation

Where the proposal will, directly or indirectly, increase or decrease greenhouse gas (GHG) emissions, the following should be addressed in the IA.

Mitigation objectives: Where the country has national or relevant sectoral climate change plans in which objectives for GHG emissions have been set, these objectives should be clearly identified and used in the IA. Such objectives may be the result of commitments made in the 2015 Paris Declaration. When objectives are not available, the IA should clearly define the objectives that the proposal is seeking to meet.

Greenhouse gas emissions: The IA should estimate the composition, magnitude, and intensity of GHG emissions for each relevant element and phase of the proposal. This should be estimated by using a life-cycle approach and should include any effects of the proposal on carbon sinks. The estimate of the proposal's *net* emissions requires careful examination of estimated emissions with and without the proposal. Also, net emissions should be evaluated against government or industry best practices and reduction targets or objectives.

Mitigation measures: Alternative measures should be identified to avoid or reduce GHG emissions directly or indirectly, for example, by explicitly identifying and evaluating different technologies or designs to reduce GHG emissions for all elements and phases of the proposal.

Cumulative effects: The effects on climate change of any single proposal may appear insignificant, but may not be when added to numerous other past, current and future projects. GHG emissions should therefore also be considered at a level (typically policy, program or plan) that addresses the cumulative effects of groups of communities or individual projects. More significant GHG reductions can be achieved by examining cumulative effects through strategic environmental assessment (SEA) processes, for example for a renewable energy generation program, rather than through assessments of individual projects alone.

Adaptation

Nearly all proposals will in the long run be sensitive to climate variables and therefore be affected by and vulnerable to climate change. The following should therefore be addressed in the IA.

Adaptation objectives: Where the country has national or relevant sectoral climate change plans in which climate change adaptation objectives have been established, these should be clearly identified and used in the IA. When objectives are not available, the IA should clearly define the objectives that the proposal is seeking to meet. IAs, especially for policies, programs, and plans, can also be used to help set the objectives and strategies for climate change adaptation.

Refining the baseline: Changes in climate and local weather affect the baseline environment against which impacts are assessed. Therefore, for those elements of the environment that are potentially affected by the proposal, the IA should identify how the baseline environment will be affected by climate change, and assess impacts against this changed baseline. At least three climate change scenarios should be addressed: minimum change, intermediate change, and maximum change. Programs and reports on how to estimate climate parameters for these scenarios are available and should be consulted. For proposals where scoping indicates the effects of climate change on the baseline environment are a minor issue, refining the baseline may only require evaluation of minimum or intermediate climate change scenarios. Alternatively, where climate change is an important issue relative to the proposal, all three scenarios should be evaluated.

Vulnerability and effects assessment: The degree to which elements of the natural, social, and economic systems related to the proposal are vulnerable to or at risk from climate change should be assessed. This includes vulnerabilities due to changes in average and extreme climate conditions in the short and long term under different climate change scenarios. For project proposals, this should also include the degree to which climate change would affect each component of the project. The IA should assess these effects relative to the new baseline for each phase of the proposal.

Adaptation measures: The IA should explicitly identify, evaluate and select feasible ways that the proposal can be modified now and in the future to lessen the effects of changes in the climate that are expected to continue over many decades. Adaptation aims to put in place measures to increase resistance to withstand climate change, increase resilience to recover from the effects of climate change, and strengthen the capacity to adapt to climate change as it unfolds in the future. A variety of adaptation measures should be developed, including nature-based solutions that make use of ecosystem services and functions. IA can also be used to help recognize and strengthen coping strategies and the knowledge systems that provide support for adaptation.

Equity

Consideration of different socio-cultural and socio-economic vulnerabilities and adaptive capacities within societal groups is an important component of IA. For example, climate change can affect men's and women's roles and activities in agriculture, water management, land tenure and livelihoods in new, unplanned ways. Gender issues related to climate change should therefore be assessed and measures identified to

lessen inequities. Particular attention should also be paid to potentially disproportionate adverse effects on poor populations in drought, flood prone and coastal areas subject to potential climate change impacts.

Synergies between adaptation and mitigation

Mitigation and adaptation may have different and conflicting goals, and each can have consequences that interact in both positive and negative ways. The IA should assess the interactions of mitigation and adaptation consequences and measures. Likewise, mitigation and adaptation have potential synergies with other environmental and social concerns that need to be addressed in order not to make suboptimal decisions.

