



WOMEN SPEAKING AT A PUBLIC MEETING FOR A PROSPECTIVE USAID PROJECT IN TANZANIA. PHOTO CREDIT: CHARLES HERNICK

SECTOR ENVIRONMENTAL GUIDELINE: HOUSING RECONSTRUCTION

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ABOUT THIS DOCUMENT AND THE SECTOR ENVIRONMENTAL GUIDELINES

The United States Agency for International Development (USAID) has developed sector-specific environmental and social guidance to support activity design, pre-implementation environmental review (including the identification of potential impacts and the design of mitigation and monitoring measures), and the development of environmental mitigation and monitoring plans. **This document presents USAID’s Sector Environmental Guideline: Housing Reconstruction.** The *Sector Environmental Guidelines* for all sectors are available at [USAID’s Sector Environmental Guidelines & Resources webpage](#).

Purpose. The purpose of this document and the *Sector Environmental Guidelines* overall is to support environmentally and socially sound design and management of common USAID sectoral development activities by providing concise, plain-language information regarding the following:

- The typical, potential adverse impacts of activities in these sectors, including impacts related to environmental, social, and climate change;
- How to prevent or otherwise mitigate these impacts, both in the form of general activity design guidance and specific design, construction, and operating measures;
- How to minimize the vulnerability of activities to climate change, use activities to build resilience to climate change, and reduce emissions resulting from activities that can contribute to climate change;
- How to minimize social impacts and maximize the benefits to beneficiaries and the local community in an equitable manner; and
- More detailed resources for further exploration of these issues.

Environmental Procedures. USAID’s mandatory environmental procedures, as described in Automated Directives System (ADS) 204, require that the potential adverse impacts of USAID-funded and managed activities be assessed prior to implementation via the Environmental Impact Assessment (EIA) process defined by Title 22 Code of Federal Regulations (CFR), Part 216 (Reg. 216).¹ They also require that the environmental management or mitigation measures identified by this analysis be written into award documents, implemented over the life of the project, and monitored for compliance and sufficiency.

The procedures are USAID’s principal process to ensure environmentally sound design and management of USAID-funded activities and thus to protect environmental resources, biodiversity, ecosystems, ecosystem services, and the health and livelihoods of beneficiaries and other affected groups. These procedures strengthen and sustain development outcomes and help safeguard the good name and reputation of USAID.

The *Sector Environmental Guidelines* (SEGs) directly support environmental compliance by providing information essential to assessing the potential impacts of activities and helping identify and design appropriate mitigation and monitoring measures, as necessary and

¹ USAID. 1980. Reg. 216 (22 CFR 216). <https://www.usaid.gov/environmental-procedures/laws-regulations-policies/22-cfr-216>.

appropriate, based on capabilities.

However, the SEGs are not specific to USAID's environmental procedures. They are generally written and are intended to support an EIA of these activities by all actors, regardless of the specific environmental requirements, regulations, or processes that may apply.

Limitations. This document serves as an introductory tool for Agency staff when initiating the design of housing projects. This document is not intended to act as a complete compendium of all potential impacts because site-specific context is critical to determining those impacts. Furthermore, the Guidelines are not a substitute for detailed sources of technical information or design manuals. Users are expected to refer to the accompanying list of references for additional information.

Guidelines Superseded. This Sector Environmental Guideline replaces *Sector Environmental Guideline: Housing Reconstruction* (2015).

Comments and Corrections. Each of these SEGs is a work in progress. Comments, corrections, and suggested additions are welcome. Email: environmentalcompliancesupport@usaid.gov.

Advisory. The Sector Environmental Guidelines are advisory only. They are not official USAID regulatory guidance or policy. Following the practices and approaches outlined in the Sector Environmental Guidelines does not necessarily ensure compliance with USAID Environmental Procedures or host country environmental requirements.

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ACRONYMS

ADB	Asian Development Bank
AFOLU	USAID's Agriculture, Forestry, and Other Land Use Tool
CDP	Community Development Plan
CDR	Compulsory Displacement and Resettlement
CFR	Code of Federal Regulations
CLEER	USAID's Clean Energy Emission Reduction Tool
CRID	Regional Center for Disaster Information for Latin America and the Caribbean
CRM	climate risk management
CVP	Conflict and Violence Prevention
DER	distributed energy resources
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESIA	Environmental and Social Impact Assessment
GCAP	Global Climate Action Partnership
GCC	Global Climate Change
GHG	greenhouse gas
IEE	Initial Environmental Evaluation
IFC	International Finance Corporation
ILO	International Labor Organization
IP	Implementing Partner
IPCC	Intergovernmental Panel on Climate Change
LAP	Livelihood Action Plan
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
NAP	National Adaptation Plan
NBI	New Buildings Institute
NDC	Nationally Determined Contributions
NGO	non-governmental organization
PPE	personal protective equipment
PVC	polyvinyl chloride
SEG	Sector Environmental Guidelines
SEP	Stakeholder Engagement Plan
SIRS	Social Impact Risk Initial Screening Tool
UNCHS	United Nations Commission on Human Settlements
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
WBDG	Whole Building Design Guide

1. HOUSING RECONSTRUCTION



The ultimate impact of housing projects extends beyond the construction or reconstruction phase. The existence of housing tends to attract both economic activity and additional settlement. Thus, the environmental and environmental health impacts of the original project are typically amplified by its expansion over time.

1.1 INTRODUCTION

Shelter is a basic human need. Thus, providing adequate housing is a fundamental development objective; however, it is also highly complex. Successful housing activities can rarely be isolated from the development of associated infrastructure (e.g., water, sanitation, transport) and social services.

This *Sector Environmental Guideline* (SEG) focuses on housing reconstruction after natural disasters, which must be carried out under highly difficult circumstances, where there are expectations to be operational very quickly. The SEG does not address technical standards for the construction of housing units, water supply and treatment, and so forth. Instead, its purpose is to (1) convey the full range of environmental and environmental health issues associated with housing construction, and (2) provide a guided framework for considering these issues in the siting, design, and implementation of housing projects, particularly in post-disaster reconstruction and in risk-prone areas.

Note: It is highly recommended that readers review additional *Sector Environmental Guidelines* in this series as much of their content has implications for housing activity: *Water and Sanitation, Solid Waste, Rural Roads, and Construction*.

1.2 BRIEF DESCRIPTION OF THE SECTOR

Globally, many human settlements are highly vulnerable to natural hazards (e.g., floods, extreme rainfall, cyclones, volcanic eruptions). Such extreme weather events and other natural disasters can have disastrous effects on housing and dwelling structures and are often

accompanied by loss of life and livelihood, disruption or termination of essential services, and prolonged or permanent displacement. Marginalized and underrepresented groups and/or people in vulnerable situations are disproportionately affected by natural disasters and housing displacement—both because they tend to occupy poor-quality housing in high-risk areas (e.g., flood plains, steep slopes) and because they lack the resources to rebuild after a disaster.

The need for housing reconstruction can arise in urban, peri-urban, and rural areas; however, natural disasters in densely populated urban areas can be particularly devastating because they affect a large population, even when they do not affect a particularly large area. Housing reconstruction in rural areas after a natural disaster is an equally pressing issue. Rural reconstruction needs are often more difficult to assess than those in more urbanized areas because of lack of prompt information about the dimensions of the disaster. Even in the absence of natural disasters, living standards in rural areas are lower than in urban ones, thus increasing vulnerability.

1.3 HOUSING RECONSTRUCTION IN USAID PROGRAMMING

The United States Agency for International Development (USAID) programming continues to advance housing reconstruction through the following:

- Strategic investments in infrastructure and related resources to increase the resilience of urban and rural settings and the quality of housing stock;
- Development of holistic strategies to assist countries in addressing people’s housing needs; and
- Supporting the participatory processes of crisis-affected populations, with a focus on marginalized and underrepresented groups and/or people in vulnerable situations, to make progress toward more sustainable outcomes and processes.

2. POTENTIAL ENVIRONMENTAL IMPACTS OF HOUSING RECONSTRUCTION AND THEIR CAUSES

A fundamental issue facing post-disaster reconstruction efforts is whether to rebuild/repair housing where it was (“in-place”) or develop a new settlement. In densely populated urban areas, often the decision is to do reconstruction in-place, although other alternatives should be pursued in high-risk areas or in areas that are unacceptable under current zoning regulations or building codes. In either case, the environmental impact of housing development comes from the permanent occupation of the land by built structures and the introduction of domestic waste streams into the environment. Well-planned and implemented housing projects have far fewer impacts and result in much healthier populations than unplanned or poorly planned housing development.

In the case of a new settlement, the housing construction will cause some level of impact. However, the ultimate impacts may be significantly greater as new housing tends to attract both economic activity and additional settlement. Thus, the environmental and health impacts of the original project are typically amplified. The expected impacts of climate change should also be considered because they will affect the suitability of an area for settlement. The Initial Environmental Evaluation (IEE) will generally result in either a “Negative Determination with Conditions” or a “Positive Determination,” depending on the size of the settlement and other environmental and social factors.

Potential Environmental Impacts of Housing Projects

- Destruction of important ecological, archaeological, or historical areas
- Deforestation
- Contamination of soil or water resources
- Erosion

2.1 GENERAL IMPACTS

Potential impacts arising from land development, the introduction of human waste streams, and resource demands include the following:

- Destruction of important ecological, archeological, and historical areas and cultural heritage sites. This may be caused either by land clearing for the housing and the associated infrastructure, or by the subsequent exploitation of the land and other resources by inhabitants.
- Deforestation, arising from the clearing of land for construction and the associated infrastructure (e.g., roads).
- Potential eventual land use practices of inhabitants that may be of concern to the community.
- Contamination of soil, surface water, and groundwater from sewage and solid waste (refer to the Water and Sanitation sector description in the guidelines), as well as the creation of breeding grounds for animal and insect disease carriers.
- Erosion from the construction of houses and access roads, resulting in the destruction of agricultural land, the sedimentation of waterways, and so forth.
- Destruction and filling of natural drainage channels, thereby increasing flood risks.

2.2 CONSTRUCTION IMPACTS

The Construction Sector Environmental Guideline (SEG) from this series examines potential environmental impacts. Prominent environmental impacts are as follows:

- Emissions to air and the degradation of air quality;
- Noise emissions and vibration emissions, resulting in nuisance or other effects;
- Compaction of the soil and grading of the site, resulting in increased soil erosion;
- Habitat removal, resulting in the loss of and damage to sensitive or valuable ecosystems and the use of natural resources;
- Effluent discharges or runoff, leading to the degradation of water quality and the impact on the aquatic environment;
- Contamination of land or surface waters, the risk to workers or communities due to inappropriate hazardous materials use, waste production and disposal, or the use of biocides and insecticides;
- Impacts on people, oceans, freshwater, and ecosystems due to greenhouse gas (GHG) emissions that contribute to global climate change;
- Reduction in water availability through overuse, leading to conflict among end-users;
- Degradation of landscape character and visual impacts;
- Inefficient use of energy, leading to more volatile organic compound emissions and the use of more natural resources;
- Poor integration into the built environment, thus exacerbating the effects (e.g., poor construction siting, choice of building materials, building orientation);
- Risk from working with contaminated land and causing the contamination of land; and
- Traffic, travel, and vehicle use leading to road wear and tear or increased traffic volumes.

Environmental Damage from Housing Construction

- Erosion, particularly from quarries or borrow pits
- Water contamination
- Airborne dust and particulate contamination
- Destruction or depletion of local natural resources
- Loss of stability on slopes and hillsides
- Creation of areas where disease-bearing insects and animals can breed
- Destroying or damaging scenic vistas

2.3 IMPACTS OF THE BUILT ENVIRONMENT

As noted above, housing construction changes the natural environment and poorly planned and constructed housing or settlements can create severe environmental health hazards for both the existing population and new inhabitants. Environmental health issues include the following:

- Inadequate or absent sanitation facilities (water, sewage, and solid waste disposal), leading to higher rates of diseases transmitted via the oral-fecal route (e.g., cholera) and by insect and animal vectors (e.g., malaria, dengue, plague);
- Possible dangers from rebuilding in risky areas (e.g., landslides, flooding);
- Dangerous prior or ongoing human activity near the site (e.g., such as highly polluting industrial, mining, or farm operations; military operations);
- Creation of standing water due to poorly constructed drainage systems or abandoned borrow pits, with associated increases in vector-borne diseases; and
- Unhealthy interior conditions due to improper house design or construction materials that are inappropriate for the local climate and anticipated use of space within the home (e.g., creating interior conditions that are either too hot or too cold, or improper ventilation for heating or cooking, which can create health impacts from indoor air pollution).



Quarries and borrow pits can be breeding grounds for disease-bearing insects, contribute to deteriorating water quality, and cause erosion.

2.4 IMPACTS ON ENVIRONMENTAL RESOURCES

The creation of a new housing settlement can also affect the environmental resources available to the existing population in the area, particularly in rural locales. An assessment of the impacts on the existing population should consider climate change, which may put additional stresses on those communities. The impacts of a proposed project must be assessed against what would happen without the project. In the case of housing projects, baseline assessment can be a particularly difficult proposition. An unwanted alternative to planned reconstruction may be unplanned and ad hoc resettlement of the site, reproducing—or even worsening—pre-existing public health hazards and the poor construction practices that may have contributed to the disaster in the first place.

Environmental Damage from Built Housing

- Inadequate or non-existent sanitation
- Natural disasters, such as floods or landslides
- Dangerous or polluting local industries and activities
- Standing water that creates breeding grounds for disease-bearing insects
- Unhealthy conditions inside houses from poor design or construction

2.5 SUMMARY OF ADVERSE IMPACTS AND MITIGATION MEASURES

2.5.1 SITE AND DESIGN

TABLE 1. ADVERSE IMPACTS FROM SITING AND DESIGN

POTENTIAL ADVERSE IMPACT	MITIGATION MEASURES
Destruction of important ecological, areas	<ul style="list-style-type: none"> • Before the site is selected, verify that biodiversity, conservation of endangered or endemic species, or critical ecosystems will not be adversely affected. • An alternative site should be used if the area is identified as critical.
Contamination of soil and water from sewage and solid waste	<p>Sewage:</p> <ul style="list-style-type: none"> • Site human waste and solid waste disposal systems to avoid surface water and groundwater contamination, taking soil characteristics and historical groundwater and surface water conditions into account. Install adequate and appropriate sewage and solid waste disposal systems (e.g., use aboveground composting latrines in areas with high water tables). • Install adequate and appropriate sewage and solid waste disposal systems (e.g., use aboveground composting latrines in areas with high water tables). • Complete sewage treatment is usually required. Latrines are usually inappropriate for larger or dense new settlements. <p>Solid waste:</p> <ul style="list-style-type: none"> • Install adequate and appropriate solid waste systems. Sanitary landfills and recycling programs are often non-existent in developing countries, and support for their development may be required in coordination with local municipalities (see the Solid Waste SEG).
Risk to residents due to possible natural hazards or extreme weather events exacerbated by climate change	<ul style="list-style-type: none"> • Ensure that a proposed project site is not located in an area currently or likely to become as follows: <ul style="list-style-type: none"> ○ subject to landslides ○ subject to fires ○ subject to flooding ○ with slopes greater than 20% ○ below an area likely to undergo significant deforestation or land clearing • If the site is in an area that is subject to these natural hazards, an alternate site should be used. If no appropriate alternative can be found, mitigation measures must be taken to minimize the risk in areas where it is unavoidable (e.g., construct firebreaks, stabilize slopes, construct drainage, elevate housing units on pilings).

POTENTIAL ADVERSE IMPACT	MITIGATION MEASURES
Risk to residents due to project activity near the site	<p>Before the site is selected:</p> <ul style="list-style-type: none"> • Ensure that the project will not be located within the area of influence (normally 1 kilometer) of pollution and hazardous waste sources, including factories, mines, military bases, and so forth. • Ensure that the project is not downwind of a contamination source. • If groundwater is to be used for drinking, test it for chemical and microbial contamination if there is any reason to doubt its purity. • Identify and eliminate sources of noise pollution. • Use an alternate site if the risk to residents is high.
Deforestation in order to implement the project	<ul style="list-style-type: none"> • If the forest is dense or forms part of a critical habitat, an alternative site must be found. • A forested area equal in size to one and a half to two times the area deforested must be established and maintained. The location and ultimate use of this protected area will be established in coordination with local municipal authorities. • For each tree cut in a sparsely forested area, plant replacement native trees. This should be done no later than 6 months after the residents have moved in or when most advantageous during the growing cycle.
Excessive use of fuelwood as an energy source	<ul style="list-style-type: none"> • Encourage the use of alternative energy sources, such as gas, biogas, electricity, and solar. • If fuelwood is the dominant energy source, include the planting of fuelwood plots using local species in the project layout and design. • Require all residents who cook with fuelwood to use improved stoves.
Houses that are inappropriate for the local climate; occupant comfort is inadequate, including due to increased weather variability resulting from climate change	<ul style="list-style-type: none"> • Ensure that the design, construction materials, and siting of windows and doors take local climatic conditions in cool and hot seasons, seasonal variation in precipitation and wind, and anticipated climate changes into account. Use local materials if possible.
Inadequate ventilation	<ul style="list-style-type: none"> • Design houses to ensure adequate ventilation for the potential heating and cooking sources to be used within the home. Take advantage of wind direction in design.
Inadequate attention to the type and location of solid waste disposal	<ul style="list-style-type: none"> • Prepare and implement a Solid Waste Disposal Management Plan prior to resident occupancy. Include technology and funding for system maintenance and disposal, and the effects on groundwater, wind direction, and so forth in the plan.
Health hazards due to a lack of sanitation facilities (e.g., water, sewage and solid waste disposal)	<ul style="list-style-type: none"> • Sanitation facilities must be included in the project design. • Ensure that all sanitation facilities are installed and running before the occupants move in.

POTENTIAL ADVERSE IMPACT	MITIGATION MEASURES
Unsafe potable water supplies	<ul style="list-style-type: none"> • Ensure that the siting of supply systems and the choice of supply technologies minimize health hazards. • Conduct seasonal testing of water quality, particularly for coliform bacteria and arsenic. Assess long-term and seasonal shifts in water quantity and quality.
Inadequate water supplies	<ul style="list-style-type: none"> • Estimate the demand for water (current and future) and identify supplies that can meet the projected demand. • Train users to monitor and repair leaks from cracked containment structures, broken pipes, faulty valves, and similar structures to ensure the efficient use of the water supply. • Put in place a system for regulating use, such as a local warden or appropriate pricing. • Monitor water levels in wells or impoundment structures to detect overdrawing.
Hazards due to inadequate earthquake resistance or inappropriate materials	<ul style="list-style-type: none"> • Understand the local risk of earthquakes, floods, and wind. Ensure that construction meets the appropriate standards. Use locally available materials. • Follow, or exceed, the official design criteria.
Lack of compliance with mitigation measures	<ul style="list-style-type: none"> • Collect signed, binding agreements from the collaborating organizations and contractors before the project begins. • Each Implementing Partner or NGO must have an Environmental Management Plan to ensure compliance with the mitigation measures. Have an independent evaluation of the plan conducted annually.
Inadequate electricity supply or a dependence on fossil fuel	<ul style="list-style-type: none"> • Use renewable electricity, battery systems, and distributed energy resources (DERs) to supply electricity in rural and urban locations with poor or limited access (i.e., decentralized power) and as a backup power supply. • Reduce the energy needs of houses through green building design, lighting improvements, fuel switching, and efficient equipment/refurbishment (e.g., air conditioning and heating).

2.5.2 CONSTRUCTION

TABLE 2. ADVERSE IMPACTS FROM CONSTRUCTION

POTENTIAL ADVERSE IMPACT	MITIGATION MEASURES
Interruption of local transportation	<ul style="list-style-type: none"> • Schedule construction for low-traffic days or hours; stagger construction to dilute the impacts of road closure. Conduct work to permit at least alternating one-way road passage whenever possible.
Noise	<ul style="list-style-type: none"> • Schedule work in order to minimize noise during quieter times of the day. Comply with any local noise ordinances. Mitigate noise by properly muffling engines (including generators), avoid idling heavy equipment, notify the public of planned construction operations, and consider screening to reduce noise in residential or other sensitive areas.

POTENTIAL ADVERSE IMPACT	MITIGATION MEASURES
Dust or mud	<ul style="list-style-type: none"> Spread water to reduce dust. Drain areas that are prone to mud. If possible, schedule land clearing, excavation, and similar activities to avoid extremely dry and extremely wet conditions.
Breeding grounds for insect vectors (e.g., standing water in borrow pits, demolition debris)	<ul style="list-style-type: none"> Excavate and rebury trenches quickly. Arrange for construction or demolition debris to be permanently disposed of away from watercourses. Fill borrow pits or ensure their drainage. Use shallow wells or streams for construction water rather than diverting natural flows to the construction site.
Erosion during the construction of houses and access roads	<ul style="list-style-type: none"> Soil conservation measures must be included in the design and implemented during construction. The exact means will depend on the site and the severity of the impact. Install checks and barriers (e.g., berms, hay bales or other vegetation) to trap sediment runoff and revegetate disturbed areas.
GHG emissions from the production of materials	<ul style="list-style-type: none"> Light-weight, downsize, and extend the life of products. Reuse and recycle materials. Use local materials/products to reduce the emissions from transport. Recover materials from building demolition waste. Integrate carbon capture, utilization, and storage technologies if possible.
Lack of compliance with mitigation measures	<ul style="list-style-type: none"> Collect signed, binding agreements between the collaborating organizations and contractors before the project begins. Each responsible NGO or other partner must have an Environmental Management Plan to ensure compliance with the mitigation measures. Have an independent evaluation of the plan conducted annually.

2.5.3 HABITATION

TABLE 3. ADVERSE IMPACTS DURING HABITATION

POTENTIAL ADVERSE IMPACT	MITIGATION MEASURES
Improper use of environmental and sanitary resources by householders	<p>If applicable, the responsible NGOs and partners must provide environmental and sanitary training for all residents before they move in. Training should address all of the following:</p> <ul style="list-style-type: none"> Environmental education Care of domestic animals Reforestation of green areas Proper use and maintenance of latrines Proper use and conservation of water Construction and use of improved stoves Fuelwood plot management

Lack of compliance with mitigation measures	<ul style="list-style-type: none">• Collect signed, binding agreements between the collaborating organizations and contractors before the project begins.• Each responsible NGO or other partner must have an Environmental Management Plan to ensure compliance with the mitigation measures. Have an independent evaluation of the plan conducted annually.
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3. CLIMATE CHANGE CONSIDERATIONS

3.1 PLANNING FOR CLIMATE CHANGE

Global climate change is resulting in changes in temperature, rainfall patterns, sea level, and extreme weather events that are putting stress on many communities and challenging development efforts. As the climate continues to change due to rising GHG emissions, USAID has opportunities to reduce or avoid those emissions in housing projects, as well as to consider measures to build resilience and introduce adaptation in the housing sector.

Housing reconstruction projects should include the consideration of potential near- and long-term changes to climate conditions and local weather patterns. Evolving and shifting climate change impacts (e.g., as a result of extreme heat, increased severity of storms, changing rainfall and wind patterns, sea level rise, other risks) can result in unexpected and significant risks to structures, as well as the resources and supply chains used for construction materials. These various factors in the reconstruction and siting of new housing should also be considered in the context of the history of a community as well as the cultural, spiritual, aesthetic, or livelihoods-related value in particular locations.

When seeking to address climate change challenges, it is useful to take a broad perspective in considering options for reducing emissions and building resilience. These actions can be supplemented with measures to mobilize financing for climate-related investments; efforts to strengthen policies and market signals that enable low-emissions development; engagement with Indigenous Peoples, local communities, and women, youth, and marginalized groups to foster buy-in; and direct engagement in the construction, operations, and maintenance of infrastructure.

Consistent with proven approaches for sustainable, effective development assistance, climate-focused activities should, where applicable, also seek to reflect the principles of locally led development, equity and inclusion, private sector engagement, nature-based solutions, innovation, and the use of evidence.

3.2 BUILDING RESILIENCE AND ADAPTING TO CLIMATE CHANGE

Climate change affects housing—and its inhabitants—through sea level rise, shifting temperatures and precipitation patterns, and extreme weather events (e.g., drought, flooding, heat waves, tropical storms, storm surge). These risks should be considered in planning and zoning, housing design, siting, materials selection, construction, use, maintenance, and access to insurance. Housing—especially permanent structures—requires that the design withstands exposure to an altered climate and reduces the sensitivity to climate variability and change. Importantly, post-disaster scenarios can potentially offer opportunities to build back better, leaving communities more resilient to potential future disasters. While to date property insurance has had limited uptake in many countries where USAID works, the availability of insurance, or lack thereof, can also significantly affect decision-making around housing reconstruction and potential risk.

Planning for housing and the development of housing projects should take climate change into account by including elements designed for adaptation to changing climate conditions and increased resilience to current and future climate risks:

- **Adaptation** is the process of adjusting to the actual or expected climate and its effects in order to moderate harm or exploit beneficial opportunities; adaptation interventions seek to strengthen resilience to the unavoidable impacts of climate change.²
- **Resilience** refers to the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.³

Adapting planning, designing, construction, use, and maintenance to climate change involves ensuring that housing projects are able to withstand climate change impacts in order to protect the inhabitants. Housing designers and project managers must incorporate information on climate from historical records, including recent trends, and future projections. By incorporating climate adaptation and resilience, project planners can improve the likelihood of the long-term success of their projects. Embedding climate resilience in design will enable projects to minimize future loss and damage (and the associated costs), resulting in a sounder investment.

Climate risk management measures could also inadvertently result in increased vulnerability to climate impacts for certain individuals or communities, particularly those who are already marginalized. This is sometimes called **maladaptation**. For example, individuals who are displaced to accommodate the construction of new housing that aims to improve climate resilience could potentially suffer economically and lose cultural or knowledge-based connections with the land, ultimately leaving those individuals less resilient to climate stressors.

Equity should be a critical element of climate-resilient housing because housing that lacks resilience or addresses resilience without considering equity concerns can create or reinforce vulnerabilities. For example, low-income housing that is improperly strengthened against flooding or built in economically disadvantaged (and higher risk) locations may weaken or collapse during a flood event, exposing inhabitants to safety and disaster risks. Furthermore, the lack of planning for climate risk can exacerbate existing inequality. Those living in informal settlements often have limited access to public services and are more likely to be located in hazard-prone areas due to historical injustices. Communities in these informal settlements are less likely to receive support for more formal, structurally durable housing, leaving them particularly vulnerable to climate risks. Sustainable, resilient, and affordable housing must be readily available across communities, including in informal settlements, and particularly in post-disaster settings. Project planners should seek to improve climate resilience by working with local communities and Indigenous Peoples to ensure that local knowledge and voices are incorporated in housing design and reconstruction.