Scientific information

Information about climate change is rapidly developing. Any assessment should use the latest, most credible scientific information and climate change projections.

Addressing uncertainties

Broad scientific consensus exists that the climate is changing; however, there is significant uncertainty about the precise nature (degree, timing, etc.) of these changes. The IA should address this uncertainty by explicitly considering a reasonable, credible range of possible future climate scenarios and including feasible *no-regret* adaptation measures that generate net social and/or economic benefits irrespective of the degree to which climate change occurs.

Confidence in the analyses

There will also be uncertainties in the analyses of GHG emissions, the effects of climate change on the proposal, and the effects of climate change on impact predictions. For each analysis, the IA should provide an explanation and justification for how the results were obtained (the sources of data, the choice of methodologies and models). It should also state the degree of confidence and validity that can be placed on the models and data, and on the results. Quantitative analyses are generally desired. However, it is recognized that such analyses may not be feasible or cost-effective and that qualitative analyses must suffice instead. In these cases, the qualitative descriptors should be fully explained and the predictions justified.

Decision-making

Making decisions about proposals that affect and/or are affected by climate change presents significant challenges, particularly since the implications are often long-term and uncertain. Once the climate change implications, including the uncertainties, are understood, decisions about the proposal (accept, modify, or reject) should be based on the precautionary principle of "do no harm" and the principles of sustainable development.

Follow-up

Once a proposal has been implemented, the actual outcomes may be different from those that were predicted in the IA. The IA should therefore identify the impact monitoring, evaluation, management and

communication measures that will be carried out for unanticipated impacts after the proposal has been implemented. This should include an adaptive management plan to respond to changing climate conditions. The IAIA "EIA Follow-Up International Best Practice Principles" should be consulted for more information.

Transparency and stakeholder participation

All people who are potentially affected by the proposal and interested in participating in the assessment process should be able to understand how climate change has been addressed. In addition, authorities that have a policy interest in the proposal need to be engaged. Each aspect of the IA, based on the principles outlined above from scoping through decision-making and plans for follow-up, should be communicated and explained in clear, easy-to-read language, and the relevant documents should be readily accessible to those interested. The IAIA "Public Participation International Best Practice Principles" should be consulted for additional guidance.

Operationalizing these principles

These Best Practice Principles provide a starting point for ensuring that this critical environmental issue is properly addressed in impact assessments. The following will be needed to implement these principles effectively:

- Strong financial and staffing commitments by government authorities and businesses to address climate change before making decisions about proposed policies, plans, programs, and projects.
- Ensuring the strength and continuity of institutions responsible for climate change mitigation and adaptation.
- Cross-disciplinary and cross-sectoral coordination that often bridges existing organizational structures.
- Use of the knowledge held by local and indigenous people who could be affected by climate change; such knowledge can be extremely useful in establishing the baseline, conducting trends analysis, and identifying and evaluating mitigation and adaptation measures.
- Education and targeted capacity building of IA practitioners on ways to address climate change in IA, and more detailed guidelines developed with input from the broad range of stakeholders interested in climate change.
- Assistance by experienced communication specialists to help inform decision makers of the relevance and implications of climate change to the proposal.

Glossary

Adopted from the Intergovernmental Panel on Climate Change, IPCC 2014.

Adaptation: The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.

Climate change: A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the Framework Convention on Climate Change (UNFCCC 1992) defines climate change as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." It thus makes a distinction between climate change attributable to human activities altering the atmospheric composition, and climate variability attributable to natural causes.

Climate change mitigation: A human intervention to reduce the sources or enhance the sinks of greenhouse gases.

Uncertainty: A state of incomplete knowledge that can result from a lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from imprecision in the data to ambiguously defined concepts or terminology, or uncertain projections of human behavior. Uncertainty can therefore be represented by quantitative measures (e.g., a probability density function) or by qualitative statements (e.g., reflecting the judgment of a team of experts).

Vulnerability: The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Resources

A growing body of information is available on climate change and IA, including guidelines and web-based tools developed by other groups, to help understand, predict and address future climate change in impact assessments. A list of documents on best practices is provided in IAIA's "Key Citations for Incorporating Climate Change Considerations in Impact Assessments," which is available on the IAIA website.