Incorporating climate adaptation and resilience into housing planning, design, occupancy, and maintenance requires two main processes: determining future climate risk and incorporating the principles of adaptation and mitigation into the project.

Determining future risk: Adapting housing planning, design, occupancy, and maintenance to climate change involves ensuring that structures and the systems that sustain them can withstand increased climate variability, rising sea levels, and extreme temperatures, wind, and

² IPCC. 2021. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. https://report.ipcc.ch/ar6/wg1/IPCC_AR6_WGI_FullReport.pdf.

³ USAID. 2024. "Resilience Policy." https://www.usaid.gov/sites/default/files/2024-06/USAID3090_USAID%20Resilience%20Policy_062524_WEB%28508c%29.pdf.

precipitation (including associated flooding). Measures that increase resilience can better protect inhabitants and allow infrastructure to serve its intended purpose unabated and in a sustained manner. For example, project managers can examine components that are sensitive to weather (e.g., building materials, location) to ensure that they are appropriate for future weather extremes. Project managers can also ensure housing siting and design activities are based on data-driven decisions, such as by researching extreme weather conditions (e.g., a 100-year storm).

Housing projects should focus on incorporating climate information from historical records and recent trends, as well as future projections in housing design and construction. Future projections should also take into consideration environmental and climate thresholds that, if surpassed, could cause rapid climatic changes (e.g., tipping points, such as the collapse of Antarctic ice sheets or the melting of permafrost in the Arctic).

Tools are increasingly available to help decision-makers and project designers pragmatically assess potential climate risks in the face of uncertainty, such as by screening for climate vulnerabilities through the use of a “decision tree.” Using a decision tree approach, further or deeper analysis is performed only as needed, allowing decision-makers to allocate project resources in proportion to project needs. This aligns with the risk management approach in USAID guidance on climate change.^{4,5}

Principles for adaptation and mitigation: From a risk management perspective, it is less costly to design for the potential direct and indirect impacts of climate change on housing and its inhabitants than to keep practicing “business as usual” and risk major losses and damage to housing. Project managers must balance the upfront costs of improving climate resilience, the expected investment over a lifetime, and the potential consequences of climate impacts when designing how best to manage climate risks. While some cost and lifetime considerations may limit the financial incentive to address climate risks, effective consideration and management of potential climate impacts, as required by USAID, necessitates assessing both current and future climate risks to housing projects and the beneficiaries.

For example, design and siting for housing in coastal areas should take into account projected sea level rise and storm surges, and appropriate locations should be selected based on these considerations. The same principle applies to residences located in or near floodplains, rivers, and wetlands. In locations where annual average temperatures are rising, building designs should consider the need for additional cooling capacity (e.g., the incorporation of passive solar cooling principles and the use of materials that prevent heat from entering homes, such as mud and brick). Housing located where drought is a concern may require greater attention to water storage and efficient water systems to conserve water; whereas housing in areas where heavy rains are projected require construction design with adequate drainage and erosion control measures. Other than reducing the risk from climate change impacts, integrating emissions reduction and climate resilience measures into housing projects, especially from the beginning of the project, can also bring about co-benefits. For example:

⁴ Ray, Patrick A., and Casey M. Brown. 2015. *Confronting Climate Uncertainty in Water Resources Planning and Project Design: The Decision Tree Framework*. Washington, DC: World Bank. doi:10.1596/978-1-4648-0477-9. License: Creative Commons Attribution CC BY 3.0 IGO. <https://www.semanticscholar.org/paper/Confronting-Climate-Uncertainty-in-Water-Resources-Ray-Brown/297b0b524f8324286b8ab20838d6a2c9cf6d2d6f>.

⁵ USAID. 2022. *Climate Risk Management for USAID Projects and Activities: A Mandatory Reference for ADS Chapter 201*. https://2012-2017.usaid.gov/sites/default/files/documents/1868/201mal_042817.pdf.

- Increasing and providing more diverse primary and backup energy by adding renewable energy options can both reduce GHG emissions and increase resilience to extreme weather events that threaten the energy supply (e.g., sudden or intermittent electrical outages and fuel shortages caused by climatic events).
- Designing housing with passive heating and cooling, as well as high-efficiency heat pumps and high-quality insulation, can reduce the need for heating and cooling during extreme weather events, as well as reduce heating and cooling costs.
- Siting new housing near locations with multiple transportation options can increase resilience by providing more mobility alternatives for communities during extreme weather events that may make some forms of transportation inaccessible. Siting buildings near public transit options can also encourage mass transit use and help avoid emissions from personal vehicles.
- Upgrading water systems to be climate-resilient can help inhabitants have access to safe and reliable drinking water during both flooding and drought conditions.
- Working with communities to plan the reconfiguration of homes in dense informal settlements post-disaster to minimize flood risk can open up space for communal use and the provision of public services.⁶

USAID requires the consideration and management of climate risks for all projects and activities as part of the climate risk management (CRM) process. Table 4 describes the climate risks that may affect housing activities, along with some potential risk management options. These options are explored in more detail in the Section 2.⁷

TABLE 4. CLIMATE RISK MANAGEMENT FOR SCHOOL CONSTRUCTION ACTIVITIES

CLIMATE STRESSORS	CLIMATE RISKS	CLIMATE RISK MANAGEMENT OPTIONS
Increasing the incidence and/or severity of storms (e.g., intense rainfall, high wind events) and extreme events (e.g., flooding, landslides, wildfires)	<ul style="list-style-type: none"> • Delays to the housing reconstruction process and damage to the site (e.g., soil erosion), construction materials, and other inputs (e.g., electrical equipment) required for reconstruction. 	<ul style="list-style-type: none"> • During site selection, consider the likelihood of climate risks, under both observed conditions and future climate change projections. • Set robust, resilience-oriented engineering design and construction material standards that can withstand increasingly variable weather and extreme events. • Use wind- and impact-resistant materials. • Identify alternative routes during extreme weather events for the
	<ul style="list-style-type: none"> • Damage to or blocked transportation routes, disrupting the delivery of input materials and travel for workers during the construction phase. 	
	<ul style="list-style-type: none"> • Delays to construction or difficulty completing construction due to the displacement of or the health 	

⁶ For additional information on “reblocking,” see *Reblocking Partnership Guidebook*, accessible at <https://wp.wpi.edu/capetown/files/2012/12/Reblocking-Guidebook.pdf>.

⁷ For additional information on climate risk management, see the Mandatory Reference for ADS Chapter 201, accessible at <https://www.usaid.gov/about-us/agency-policy/series-200/references-chapter/201ma>.

CLIMATE STRESSORS	CLIMATE RISKS	CLIMATE RISK MANAGEMENT OPTIONS
	<p>impacts on the construction workforce.</p> <ul style="list-style-type: none"> • Flooding may result in the contamination of soil/water in surrounding areas, which, in turn, may result in negative impacts on housing residents' health and safety. • Without proper drainage, flooding can result in standing water that creates breeding grounds for disease vectors, leading to public health risks. • Latrine inundation, resulting in wastewater overflow and the resulting soil/water pollution, as well as public health risks. • If reconstruction does not consider climate risks, inhabitants could face physical health risks from flooding, landslide, and wildfire damage to their homes. 	<p>delivery of materials and workers for the construction phase.</p> <ul style="list-style-type: none"> • Elevate electrical equipment and structures and critical transportation routes to be above the height of projected flood and storm surge water. • Move or construct housing to be above the floodplain and flood-prone coastal areas. • Incorporate stormwater management technology, such as sump pumps and backflow prevention devices. • Update drainage plans to ensure sufficient capacity. • Use water-resistant materials. • Protect the health and safety of construction workers and residents with regard to climate impacts (e.g., water or cooling stations, external shading, and mosquito netting). • Provide education on and build capacity for emergency preparedness and response.
<p>Increasing air temperatures and incidence of extreme heat events</p>	<ul style="list-style-type: none"> • Hotter conditions could affect worker and community health and safety (e.g., heat stress, vector-borne disease) and result in increased costs to address these impacts. • Temperature fluctuations may increase energy demands and strain energy systems for housing, potentially adding operational costs and contributing to GHG emissions. • Damage to paved roads, rail, and other transportation routes from excessive heat, thus disrupting the delivery of materials and travel for workers during the construction phase, and travel of residents post-construction. 	<ul style="list-style-type: none"> • Partner with Indigenous groups to better understand existing climate risks and have local actors lead climate action and adaptation. • Promote integrated watershed management and rainfall capture/water-efficiency practices (e.g., rain barrels, green infrastructure). • Build the capacity of the local community and partners through education, training, and skills building in advancing climate-smart housing construction practices. • Diversify the water supply for housing and promote household conservation (e.g., rain barrels, graywater system, water-saving measures).
	<ul style="list-style-type: none"> • Reduced access to water for housing projects, potentially 	<ul style="list-style-type: none"> • Implement on-site monitoring of climate indicators (e.g., heat and rain gauges) to inform

CLIMATE STRESSORS	CLIMATE RISKS	CLIMATE RISK MANAGEMENT OPTIONS
Increasing incidence and severity of droughts	adding costs and health concerns for workers and residents.	<p>infrastructure operations and schedule maintenance.</p> <ul style="list-style-type: none"> • Increase financial and technical resources for more frequent maintenance and repairs. • Construct storm surge barriers or establish natural buffer zones in coastal areas. • Incorporate green infrastructure and nature-based solutions, such as for stormwater management. • Install permeable surfaces and/or water retention plantings in high flood risk areas and areas where groundwater recharge is desired. • Invest in renewable energy and alternative fuels to promote a reliable energy supply in the face of variable weather and extreme events and reduce GHG emissions. • Consider green building design options that improve the resilience of buildings and their residents.
	<ul style="list-style-type: none"> • Reductions in hydropower potential, potentially adding to energy costs. 	
	<ul style="list-style-type: none"> • Damage to building foundations and structures due to soil cracking and subsidence in areas with clay soils. 	
Sea level rise	<ul style="list-style-type: none"> • Delays to the housing reconstruction process and damage to reconstruction sites (e.g., soil erosion), construction materials, and other inputs (e.g., electrical equipment) required for reconstruction. 	
	<ul style="list-style-type: none"> • Damage to coastal infrastructure, including impacts caused by corrosion. 	
	<ul style="list-style-type: none"> • Damage to or blocked transportation routes, disrupting the delivery of materials and travel for workers during the construction phase and travel for residents post-construction. 	
	<ul style="list-style-type: none"> • Inundation and contamination of groundwater supplies. 	
	<ul style="list-style-type: none"> • Potential complete loss of reconstruction sites in coastal areas due to indefinite, persistent inundation. 	
	<ul style="list-style-type: none"> • Latrine inundation, resulting in wastewater overflow and subsequent soil/water pollution, as well as public health risks. 	

3.3 MINIMIZING GREENHOUSE GAS EMISSIONS AND MAXIMIZING SEQUESTRATION

Housing construction and reconstruction contribute to GHG emissions from equipment use, the transport of materials and labor, and the production of materials. Once in place, housing contributes to GHG emissions from appliance use, including for refrigeration, cooking, heating and cooling, and other electricity usage. Siting decisions can also affect GHG emissions if they increase travel distances to workplaces and schools, or require removing trees, other

vegetation, and soil that would otherwise act as a carbon sink. Public transit-oriented housing developments can reduce energy usage and emissions by reducing the dependence on cars.

Housing projects can minimize GHG contributions by taking steps to improve project energy efficiency and reduce fuel use. Emissions reductions can be achieved by requiring procurement and sourcing of energy-efficient equipment and materials, conserving electricity and fuel, and using renewable energy sources during construction. Housing projects can further minimize GHG emissions by using more sustainable and less emissions- and energy-intensive building materials, structures, and designs and by using locally sourced materials, and by recovering materials from building demolition waste. See more about how to reduce GHG emissions in the Construction SEG.

In the practice of Environmental Impact Assessment (EIA), mitigation is the implementation of measures designed to eliminate, reduce, or offset the potential adverse effects of a proposed action on the environment.

In relation to climate change, mitigation is an intervention to reduce or avoid GHGs, or sequester GHGs using natural means (e.g., uptake by trees, vegetative cover, algae) or the use of technology (e.g., underground carbon storage) to limit the magnitude and/or rate of climate change.

As a general principle, housing should be designed to accommodate multiple people in a single unit, which can reduce the overall per capita environmental impacts and GHG emissions. In addition, there could be opportunities to consider more dense (i.e., less sprawling) housing developments, which can also reduce the per capita environmental impacts, including emissions.

Increased housing energy efficiency can be achieved by incorporating green building measures, such as promoting more passive cooling or heating (e.g., considering orientation to daylight and the natural use of airflow), using energy-efficient lighting technology, installing heat-reflective exterior walls and roofs, increasing insulation, and weatherizing to reduce energy losses. Improvements to cooking equipment and cookstoves can also reduce GHG emissions. In particular, retrofitting existing buildings to adopt green building measures, where possible, and working to extend the lifetime of buildings, such as through repair and improved maintenance, have been shown to result in significant emissions reductions.⁸

While tree and ground cover removal for housing construction is sometimes necessary, the adverse impacts of this removal can be addressed through compensatory tree planting to replace lost vegetation.

⁸ Hertwich, Edgar G., et al. 2019. "Material efficiency strategies to reducing greenhouse gas emissions associated with buildings, vehicles, and electronics—a review." *Environmental Research Letters* 14, no. 4. <https://iopscience.iop.org/article/10.1088/1748-9326/ab0fe3/meta>.

TABLE 5. MITIGATING GHG EMISSIONS IN HOUSING

GHG EMISSIONS SOURCES	EMISSIONS MITIGATION OPTIONS	ESTIMATION TOOLS
Housing Construction		
<ul style="list-style-type: none"> • Emissions from the electricity and fuel used for equipment • Emissions from the fuel used to transport materials, equipment, and labor • Emissions from the production of construction materials, such as polyvinyl chloride (PVC) piping, aluminum, steel, glass, and cement⁹ • Emissions associated with construction waste materials • Emissions associated with the demolition of previous housing infrastructure 	<ul style="list-style-type: none"> • Using efficient design and construction phases for buildings to avoid or reduce emissions from energy use for heating and cooling and using more energy-efficient appliances. • Using renewable energy and clean fuels to power equipment. • Reducing transport distances and using electric vehicles and other forms of sustainable transport for the transportation of materials, equipment, and labor. • Using locally sourced materials and recycling or reusing unused materials from construction and demolition debris. • Using less energy-intensive materials and materials with lower embodied emissions, such as wood, clay, brick, and tile.¹⁰ • Engaging with materials suppliers to understand the upstream GHG emissions associated with materials production. • Minimizing the idling time of construction equipment. 	<ul style="list-style-type: none"> • USAID’s Clean Energy Emission Reduction (CLEER) Tool can be used to estimate emissions that would be avoided as a result of renewable energy use, including projected avoided emissions to 2050 (see https://www.cleertool.org/). • The GHG Protocol’s GHG Emission Calculation Tool can be used to estimate potential emissions (and avoided emissions) resulting from the use of vehicles, refrigeration and air conditioning equipment, and other emissions sources (see https://ghgprotocol.org/calculation-tools-and-guidance). • U.S. Environmental Protection Agency’s Simplified GHG Emissions Calculator is an additional resource for considering GHG emissions from stationary combustion, vehicles, refrigeration and air conditioning, fire suppression, electricity use, waste, and other emissions sources, although it was developed for U.S. domestic use (see https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator).
Housing Occupancy and Maintenance		
<ul style="list-style-type: none"> • Emissions from electricity, heating, and cooling • Emissions from the fuel used for transportation to and from houses • Emissions from waste 	<ul style="list-style-type: none"> • Using renewable energy sources for electricity, heating, and cooling. • Installing light-emitting diode (LED) lighting and other energy-efficient alternatives. • Electrifying buses and other modes of transportation. 	<ul style="list-style-type: none"> • USAID’s Agriculture, Forestry, and Other Land Use (AFOLU) Tool can be used to estimate the CO₂ benefits and potential climate impacts of different types of land-based project activities.

⁹ Kilgore, Georgette. 2024. “Carbon Footprint of Building Materials (Green Building Calculator).” *8billiontrees*. <https://8billiontrees.com/carbon-offsets-credits/carbon-footprint-of-building-materials/>.

¹⁰ Ibid.

GHG EMISSIONS SOURCES	EMISSIONS MITIGATION OPTIONS	ESTIMATION TOOLS
<ul style="list-style-type: none"> Emissions from water infrastructure operations 	<ul style="list-style-type: none"> Siting housing developments near public transportation and making communities more walkable. 	
Siting Decisions		
<ul style="list-style-type: none"> Emissions resulting from increased travel distances Emissions associated with land use changes (such as released soil organic carbon and reduced carbon sequestration capabilities), especially if vegetation is removed or burning takes place 	<ul style="list-style-type: none"> Siting housing developments near large employers, schools, healthcare facilities, markets, and public transportation. Providing increased walkability and cycling options, whenever possible. Reducing transport distances and increasing the use of sustainable modes of transportation, such as electric vehicles. Avoiding deforestation and the removal of vegetation when possible, including burning. Minimizing the disruption to natural systems during site preparation and installation. Reducing emissions and increasing carbon sequestration through planting native species, reforestation, and re-planting post-construction. 	

4. SOCIAL IMPACTS

The potential exists for adverse and unintended negative social impacts as a result of housing projects. USAID is committed to integrating stakeholders' voices, concerns, perspectives, and values as a form of acquiring feedback and input on a proposed project to identify potential social impacts early on and make sound decisions during the design and planning phase. As indicated in the adjacent textbox, per ADS 201, USAID requires an initial screening of the potential social impacts.

USAID's visions, policies, and strategies call for a participatory process that safeguards against doing harm to its beneficiaries. This process includes ensuring meaningful stakeholder engagement from government, communities, and individuals to ensure that USAID's international development efforts benefit all members of society, particularly marginalized and underrepresented groups and/or people in vulnerable situations.

Stakeholder engagement is critical for ensuring that USAID maintains accountability to program participants by ensuring the active participation of local communities, developing mitigation measures that include participants' voices, and ensuring that affected individuals and communities can communicate their concerns through USAID's Accountability Mechanism.¹³ Given the importance of stakeholder engagement for fostering a successful project, the project may benefit from sustaining this engagement throughout the entire life of the project.

Just as environmental compliance measures under 22 Code of Federal Regulations (CFR) 216¹⁴ seeks to avoid, minimize, and mitigate impacts, including with housing projects, social impacts should be assessed to determine whether there has been a change from baseline conditions¹⁵ for individuals and communities resulting from a USAID project. Furthermore, there may be pre-existing adverse conditions in a local community prior to a USAID-funded activity, which should be taken into consideration to maximize benefit sharing so that proposed USAID-

SOCIAL IMPACT RISK INITIAL SCREENING (SIRS) TOOL

Per the June 2024 update to ADS Chapter 201 Program Cycle Operational Policy, USAID design teams must conduct an initial screening of the social impact of their Activities and Programs using the Social Impact Risk Initial Screening and Diagnostic Tools (ADS 201mbf).¹¹ The Social Impact Risk Initial Screening (SIRS)¹² Tool is intended to help USAID design teams plan for, mitigate, and monitor potential adverse social impacts from USAID Activities and Programs. The Tool consists of 10 questions designed to kickstart mandatory analytical thinking about a variety of different potential adverse social impacts and help identify when additional social safeguarding is needed. Additional social safeguarding may include redesigning Activity/Program components or concepts, identifying social impact mitigation measures, or conducting additional analyses, such as a Social Impact Assessment. When filling out the Tool, design teams should only check "no" when they are highly certain that there is no potential for an adverse impact. The complexity of the process for completing the Tool will vary based on the severity of social impacts posed by the Activity/Program.

¹¹ USAID. 2024. "Social Impact Risk Initial Screening and Diagnostic Tools. A Mandatory Reference for ADS Chapter 201." https://www.usaid.gov/sites/default/files/2024-05/201mbf_051424.pdf.

¹² Ibid.

¹³ The USAID Social, Economic, and Environmental Accountability Mechanism (SEE-AM) is expected to be formally launched in summer 2024. The SEE-AM allows communities and project participants to report adverse social, economic, or environmental impacts caused by USAID-funded activities. Complaints and questions can be submitted to disclosures@usaid.gov.

¹⁴ USAID. 1980. Reg. 216 (22 CFR 216). <https://www.usaid.gov/environmental-procedures/laws-regulations-policies/22-cfr-216>.

¹⁵ For more information on the social baseline please see USAID. 2023. "Optional Social Impact Assessment Framework." <https://www.usaid.gov/sites/default/files/2023-02/5%20USAID-Social-Impact-Assessment-508.pdf>.

funded activities minimize unintended social consequences, such as impacts on a person’s livelihood, economic activities, traditional vocations, land or property rights, access to natural resources, culture and customs, and health and well-being.

4.1 KEY SOCIAL IMPACTS

This section is organized according to the principles presented in USAID’s Voluntary Social Impact Principles Framework. The Framework encompasses nine principles for considering and assessing potential social risks and social impacts across USAID programs, projects, and activities. Table 6 summarizes the nine principles. For additional information on the nine principles, see the [USAID Voluntary Social Impact Principles Framework](#). The subsequent sections present an illustrative list of potential social impacts pertaining to housing projects that Missions and/or Implementing Partners (IPs) should consider.

TABLE 6. USAID SOCIAL IMPACT PRINCIPLES

PRINCIPLE	DESCRIPTION
1 Indigenous Peoples	Indigenous Peoples are a distinct cultural, linguistic, and social group with historical continuity, collective attachment to surrounding natural resources, and/or commitment to maintaining ancestral systems. Specific actions are required of USAID programs involving Indigenous Peoples.
2 Cultural Heritage	Cultural heritage is part of every culture and is found all over the world. It includes archaeological sites, historic buildings, artifacts, and natural environments inherited from past generations as well as intangible knowledge and practices. Working in areas with cultural heritage or on cultural heritage projects can have consequences beyond just destruction of an important resource and can also offer potential means of positively engaging with communities.
3 Land Tenure, Displacement, and Resettlement	Land tenure is associated with acquiring and managing rights to land. Land use change may lead to compulsory displacement, resettlement, and/or the loss of access and/or use of land and natural resources, which should be avoided and minimized to reduce social impacts on affected landholders, tenants, community members, and pastoralists, among other groups. Failure to account for, and respect, the land and resource rights of local community members can cause costly delays, work stoppages, protests, and, in some cases, violence. USAID may face legal actions and suffer financial, brand, or reputational harm.
4 Health, Well-being, and Safety	Health, Well-being, and Safety is safeguarding against potential physical, psycho-social, and health impacts among project staff, program participants, and communities where USAID actions are implemented. Individual USAID actions must account for potential occupational health and safety risks, as well as potential uneven socio-economic gains across affected communities/program participants, to avoid unintended consequences.
5 Working with Security Personnel	Cognizance of the unique challenges involved in engaging security personnel, working with security personnel prioritizes a rights-based approach to ensure respect for, and safety of, individuals and local communities. Without transparent and accountable oversight of rule of law, the risks of potential human rights violations increase.

6 Conflict Dynamics	Attentiveness to the operational context in relation to past and present conflicts as well as sensitivity around the role that a USAID action has in shaping the conflict landscape. Poor understanding of conflict dynamics increases the possibility of contributing to or exacerbating conflict.
7 Inclusive Development	Inclusive development is an equitable development approach built on the understanding that every individual and community, of all diverse identities and experiences, is instrumental in the transformation of their own societies, which means providing them with the opportunity to be included, express their voices, and exercise their rights in activities and public decisions that impact their lives. Inclusion is key to aid effectiveness. Nondiscrimination is the basic foundation of USAID's inclusive development approach.
8 Environmental Justice	Environmental Justice (EJ) is the just treatment and meaningful involvement of all people, particularly critical populations, in decision-making and activities that affect human health and the environment. EJ aims to protect communities from disproportionate and adverse human health and environment effects, and to promote equitable access to a healthy, sustainable, and resilient environment. Critical populations include, but are not limited to, Indigenous Peoples, local communities, women, youth, LGBTQI+ persons, persons with disabilities, and other marginalized and/or underrepresented groups.
9 Labor	The Labor principle focuses on advancing worker empowerment, rights, and labor standards through programming, policies, and partnerships to advance sustainable development outcomes. USAID recognizes the high risk of labor abuses that may result from programming, and, thus, USAID works to establish and strengthen labor protections (including social protections) that align with internationally recognized worker rights. This principle includes the promotion of safe and healthy work environments; respecting the principles of freedom of association and collective bargaining; the elimination of forced labor and the worst forms of child labor; and the protection from discrimination at work.

4.1.1 CULTURAL HERITAGE

Cultural heritage is part of every culture and is found around the world. Working in areas with cultural heritage resources can have consequences beyond just the destruction of an important cultural site. It is important to assess cultural heritage when planning for housing projects because there may be unintended impacts. Cultural heritage refers to monuments (e.g., architecture, sculptures, elements, structures of an archaeological nature), groups of buildings, and sites (e.g., archaeological sites, burial sites, areas of human-made and natural features) that are of outstanding universal value from a historical, artistic, scientific, aesthetic, ethnological, or anthropological point of view. Examples of this tangible type of cultural heritage also include moveable objects (e.g., artifacts, paintings, coins, manuscripts, sculpture), underwater resources or sites (e.g., shipwrecks, ruins, submerged landscapes), and paleontological remains. In addition to tangible resources, cultural heritage includes intangible resources, which may be aspects of culture, knowledge, history, customs, beliefs, and traditions that may be invisible or not apparent and are often unseen by people who are not of that culture. The United Nations Educational, Scientific and Cultural Organization (UNESCO) states that intangible heritage can include oral traditions and expressions, folklore, beliefs, language, knowledge, performing arts, social practices, rituals, festive events, and traditional

craftsmanship.^{16,17}

In order to ascertain whether a housing project may have unintended impacts on cultural heritage, USAID has released a resource on the potential positive and negative impacts for cultural heritage resources as the result of USAID programming.¹⁸ In addition, several resources are available from the U.S. National Park Service, the International Council on Monuments and Sites, UNESCO, and the International Finance Corporation (IFC) (see footnote).¹⁹ Furthermore, prior to project implementation, it is important to consider undertaking a Social Impact Assessment that is commensurate with the impacts and includes broad and in-depth stakeholder consultations to become aware of the existence of the cultural resources in or near the proposed project site.

4.1.2 LAND TENURE, DISPLACEMENT, AND RESETTLEMENT

While housing projects will likely not necessitate large stretches of land to undertake a project such as a large-scale housing project, it is nevertheless important to be cognizant of the social implications that may come about due to land use change. In particular, land use change may have repercussions for land use access, access to land resources, and implications on land tenure and resource claims and rights due to the siting or placement of projects. Consequently, land use change and the associated repercussions should be assessed early on during the design phase when a project is being proposed.

Land tenure is associated with acquiring and managing the rights to land. Loss of access to land and/or resources, changes to the use of land and resources, and/or compulsory displacement and resettlement (CDR) are to be avoided or minimized to reduce the risk of impoverishment of the affected landholders, tenants, local community, and pastoralists. Failure to account for the land and resource rights of local people can cause costly delays, work stoppages, protests, and, in some cases, violent conflict.

Land tenure is the relationship that individuals and groups of people hold with regard to land and related resources. Land tenure rules define the ways in which property rights to land are allocated, transferred, used, or managed in a particular society. Land tenure issues can be complicated in areas that may not have a formal system of land ownership or of documentation of land ownership. Traditional rights of use (e.g., for hunting and/or gathering) may be allocated at the local level without a legal registration system. These alternate forms of land tenure and land use when assessing impacts, designing mitigation measures, and determining compensation must be considered. These projects should be assessed for the risk of the impingement of use rights.

¹⁶ UNESCO. n.d. "What is Intangible Cultural Heritage?" <https://ich.unesco.org/en/what-is-intangible-heritage-00003>.

¹⁷ UNESCO. 1972. *Convention Concerning the Protection of the World Cultural and Natural Heritage*. <https://whc.unesco.org/en/conventiontext/>.

¹⁸ USAID. 2023. *Guide to Encountering and Working with Cultural Heritage*. <https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/cultural-heritage-guide-2023-09>.

¹⁹ National Park Service. 2019. "National Heritage Area Feasibility Study Guidelines." https://www.nps.gov/subjects/heritageareas/upload/NHA-Feasibility-Study-Guidelines_FINAL-Revisions-2019_508-compliant.pdf; ICOMOS. 2011. *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*. Paris: International Council on Monuments and Sites. https://www.iccom.org/sites/default/files/2018-07/icomos_guidance_on_heritage_impact_assessments_for_cultural_world_heritage_properties.pdf; UNESCO. 2023. "List of World Heritage in Danger." <https://whc.unesco.org/en/danger/>; and IFC. 2012. "Performance Standard 5: Land Acquisition and Involuntary Resettlement." <https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-5>.

Land tenure issues may lead to CDR. In the context of housing projects, there may be a potential social impact of economic displacement rather than physical displacement or involuntary resettlement due to the smaller footprint of the housing project; however, economic displacement may affect local community members. Economic displacement is an impact that should be avoided, minimized, or mitigated.

Economic displacement may occur when a business moves from a valuable location, a worker must travel a greater distance to get to his or her place of employment, or an individual or business loses access to natural resources that provide an economic or survival benefit. Displacement can also have social implications by disrupting or dispersing communities, fracturing social networks, or reducing access to important cultural heritage resources and sites. Resettlement to alternative sites can have negative social impacts on both the resettled population and the established community at the new site, with one or both groups subject to discrimination, prejudice, social conflicts, and/or violence.

There may also be physical displacement. When there is the potential for partial or total physical displacement, economic displacement, or resettlement, the social impacts must be assessed and addressed in an Environmental and Social Impact Assessment (ESIA). USAID's Environmental Compliance Procedures (22 CFR 216) identify resettlement as a class of action with a "significant effect" on the environment and therefore requires, as appropriate, either an Environmental Assessment (EA) or Environmental Impact Statement (EIS).

USAID has implemented guidelines that cover CDR,²⁰ which may result from USAID programs. Given the importance of stakeholder engagement, an important first step is to review the Agency's social assessment-related resources, including the Environmental Compliance Factsheet: Stakeholder Engagement in the Environmental and Social Impact Assessment Process.²¹ Specific guidelines that USAID²² and its partners should follow to avoid, minimize, and/or mitigate CDR risks include the following:

- Understand the legal and institutional contexts;
- Identify all legitimate landholders and relevant risks;
- Develop a Resettlement Action Plan and a Livelihood Action Plan (LAP) if physical displacement is unavoidable;
- Promote informed and meaningful engagement;
- Improve livelihoods and living standards; and
- Provide additional protections for marginalized and underrepresented groups and/or people in vulnerable situations, especially women and Indigenous Peoples.

The USAID CDR guidelines²³ are consistent with leading international standards on land and

²⁰ USAID. 2016. "Guidelines on Compulsory Displacement and Resettlement in USAID Programming." https://www.land-links.org/wp-content/uploads/2016/09/USAID_Land_Tenure_Guidelines_CDR.pdf.

²¹ USAID. 2016. "Environmental Compliance Factsheet: Stakeholder Engagement in the Environmental and Social Impact Assessment (ESIA) Process." https://www.usaid.gov/sites/default/files/2022-05/Stakeholder_Engagement_052016.pdf.

²² USAID. 2024. "Voluntary Social Impact Principles Framework." <https://www.usaid.gov/environmental-procedures/environmental-compliance-esdm-program-cycle/social-impact-assessment>.

²³ USAID. n.d. "Securing Land Tenure and Property Rights for Stability and Prosperity." <https://www.usaid.gov/land->

resource tenure, including IFC Performance Standard 5: Land Acquisition and Involuntary Resettlement²⁴ and Environmental and Social Standard 5 in the World Bank Environmental and Social Framework.²⁵

Resettlement must consider not only the impacts on displaced people but also the impacts on the communities to which the displaced people are resettled. Failure to address the issues of all stakeholders can lead to many challenges, including adverse impacts on project-affected groups and individuals, delays in project implementation, possible cancellation of the project, protests, conflict, and/or violence.

4.1.3 HEALTH, WELL-BEING, AND SAFETY

Specific choices around project design and implementation invariably have the potential to influence health, well-being, and safety. Assessing and managing the potential social impacts related to health, well-being, and safety requires a careful and sustained effort. For example, a construction project for housing may use hazardous materials, heavy machinery, and involve demolition, which can affect the health and well-being of community members. In addition, the in-migration of construction workers can affect the local community due to increased risks of disease or gender-based violence as a result of contact between community members and the workers. See the Construction SEG for additional details.²⁶

International best practices, namely IFC Performance Standard 4: Community Health, Safety, and Security,²⁷ provide additional guidance on potential social impacts on health and well-being.

4.1.4 CONFLICT DYNAMICS

USAID's projects are often implemented in fragile or conflict-affected environments. USAID's work encompasses investment in conflict prevention and mitigation, stabilization, and peace building, which are parallel to investments in other sectors. Understanding conflict dynamics and how a housing project affects or is being affected by these dynamics is an essential component of being conflict aware and conflict sensitive.²⁸

For example, local communities may have a heightened awareness of the distribution of resources, as well as the roles and responsibilities of the people involved in the distribution of those resources, and a proposed housing project may exacerbate the underlying conflict dynamics. A project may unintentionally heighten conflict in the community regarding where the housing project is placed, which groups of people are benefited by the housing project, or which

tenure.; USAID. 2016. "Why Land Rights Matter." https://2017-2020.usaid.gov/sites/default/files/documents/1865/USAID_Land_Tenure_Infographic_October-2016b.pdf; and USAID. 2016. "Guidelines on Compulsory Displacement and Resettlement in USAID Programming." https://www.land-links.org/wp-content/uploads/2016/09/USAID_Land_Tenure_Guidelines_CDR.pdf.

²⁴ IFC. 2012. "Performance Standard 5: Land Acquisition and Involuntary Resettlement."

<https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-5>.

²⁵ World Bank. 2017. "The World Bank Environmental and Social Framework." IBRD/The World Bank. Washington, D.C. <https://thedocs.worldbank.org/en/doc/837721522762050108-0290022018/original/ESFFramework.pdf>.

²⁶ USAID. 2017. "Sector Environmental Guideline: Construction." USAID. <https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/sector-environmental-guidelines-resources#co>.

²⁷ IFC. 2012. "Performance Standard 4: Community Health, Safety, and Security."

<https://www.ifc.org/content/dam/ifc/doc/2010/2012-ifc-performance-standard-4-en.pdf>; International Bank for Reconstruction.

²⁸ USAID. 2024. "Voluntary Social Impact Principles Framework." <https://www.usaid.gov/environmental-procedures/environmental-compliance-esdm-program-cycle/social-impact-assessment>.

groups are excluded from project benefits (such as direct and/or indirect jobs).²⁹ There may be historical grievances that become apparent due to proposing a housing project to benefit one group of people over the other, or due to siting and placement of the project, which may exclude one group over the other, thus exacerbating local tensions. Therefore, conflict dynamics at the site level should be understood during the design phase by means of engaging stakeholders in a participatory approach and conflict dynamics assessed. Further resources and guidance on conflict dynamics may be found in the footnotes.³⁰

4.1.5 LABOR

Construction for housing projects may involve workers. Each project implementer should be aware of the International Labor Organization's (ILO) conventions that the host country has signed.³¹ Adherence to ILO's core labor standards is essential. The ILO core labor standards address freedom of association, collective bargaining, abolition of forced labor and the worst forms of child labor, minimum age, equal remuneration, discrimination, and the protection of children and young persons. Even for countries that do not adopt one or more standards, they are fundamental to the protection of the workforce. USAID's Agency-Wide Counter-Trafficking in Persons Code of Conduct has the goal of prohibiting USAID contractors, subcontractors, grantees, and sub-grantees from engaging in trafficking in persons, procuring commercial sex acts, or using forced labor. Please refer to the Construction SEG³² for more guidance and references in the footnote³³

²⁹ USAID. 2020. "Responsible Development: A Note on Conflict Sensitivity from USAID's Center for Conflict and Violence Prevention (CVP)." https://pdf.usaid.gov/pdf_docs/PA00XCZ1.pdf.

³⁰ USAID. n.d. *Technical Publications on Conflict Management and Mitigation*. <https://www.usaid.gov/conflict-violence-prevention/technical-publications>.

³¹ As per IFC Performance Standard 2 (IFC. 2012. "Performance Standard 2: Labor and Working Conditions, Section 1: Purpose of this Policy." <https://www.ifc.org/content/dam/ifc/doc/2010/2012-ifc-performance-standard-2-en.pdf>), this Performances Standard recognizes that "the pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental rights of workers and must respect several International Labor Organization (ILO) Conventions (ILO. n.d. "International Labour Organization Conventions." <https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12000:0::NO>), including ILO Convention 87 on Freedom of Association and Protection of the Right to Organize; ILO Convention 98 on the Right to Organize and Collective Bargaining; ILO Convention 29 on Forced Labor; ILO Convention 105 on the Abolition of Forced Labor; ILO Convention 138 on Minimum Age (of Employment); ILO Convention 182 on the Worst Forms of Child Labor; ILO Convention 100 on Equal Remuneration; ILO Convention 111 on Discrimination (Employment and Occupation);"; UNOCHR. 1990. "United Nations Convention on the Protection of the Rights of all Migrant Workers and Members of their Families." <https://www.ohchr.org/en/instruments-mechanisms/instruments/international-convention-protection-rights-all-migrant-workers>. and; UNOCHR. 1989. "Convention on the Rights of the Child." <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child>.

³² For more information see the Construction SEG available at USAID's Sector Environmental Guidelines & Resources webpage, accessible at <https://www.usaid.gov/environmental-procedures/sectoral-environmental-social-best-practices/sector-environmental-guidelines-resources>.

³³ Alliance 8.7. n.d. Ending Forced Labour, Modern Slavery, Human Trafficking and Child Labour. <https://www.alliance87.org/>.

Department of Labor. n.d. "Comply Chain: Business Tools for Labor Compliance in Global Supply Chains." <https://www.dol.gov/general/apps/ilab-comply-chain>; ILO. 2011. "Convention 189: Domestic Workers Convention." https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C189; Rainforest Action Network. 2017. "Workers' Rights and Environment Justice." <https://www.ran.org/issue/workers-rights-and-environmental-justice/>; Responsible Sourcing Tool. n.d. "Is Forced Labor Hidden in Your Global Supply Chain." <https://www.responsiblesourcingtool.org/>; The White House. 2023. "Memorandum on Advancing Worker Empowerment, Rights, and High Labor Standards Globally." <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/11/16/memorandum-on-advancing-worker-empowerment-rights-and-high-labor-standards-globally/>; United Nations. 2023. "Promote sustained, inclusive and sustainable economic growth, full and productive

Construction for housing projects may involve the use of heavy machinery and accidents to workers may occur. Therefore, individual projects should ascertain the occupational health and safety risks to workers and design mitigation measures. Additional guidance is provided in the references listed in the footnote.³⁴

4.2 OTHER SOCIAL CONSIDERATIONS

4.2.1 THE ROLE OF STAKEHOLDER ENGAGEMENT

Stakeholder engagement provides a systematic approach to Missions and Implementing Partners to acquire stakeholders' input, information, feedback, local and traditional knowledge, local perspectives, and concerns early on, during the design and planning phase, well before the assessment of the social impacts phase. Such engagement should be sustained throughout the entire project life cycle.³⁵ Stakeholders may be groups or individuals from the private or public sector, as well as individuals who may be considered an affected party, along with those who may have interest in a project or the ability to influence its outcome, either positively or negatively. Members of civil society organizations may also be considered, such as youth groups, church groups, or women's clubs. Special attention should be paid to marginalized and underrepresented groups and/or people in vulnerable situations because they may be inequitably affected by a project.

Stakeholder mapping, engagement, and consultation are key steps in the planning process of housing projects and will also be crucial for identifying opportunities for the inclusion of marginalized and underrepresented groups and/or people in vulnerable situations.³⁶ Stakeholder engagement should be a broad, inclusive, and continuous process. The benefit of beginning the stakeholder engagement process early on and sustaining it throughout the entire project life cycle is that it may allow for the co-creation³⁷ of positive benefits (e.g., identifying mitigation measures regarding the social impacts based on traditional knowledge from local community members through adaptive management). Information on best practices for stakeholder engagement is available in the USAID document, entitled Environmental Compliance Factsheet: Stakeholder Engagement in the Environmental and Social Impact Assessment (ESIA) Process.³⁸

employment and decent work for all." <https://sdgs.un.org/goals/goal8>; USAID. 2023. "ADS Chapter 225: Program Principles for Trade and Investment Activities and the "Impact on U.S. Jobs" and "Workers' Rights"." <https://www.usaid.gov/about-us/agency-policy/series-200/225>.

³⁴ The World Bank. 2018. "Guidance Note for Borrowers: ESS2: Labor and Working Conditions." <https://documents1.worldbank.org/curated/en/149761530216793411/pdf/ESF-Guidance-Note-2-Labor-and-Working-Conditions-English.pdf>; ILO. n.d. "Introduction to International Labour Standards."; ILO. 1981. "Protocol 155 - Protocol of 2022 to the Occupational Safety and Health Convention." https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312338.

³⁵ USAID. 2022. "Community Engagement Guide." https://www.climatelinks.org/sites/default/files/asset/document/2022-04/5a.%20Community%20Engagement%20Reference%20Guide_30Mar22_508.pdf.

³⁶ USAID. 2016. "Environmental Compliance Factsheet: Stakeholder Engagement in the Environmental and Social Impact Assessment (ESIA) Process." https://www.usaid.gov/sites/default/files/2022-05/Stakeholder_Engagement_052016.pdf.

³⁷ USAID defines *co-creation* as a process that "brings people together to collectively design solutions to specific development challenges. Time limited and participatory, partners, potential implementers, and end-users define a problem collaboratively, identify new and existing solutions, build consensus around action, and refine plans to move forward with program and projects." For additional information, see <https://www.usaid.gov/co-creation-usaid>.

³⁸ USAID. 2016. "Environmental Compliance Factsheet: Stakeholder Engagement in the Environmental and Social

4.2.2 LOCAL COMMUNITY

When planning and designing housing projects, the local community in which the project will be embedded should be assessed. This assessment may be addressed prior to assessing potential social impacts by means of undertaking a desktop review of the characteristics of the community, such as demographics; socioeconomic composition; and political, institutional, and legal frameworks, as well as through field visits and stakeholder engagement. Although the particulars of identifying social impacts for housing projects depends on the site location and local context, undertaking stakeholder engagement early on is necessary to improve the understanding of how the proposed project may affect the local community. If stakeholders in a local community voice concerns regarding potential negative social impacts due to a proposed project, the social impacts may be assessed, and mitigation and monitoring measures designed. Management measures should be commensurate with the degree of the identified adverse social impacts. In cases where social impacts from project activities are deemed to adversely affect the lands, rights, and livelihoods of individuals and communities, implementation of the project should be reconsidered (i.e., potentially ended). If/when the project is under implementation, the local community is adversely affected, implementation of the project may need to be curtailed until adequate management measures have been designed and implemented to mitigate the identified impacts.

4.2.3 GENDER EQUALITY

Many social impacts are gender differentiated and can affect men and women in different ways. USAID seeks to support gender equality with the following goals: (1) improve the lives of people by advancing gender equality; (2) empower women and girls to participate fully in, and equally benefit from, the development of their societies on the same basis as men; and (3) secure equal economic, social, cultural, civil, and political rights regardless of gender. USAID policy requires that a Gender Analysis “be integrated in strategic planning, project design and approval, procurement processes, and measurement and evaluation” as part of ADS 205: Integrating Gender Equality and Women’s Empowerment in USAID’s Program Cycle, which seeks to integrate gender and equality into the program cycle.³⁹

Special attention must be paid to how housing projects may affect women and girls. Gender Analysis⁴⁰ “is a systematic analytical process used to identify, understand, and describe gender differences and the relevance of gender roles and power dynamics in a specific context.” Such analysis⁴¹ typically involves examining the differential impact of development policies and programs on women and men and may include the collection of sex-disaggregated or gender-sensitive data. Gender Analysis examines the “different roles, rights, and opportunities of men and women and relations between them. It also identifies disparities, examines why such disparities exist, determines whether they are a potential impediment to achieving results, and

Impact Assessment (ESIA) Process.” https://www.usaid.gov/sites/default/files/2022-05/Stakeholder_Engagement_052016.pdf.

³⁹ USAID. 2023. “ADS Chapter 205: Integrating Gender Equality and Women’s Empowerment in USAID’s Program Cycle.” <https://www.usaid.gov/about-us/agency-policy/series-200/205#:~:text=USAID%20has%20adopted%20several%20comprehensive,fully%20exercise%20their%20rights%2C%20determine>.

⁴⁰ USAID. 2023. “2023 Gender Equality and Women’s Empowerment Policy.” <https://www.usaid.gov/document/2023-gender-equality-and-womens-empowerment-policy>.

⁴¹ USAID. 2011. “Tips for Conducting a Gender Analysis at the Activity or Project Level.” https://pdf.usaid.gov/pdf_docs/PDACX964.pdf.

looks at how they can be addressed.”⁴² Furthermore, there may be gender divisions in the decision-making process that may influence how the placement of the project may be proposed.

Disparate gender impacts on housing projects may involve imbalances in stakeholder input, decision-making, employment opportunities, and monetary compensation for project impacts. A Gender Analysis helps to identify gender disparities in the community early on. Because USAID projects require stakeholder engagement and consultation as part of the process of identifying, avoiding, and mitigating adverse social impacts, it is increasingly important to be aware of gender-based barriers to public participation. In these cases, stakeholder engagement and consultations may need to occur in a gender-sensitive manner, for example, by having separate venues for men and women. To acquire input and feedback from women, a combination of methods may be undertaken (such as interviews and focus groups). For example, semi-structured interviews or women-only focus groups may be conducted with women in a safe space, such as an individual’s home or place of worship. Providing a space in which to obtain women’s perspectives may shed light on a potential gender division in decision-making and consultation and, in turn, could affect siting and benefit sharing.

4.2.4 INDUCED SETTLEMENT AND IN-MIGRATION

Housing projects are usually constructed in response to an existing need. However, as a critical basic need, they (along with roads, schools, and healthcare facilities) may induce settlement and in-migration, placing additional demands on the local community. This effect is largely beyond the control of the housing project proponents. However, project proponents may want to discuss likely settlement trends with district or town planners in order to help planners prepare for a growing population, and from environmental management and social services perspectives. For more guidance on project-induced in-migration, see the footnote.⁴³

The addition of a housing project in a local community may cause induced settlement and in-migration, which, in turn, may potentially lead to other social impacts, such as increased traffic congestion and a higher incidence of traffic accidents, as well as overcrowding of local schools and healthcare facilities.

Table 7 below discusses potential social impacts, mitigation, and monitoring measures and is for illustrative purposes only, and does not provide an exhaustive list because this will depend on the site location, the local context, and the specificities of the project, among other factors.

⁴² USAID. 2023. “2023 Gender Equality and Women’s Empowerment Policy.” <https://www.usaid.gov/document/2023-gender-equality-and-womens-empowerment-policy>.

⁴³ IFC. 2009. “A Handbook for Addressing Project-Induced In-Migration.” <https://documents1.worldbank.org/curated/en/415141468176677099/pdf/626310PUB0Proj00Box0361488B0PUBLIC0.pdf>.

TABLE 7. SUMMARY OF POTENTIAL SOCIAL IMPACTS, MITIGATION MEASURES, AND MONITORING MEASURES

SOCIAL IMPACT	MITIGATION MEASURES	MONITORING MEASURES
<p>Labor Construction workers are exposed to several health and safety hazards. Hazards include falls, injuries, and exhaustion. Occupational health risks and unsafe labor practices and working conditions are heightened when national occupational labor standards are poorly developed and enforced.</p>	<ul style="list-style-type: none"> • Follow guidance as per footnote⁴⁴ • Address occupational safety during the pre-implementation Environmental and Social Impact Assessment process (e.g., USAID Initial Environmental Evaluation (IEEs) and Environmental Assessments (EAs)). The process should specifically address labor safety issues for housing projects, such as heavy lifting, falls, and exhaustion. • Ensure that workers have proper personal protective equipment (PPE) (e.g., noise and dust protection, boots, gloves) and follow sound safety practices (e.g., use safety ropes, practice proper blasting safety), as appropriate. • Conduct safety trainings for workers. • Identify host country laws and regulations and/or international laws or regulations regarding labor safety. 	<ul style="list-style-type: none"> • Institute procedures for documenting and reporting accidents and injuries. • Keep records of participants attending trainings on labor safety. • Conduct monthly reviews to monitor occupational health and safety precautions.

⁴⁴ ILO. 1981. "Protocol 155 - Protocol of 2022 to the Occupational Safety and Health Convention." https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312338.

SOCIAL IMPACT	MITIGATION MEASURES	MONITORING MEASURES
<p>Health, Well-Being, and Safety The construction phase may create areas where disease-carrying animals, such as rats, can breed. Standing water may serve as a breeding ground for vectors and waterborne diseases. Poor or absent sanitation facilities may lead to higher rates of diseases borne by oral-fecal transmission and by insect and animal vectors.</p>	<ul style="list-style-type: none"> • Draft a Stakeholder Engagement Plan (SEP) early on during the project life cycle. • Excavate and rebury trenches quickly. Arrange for construction or demolition debris to be permanently disposed of away from watercourses. • Fill borrow pits or ensure their drainage. Use shallow wells or streams for construction water rather than diverting natural flows to the construction site. • Manage quarry slopes to avoid cave-ins. • Provide trainings for all residents before they move in regarding how to decrease the chance of vector and waterborne diseases. • Provide portable toilets during the construction phase to decrease the transmission of oral-fecal diseases. • Build capacity for community health services during the construction phase through trainings. 	<ul style="list-style-type: none"> • Review the Stakeholder Engagement Plan (SEP) periodically. • Institute procedures for documenting and reporting diseases by the construction firm or consortium. • Keep records on health, well-being, and safety trainings.
<p>Induced Settlement and In-Migration The addition of new housing may attract people from outside communities to the location of the project. This may increase migration to the community due to the housing project, potentially leading to higher real estate prices as a result of higher demand, more traffic and vehicular congestion, and the overcrowding of schools and local healthcare facilities.</p>	<ul style="list-style-type: none"> • Draft a Stakeholder Engagement Plan (SEP) early on during the project life cycle. • Discuss likely settlement trends with district or town planners in order to have a holistic approach to city planning. • Develop and maintain infrastructure and services to support additional migrants. 	<ul style="list-style-type: none"> • Review the Stakeholder Engagement Plan (SEP) periodically. • The project proponent may also monitor the number of in-coming migrants by checking public records with help from the community's planning department to gauge metrics on how the project may be causing induced in-migration.

SOCIAL IMPACT	MITIGATION MEASURES	MONITORING MEASURES
<p>Conflict Dynamics A project may unintentionally exacerbate the dynamics of a local community regarding where the housing project is placed, which groups of people benefit by the housing project, or which groups are excluded from project benefits, such as direct and/or indirect jobs (e.g., women).</p>	<ul style="list-style-type: none"> • Undertake a Conflict Dynamics Analysis. • Establish an Stakeholder Engagement Plan (SEP). • Undertake stakeholder engagement at the beginning of the project life cycle. • Consult with community leaders, government officials, members of civil society, women’s groups, church groups, non-governmental organizations (NGOs), and community-based organizations (among other stakeholders) to understand existing conflicts and tensions. • Ensure the social inclusion of marginalized and underrepresented groups and/or people in vulnerable situations (e.g., women). • Undertake a Gender Analysis and consult the USAID Gender Equality and Women’s Empowerment Policy. 	<ul style="list-style-type: none"> • Review the Stakeholder Engagement Plan (SEP) periodically. • Conduct stakeholder engagement on an ongoing basis through different mixed-methods approaches, such as village meetings or community surveys, prior to and throughout project implementation.
<p>Land Tenure, Displacement, and Resettlement Some members of the local community, with a focus on, for example, marginalized and underrepresented groups and/or people in vulnerable situations, may lose access to their land due to the siting of a housing project affecting their ability to graze animals, gather fuelwood, and engage in rural activities. In more extreme cases, it may lead to landlessness, economic displacement, food insecurity, impoverishment, social conflict, and violence.</p>	<ul style="list-style-type: none"> • Establish a Stakeholder Engagement Plan (SEP) • Consider alternatives during the design phase to avoid and minimize impacts on marginalized and underrepresented groups and/or people in vulnerable situations. • Include participatory identification and mapping of areas that are important to marginalized and underrepresented groups and/or people in vulnerable situations for hunting, gathering, and/or agricultural activities. • Conduct stakeholder engagement during the planning and design phase to better understand the local context and land 	<ul style="list-style-type: none"> • Review the Stakeholder Engagement Plan (SEP) periodically. • Periodically review the reports on land use and land tenure changes and the stakeholders affected. • Maintain records of smallholders obtaining formal land titles. • Maintain a log of all potential land tenure use and tenure changes and the affected stakeholders in a report.

SOCIAL IMPACT	MITIGATION MEASURES	MONITORING MEASURES
	<p>tenure insecurity concerns in the context of housing projects.</p> <ul style="list-style-type: none"> • Support smallholders in obtaining formal land titles and formalizing informal land usage rights. 	

5. SECTOR PROGRAM DESIGN – SOME SPECIFIC GUIDANCE

Governance and maintenance. Ongoing mitigation of environmental and environmental health impacts—as well as the benefits and services individuals derive from the built environment—is contingent upon proper maintenance and good community governance. In some cases, reconstruction will occur within a community that already has a pre-existing governance system. In other cases, new community institutions must be established. Large-scale reconstruction efforts, or those that involve building a new community, should include a complete Community Development Plan (CDP), including the following elements:

- **Administration of standard services and maintenance.** This should include responsibility for providing potable water supply systems; sanitation facilities; solid waste disposal systems; transportation; and cooking, educational, and health facilities.
- **Provision of social services.** Community counseling on topics such as adapting to change and living in a community (especially important for resettlement/disaster relief-related housing); communal organization services (e.g., aid in the formation of civic associations, water boards); and educational activities in water storage and latrine maintenance, health and nutrition, construction, use and maintenance of fuel efficient stoves, and job assessment programs that include training and placement. Gaining social acceptance of new technologies or implementing services that require a change in traditional behavior will require additional investment and time.
- **Establishment of a coordinating committee.** This committee should have the technical, organizational, and administrative capacity to execute the development plan. Ideally, the committee should include representatives from all relevant stakeholder groups, such as representatives from local NGOs, community representatives, local school representatives, a social worker, possibly local businesses, and a municipal authority.
- **Supervision and monitoring program.** Regular on-site visits, surveys, and quality testing of the facilities are needed to ensure their proper functioning. The Coordinating Committee should provide the necessary oversight.

Design Elements for Successful Housing Projects

- Resolve outstanding land tenure issues;
- Ensure proper maintenance and community governance;
- Begin the design with good baseline data on the community;
- Always complete a preliminary project design; and
- Use baseline data and project design to anticipate environmental problems.

Starting the design process with sound baseline data. Because the various housing activities—construction, facilities planning, and so forth—are highly integrated, and because their impacts depend, in large part, on the *social and economic behaviors* of stakeholder populations, those designing and implementing activities must develop as complete a baseline as possible, describing both current and historical environmental and social conditions.

An environmental baseline survey of the project site is highly recommended. A sample of this survey is included at the end of this guideline in Section 8.

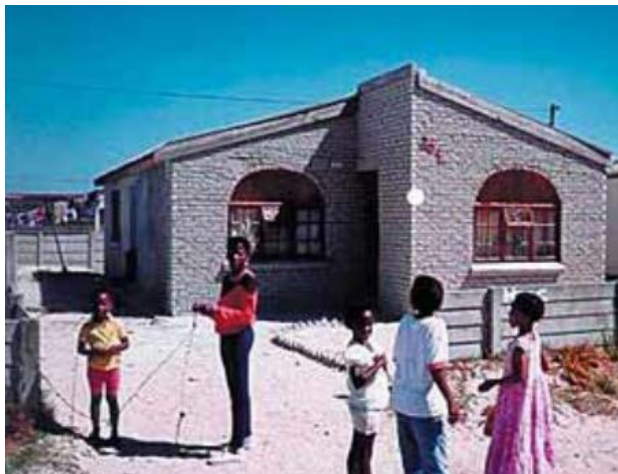
Setting out a preliminary project design. Following the baseline surveys, a preliminary

project profile is developed. The profile contains basic information about the preliminary design of the housing project and should be filled out *before the project plan is finalized and any construction is undertaken*. (A template profile is also included at the end of this guideline in Section 9).

Using the preliminary design and baseline data to identify environmental concerns.

Taken together, the baseline surveys and the project profile allow the most critical questions about the project's impacts to be answered. These questions are presented in the checklists found below in Sections 5.1, 5.2, and 5.3. The checklists identify the most likely adverse impacts from a proposed project or program and point to needed mitigation measures.

Those responsible for the project, including stakeholders, **MUST** be willing to adjust the project to address the critical problems identified by the checklists. *If the project design is not adjusted in response to identified concerns, then the entire environmental assessment process is meaningless.* Mitigation options are identified in Tables 1 through 3.



A housing project must collect baseline data and develop a project design plan that takes site conditions, construction management, and community governance into account.

5.1 KEY QUESTIONS: SITE AND DESIGN

Note that the surveys and the project design assume the construction of new housing units rather than the repair of existing structures. Checklists should be modified for projects oriented toward repair or replacement/rebuilding only.

These checklists should be completed using information from the baseline surveys and the project profile. Adverse impacts can be indicated as significant or moderate. For each **significant** adverse impact, a mitigation measure should be considered mandatory. For each **moderate** adverse impact, mitigation should be considered. Mitigation measures are presented in Section 2 and 4.

TABLE 8. KEY QUESTIONS FOR SITE AND DESIGN CONSIDERATIONS

SITE AND DESIGN	YES		NO OR N/A
	SIGNIFICANT ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	MODERATE ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	
Will the project have reasonably foreseeable impacts on endangered or endemic species?			
Are any hazardous or highly polluting activities foreseen, or currently taking place, in the surrounding areas?			
Could previous land use put the future population at risk? <ul style="list-style-type: none"> • Historic uses/access that may conflict with the proposed use (e.g., communal grazing) • Land tenure issues • Soil contamination or stored wastes 			
Did the environmental survey identify any other local problems or issues? If so, specify.			
Is the site at moderate or high risk from natural hazards now or under projected climate change? <ul style="list-style-type: none"> • Flooding or landslides • Sea level rise • Air pollutants (e.g., dust, smoke, dioxides, oxides, or haze) • Storms and heavy precipitation • Volcanoes and earthquakes • Fires • Extreme heat or heat waves • Drought <p>See Table 4 above for information about climate risks and potential climate risk management options.</p>			

SITE AND DESIGN	YES		NO OR N/A
	SIGNIFICANT ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	MODERATE ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	
Does the site slope exceed 20%?			
Associated Construction: Will an access road need to be created or rehabilitated? Will electricity transmission/generation infrastructure need to be constructed? What options are there to use renewable energy sources? Will water supply and treatment infrastructure need to be constructed?			
Does the proposed potable water system meet the estimated water requirements for the present and future population, including under climate change scenarios? If no, are complementary water sources available?			
Does the potable water quality meet relevant national or funding agency standards?			
Has the lighting source and distribution system been taken into account in the design and layout of the project?			
Is the cooking fuel available proportionate to the demands of the community?			
If the main energy supply is vulnerable to climate risks, have alternative options and backup generators been considered for installation?			
Has a solid waste disposal system been designed for the site?			
Will the solid waste disposal system meet relevant standards and has it been designed with future growth in mind?			
Has a sewage/graywater disposal system been included in the design?			
Will the effluent from the water disposal system meet relevant national or funding agency standards?			
Are drinking water sources and sewage systems located out of flood areas?			

SITE AND DESIGN	YES		NO OR N/A
	SIGNIFICANT ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	MODERATE ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	
Are the water supplies and infrastructure that distribute water to housing resilient against drought?			
Are the building materials adequate for the local weather conditions and projected climate changes?			
Does construction embody appropriate wind, fire, flood, or landslide resistance, taking into account changes due to climate change? Does it embody appropriate earthquake resistance?			
Have provisions been made to ensure adequate occupant comfort in hot and cold seasons, including considering projected rising temperatures and heat waves?			
Has the predominant wind direction been considered in the design of the project houses, with regard to airflow (e.g., for passive cooling)?			
Has the predominant wind direction been considered in the design of the waste disposal and sewage systems?			
Does the design and layout include the following elements, and do their type and quantity meet the relevant standards? <ul style="list-style-type: none"> • Internal roads • Green areas • Social and recreational areas • Fire prevention • Transportation • Evacuation routes (outside of hazard zones) 			
Does the design accommodate future expansion? (Factors include growth in population, schools, access to employment, expansion of individual houses, and future connections to utility services.)			
Is the house design consistent with that of other housing projects or existing housing in the area? (Social problems may arise from differences in the quality of the houses and the services provided.)			

5.2 KEY QUESTIONS: CONSTRUCTION MANAGEMENT

If the answer is “no,” no further action is needed. For each significant impact, an adequate mitigation measure must be implemented. For each moderate impact, some mitigation should be considered. See the Construction SEG and Rural Roads SEG for further discussion on construction project management.

TABLE 9. KEY QUESTIONS FOR CONSTRUCTION MANAGEMENT CONSIDERATIONS

CONSTRUCTION MANAGEMENT	YES		NO OR N/A
	SIGNIFICANT ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	MODERATE ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	
<p>Will construction activities likely produce any of the following significant effects:</p> <ul style="list-style-type: none"> • Erosion • Water contamination • Airborne dust and particulate contamination • Deforestation • Loss of habitat or biodiversity • Effects on threatened or endangered species • Hillside instability/landslide risk • Noise • Obstruction to roads or other existing modes of transportation • Construction or demolition waste 			
<p>Will on-site water resources be used to satisfy construction needs? Will these resources be sufficient, including considering projected climate risks? See Table 4 above for information about climate risks and potential climate risk management options.</p>			
<p>Are potentially hazardous construction techniques to be employed with serious risk to worker safety (e.g., felling of large trees, blasting, large-scale excavation, construction of bridges and towers)?</p>			
<p>Will laborers coming into the area require food and housing?</p>			
<p>Are projected weather conditions during the construction period hazardous for laborers (e.g., heat waves, storms, flooding events)?</p>			

CONSTRUCTION MANAGEMENT	YES		NO OR N/A
	SIGNIFICANT ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	MODERATE ADVERSE IMPACT (WITHOUT MITIGATION ACTIONS)	
Will laborers coming into the area plausibly increase the incidence of certain communicable diseases in the local population (e.g., malaria, tuberculosis, HIV/AIDS)?			

5.3 KEY QUESTIONS: HABITATION AND COMMUNITY GOVERNANCE

Once people move into a housing project, long-term impacts (beneficial or adverse) will develop, affecting the inhabitants, the surrounding communities, and the environment. Careful thought must be given to ensure that the project will have a positive and lasting influence on the area. Mark the answer that will best fit the project characteristics. For every “No,” a clearly defined plan should be designed and ready to implement before the houses are officially transferred to the new inhabitants.

TABLE 10. KEY QUESTIONS FOR HABITATION AND COMMUNITY GOVERNANCE

COMMUNITY GOVERNANCE	YES	NO OR N/A
Will a management structure for the community be in place before the houses are occupied?		
Will the basic facilities (e.g., latrines, potable water, graywater, solid waste disposal) be ready for use by the time the houses are inhabited?		
Will there be any training in the use of these sanitary facilities for the project population?		
Have the parties responsible for the operations and maintenance of the facilities been identified and trained?		
Is there an established basic service billing system?		
Has the party responsible for the billing system been identified and trained?		
Does an early warning system or other strategy exist for alerting the community about impending extreme weather events?		
Have measures been taken to protect the houses against extreme weather events?		

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7. ADDITIONAL RESOURCES

7.1 DISASTER PREVENTION AND MANAGEMENT

Resources in this section are organizations and websites, rather than specific documents. The websites are intended as portals for accessing a wide variety of documents and technical resources.

- Coordination Center for Natural Disaster Prevention in Central America. www.cepredenac.org.
- Costa Rican National Committee on the Prevention of Risks and Emergency Attention. <https://cne.go.cr>.
- International Strategy for Disaster Information for Latin America and the Caribbean (CRID). https://www.eird.org/eng/revista/No15_99/pagina25.htm

CRID offers a gateway to an extensive technical library in English and Spanish, accessed via database search. Sponsored by six organizations that joined efforts to compile and disseminate disaster-related information in Latin America and the Caribbean, all of the constituent bodies may offer resources of interest to those engaging in post-disaster recovery efforts, including housing reconstruction. Online:

- Doctors Without Borders. www.msf.org.
- Humanitarian Library Housing Reconstruction After Conflict and Disaster. <https://www.humanitarianlibrary.org/resource/housing-reconstruction-after-conflict-and-disaster-1>
- Humanitarian Practice Network Housing reconstruction after conflict and disaster. <https://odihpn.org/publication/housing-reconstruction-after-conflict-and-disaster/>
- International Federation of Red Cross and Red Crescent Societies. www.ifrc.org.
- International Strategy for Disaster Reduction, Regional Unit for Latin America and the Caribbean. www.unisdr.org.
- Pan American Health Organization (a regional office of the World Health Organization). <http://www.paho.org>.
- UNCHS (UN Commission on Human Settlements) and the Together Foundation. <https://unhabitat.org/knowledge/best-practices>.

This partnership maintains free documentation of disaster reconstruction efforts in the Best Practices Database. Documentation of best practices in disaster reconstruction can be accessed via the Best Practices Database, offered by the UN Commission on Human Settlements (UNCHS and the Together Foundation). Access to abstracts is free.

- World Bank Disaster Recovery Guidance Series: Housing and Settlements Recovery. <https://www.gfdrr.org/sites/default/files/2017-09/Housing%20and%20Settlements%20Guidance%20Note.pdf>

7.2 TECHNICAL GUIDANCE

- European Civil Protection and Humanitarian Aid Operations. European Commission: Humanitarian Shelter and Settlements Guidelines. 2017. https://ec.europa.eu/echo/files/policies/sectoral/shelter_and_settlement_guidelines.pdf.
- Global Protection Cluster. Housing, Land and Property Guidance and Tools. <https://globalprotectioncluster.org/index.php/AoR/HLP/essential-resources>
- Practical Action. Disaster Risk Reduction. <https://practicalaction.org/disaster-risk-reduction/>.

This site offers online technical guidance on appropriate and disaster-resistant housing. Practical Action Publishing's (<http://practicalaction.org/>) online Development Bookshop service (<http://developmentbookshop.com/>) serves as a single point of search (and ordering) for this and other technical, development-related subjects. Note that books ship by post.

- UN Habitat. Supporting Safer Housing Reconstruction After Disasters: Planning and Implementing Technical Assistance at Large Scale. 2019. https://unhabitat.org/sites/default/files/documents/2019-09/supporting_safer_housing_reconstruction_after_disasters.pdf.

7.3 CLIMATE CHANGE RESOURCES

Note: USAID's Global Climate Change (GCC) Office can provide support on the climate change aspects of this guideline. To contact the GCC Office, email: climatechange@usaid.gov.

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- NDC Partnership. Knowledge Portal. <https://ndcpartnership.org/knowledge-portal>.
- New Buildings Institute (NBI), International Institute for Sustainable Development and United Nations Industrial Development Organization. 2021. How Can Investment in Nature Close the Infrastructure Gap? <https://nbi.iisd.org/report/investment-in-nature-based-infratsructure/>.
- NDC Partnership. Knowledge Portal. <https://ndcpartnership.org/knowledge-portal>.
- Ray, P.A., and C.M. Brown. 2015. Confronting Climate Uncertainty in Water Resources Planning and Project Design: The Decision Tree Framework. Washington, DC: World Bank. doi: [10.1596/978-1-4648-0477-9](https://doi.org/10.1596/978-1-4648-0477-9). License: Creative Commons Attribution CC BY 3.0 IGO.
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- United Nations Environment Programme (UNEP). 2022. Emissions Gap Report 2022. <https://www.unep.org/resources/emissions-gap-report-2022>.
- United Nations Framework Convention on Climate Change (UNFCCC). Long-Term Strategies Portal. <https://unfccc.int/process/the-paris-agreement/long-term-strategies>.
- UNFCCC. National Communication submissions from Non-Annex I Parties. <https://unfccc.int/non-annex-I-NCs#:~:text=UNFCCC%20Nav&text=Non%2DAnnex%20I%20Parties%20are,8>.
National Communications are submitted by countries to the UNFCCC and include information on country context, broad priority development and climate objectives, overviews of key sectors, historic climate conditions, projected changes in the climate and impacts on key sectors, potential priority adaptation measures, limitations, challenges, and needs.
- UNFCCC. Nationally Determined Contributions (NDC) Registry. <https://unfccc.int/NDCREG>.

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<https://globalabc.org/resources/publications/delivering-climate-resilient-cities-using-systems-approach>.

- The World Bank's Climate Change Knowledge Portal is intended to provide quick and readily accessible climate and climate-related data to policymakers and development practitioners. The site also includes a mapping visualization tool (webGIS) that displays key climate variables and climate-related data.
<https://climateknowledgeportal.worldbank.org>.

National climate change policies and plans: Many countries have policies and plans for addressing climate change adaptation.

7.4 GENERAL

- United Nations Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision, Highlights. New York.
https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/files/documents/2020/Jan/un_2018_worldcities_databooklet.pdf.

7.5 DOCUMENTS DISPONIBLES EN FRANÇAIS

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http://www.preventionweb.net/files/1066_toolsformainstreamingDRRfr1.pdf.
- Préparation à une réponse efficace en cas de catastrophe Ensemble de directives et indicateurs pour la mise en oeuvre de la priorité 5 du Cadre d'action de Hyogo Cadre d'action de Hyogo pour 2005-2015: Pour des nations et des collectivités résilientes face aux catastrophes. Nations Unies New York et Genève, 2008.
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7.6 DOCUMENTOS DISPONIBLES EN ESPAÑOL

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<http://cidbimena.bvs.hn/docum/crid/Riesgo/pdf/spa/doc233/doc233.htm>

- Guía para la elaboración de planes de respuesta a desastres y de contingencia. Federación Internacional de Sociedades de la Cruz Roja y de la Media Luna Roja 2010. <https://medbox.org/document/guia-para-la-elaboracion-de-planes-de-respuesta-a-desastres-y-de-contingencia>
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- Guía Metodológica 1: Incorporación de la Prevención y la Reducción de Riesgos en los Procesos de Ordenamiento Territorial. Ministerio de Ambiente, Vivienda y Desarrollo Territorial. Viceministerio de Vivienda y Desarrollo Territorial Dirección de Desarrollo Territorial. República de Colombia. <https://www.minam.gob.pe/ordenamientoterritorial/wp-content/uploads/sites/129/2017/02/Gu%C3%ADa-Metodol%C3%B3gica.pdf>
- Normas Técnicas de Vivienda Condiciones Mínimas de Calidad y Habitabilidad. Ministerio de Desarrollo Económico. Dirección General de Vivienda. Gobierno de Bolivia. https://sip.aevivienda.gob.bo/web/docs/publica/normas_tecnicas_de_vivienda.pdf

8. ENVIRONMENTAL BASELINE SURVEY

General Information

Name of the Project: _____ Date: _____

Location: _____

Name of Surveyor: _____

Survey Data

1. Land use and tenure

Datum	Surveyor's Characterization	Notes
Current land use at the proposed site		Change in land use can cause conflict (e.g., if the land is currently being used by a neighboring community for grazing, planting crops, or as a source of water).
Previous land use, if different		Past activities, such as hazardous waste dumping, can endanger the community.
Ecosystem characterization of current site		
What is the current land tenure/title status?		

2. Proximity issues. Is the site located within 2 kilometers of any of the following?

Facility, Habitat, or Activity	Yes/No	Comments
Airport		
Military zone		
Protected areas		
Archeological/anthropological /cultural/historical sites		
Forested area		
Important flora/fauna habitat, including: <ul style="list-style-type: none"> • Wetlands 		

Facility, Habitat, or Activity	Yes/ No	Comments
• Tropical rainforest		
• Mangroves		
• Coral reefs		
• Endangered/endemic species		
Critical biological corridor		
Critical headwaters/ source for local or downstream water supplies		
Highly polluting or hazardous industrial or mining activity		

3. Vulnerabilities

How does your survey rate the site/area's vulnerability to ...	Surveyor's Characterization (high/medium/low/not applicable)	Comments (note any recent natural disasters)
Flooding and projected changes under climate change		
Sea level rise and projected changes under climate change		
Hurricanes and projected changes under climate change		
Landslides and projected changes under climate change		
Earthquakes		
Forest/brush fires and projected changes under climate change		
Drought and projected changes under climate change		

How does your survey rate the site/area's vulnerability to ...	Surveyor's Characterization (high/medium/low/not applicable)	Comments (note any recent natural disasters)
Contamination from external sources (e.g., industry, agriculture, animal farms)		
Erosion and projected changes under climate change		
Extreme heat or high temperatures and projected changes under climate change		

Note: Medium to high vulnerability will require the choice of an alternate site or the use of effective mitigation measures.

4. Anticipated source(s) of water

Primary Source(s)	Average Flow (if well, daily yield)	Lowest Seasonal Flow*	Drinkable Without Treatment?	Nature of Current Utilization	Percentage of Flow Currently Utilized
e.g., spring					
Secondary Source(s)	Average Flow (if well, daily yield)	Lowest Seasonal Flow*	Drinkable Without Treatment?	Nature of Current Utilization	Percentage of Flow Currently Utilized
e.g., spring					

* This is defined as the lowest seasonal flow during the driest years. Further decreases in flow due to climate change should be taken into account.

5. Soil characteristics and topography

Datum	Surveyor's Characterization	Notes
Soil composition/type		This is an important design consideration in waste disposal systems.
Permeability		
Depth of bedrock		
Average slope of site		Slopes greater than 20% are generally unsuitable for housing.
Depth of water table		This is an important design consideration for both water supply and waste disposal systems, such as wells and

Datum	Surveyor's Characterization	Notes
		latrines.
Superficial, seasonal, and/or sub-superficial watercourses in the project area?		Specify depth and location.

6. Climate and weather

Datum	Surveyor's Characterization	Notes
Average temperature and anticipated average temperature during the lifetime of the housing asset under climate change		Hot weather/drought must be considered when designing a house so that it may have proper ventilation.
Rainfall pattern and anticipated changes under climate change		
Average yearly rainfall and projected changes under climate change		
Predominant wind direction		Important for ventilation and the location of waste disposal systems.

7A. Characteristics of the built environment

Datum	Surveyor's Characterization	Notes
Distance to the nearest road		
Distance to public transportation		The community must have proper access to work, school, and health centers.
Are there other communities within 2 kilometers of the proposed site? (Yes/No)		If yes, fill out the table below.

7B. Facilities and infrastructure of communities within 2 kilometers of the proposed site. List the facilities that these communities have, including hospitals, health centers, schools (specify levels), waste disposal systems, houses of worship (specify denominations), recreational centers, and government offices.

Community Name	Distance	Approximate Population	Facilities and Utilities

8. Topographic mapping. The site must be marked on a topographical map, preferably on a scale of 1:50,000. Water bodies; existing settlements and infrastructure; and facilities, habitats, or activities identified under “proximity issues” must be clearly identified.

9. PRELIMINARY PROJECT PROFILE

Complete the following project profile.

General Information

Name of the Project: _____ Date: _____

Organization: _____

Contact: _____ (Name and position)

_____ (Address)

_____ (Tel/Fax/Email)

Survey Data

1. Land title

Has the title to the entire site been secured? Yes ____ No ____

2. Basic characteristics/site plan

Characteristic	Estimate	Comments
Total area (hectares)		
Lot size		
No. of houses		
Persons/household		
Total population		
Water/person/day		
Total estimated water demand		
Percentage of area designated for:		
• Internal roads		
• Green area		
• Community/recreational areas		
• Transport facilities		

3. Basic construction of housing units

House Element	Material	Comments
Floors		e.g., dirt/cement/tile
Roof		e.g., corrugated sheet, tile, tarp
Walls		e.g., adobe, cement block

4. Planned utilities and sanitation

Utility	Usage	Comments
POTABLE WATER <ul style="list-style-type: none"> Planned potable water source 		e.g., community well, community borehole, rainwater collection, spring, stream, pipe-borne/community tap, pipe-borne/private connections, water trucks
<ul style="list-style-type: none"> Daily source capacity, seasonal low 		Consider past climate trends and future climate change projections to account for any changes due to potential climate change.
COOKING <ul style="list-style-type: none"> Cooking fuel 		Firewood, charcoal, kerosene, electricity, bottled gas
ELECTRICITY <ul style="list-style-type: none"> Source 		National grid/solar battery/local diesel set/none
<ul style="list-style-type: none"> Source capacity 		Kilowatts or kilowatt-hours, as appropriate
<ul style="list-style-type: none"> Availability 		All day, all hours, evenings only, etc.
<ul style="list-style-type: none"> Public lighting? 		Yes/No; anticipated load
<ul style="list-style-type: none"> House connections? 		Yes/No; anticipated load per house
SOLID WASTE <ul style="list-style-type: none"> Mode of collection/transport 		
<ul style="list-style-type: none"> Final disposal 		Incinerator, landfill, other
WASTEWATER <ul style="list-style-type: none"> Graywater 		
<ul style="list-style-type: none"> Sewage 		
RAINWATER DRAINAGE		How will rainwater runoff be managed?
SANITARY FACILITIES <ul style="list-style-type: none"> Communal or individual household? 		

Utility	Usage	Comments
<ul style="list-style-type: none"> Type 		e.g., improved pit latrines, composting latrines

5. Administration and funding of utilities and sanitation (indicate the institution that will administer each of these services and *how they will be funded*)

	Potable Water	Solid Waste	Sewage	Electricity
Local government				
Community organization				
NGO				
National, regional, or municipal utility				

6. Social services from the built environment

Schools	Response
Projected no. of school-age children	
Does the project plan include a school? (Yes/No) If no:	
<ul style="list-style-type: none"> Distance to the nearest school(s) 	
<ul style="list-style-type: none"> Do the nearest school(s) have sufficient excess capacity? 	

Health Post/Clinic	Response
Does the project plan include a health post/clinic?	
If no, distance to the nearest health post	