Climate Change Adaptation Checklist for Philanthropies:

Make your giving climate savvy & achieve your goals!

EcoAdapt™
Meeting the challenges of climate change

Climate Change Adaptation Checklist for Philanthropies: Make your giving climate savvy

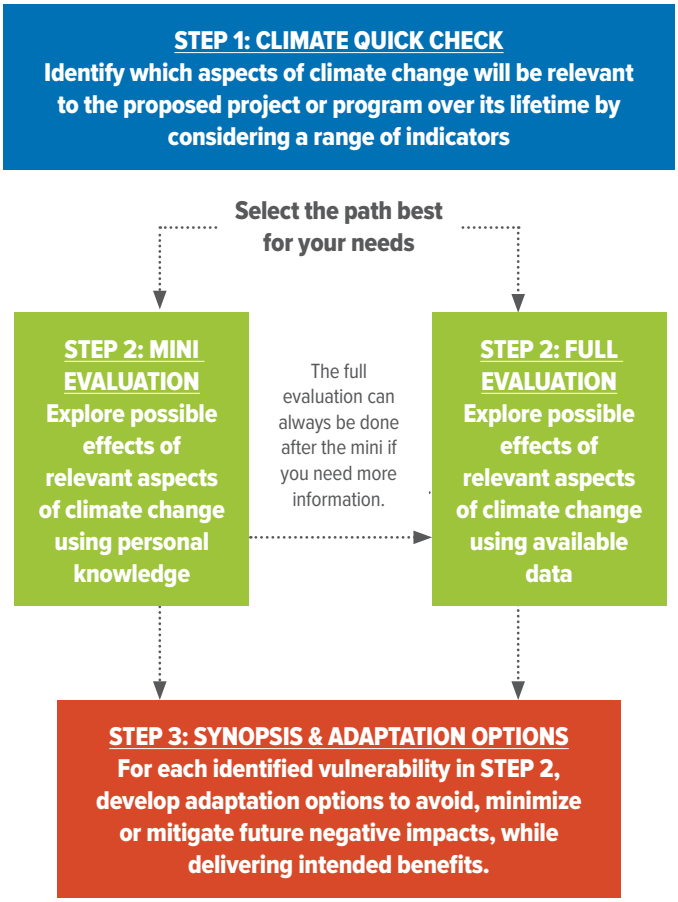
Climate change has implications for both the effectiveness and risks of many of the projects supported by philanthropic funds. Failing to properly evaluate the potential vulnerability of any project prior to funding and implementation can lead to failure to achieve desired outcomes and/or missed opportunities to improve design, optimize climate benefits or avoid climate risks.

The Climate Change Adaptation Checklist for Philanthropies (Checklist) is for use during the review of any grant application that could affect or be affected by climate change. This tool is designed to help you determine if, given climate change, a proposal or funding area will be able to deliver its intended benefits as currently conceived. The Checklist should be embedded as a consistent screening tool for grant applications. The Checklist could also be used as a discretionary tool used to review an already funded project and inform all parties of expected impacts from a changing climate on a project during its lifecycle.

The goal of the tool is not to get in the way of good grant making. Rather it is to give granters and grantees the support they need via an **easy to apply climate lens**. It enables you to explicitly **asks climate questions** to ensure work will achieve good outcomes in light of the challenges climate change creates. Use it to foster essential conversations that can **transform your work—making it climate savvy** and therefore enduring.

The Checklist supports your ability to:

- Explicitly evaluation the implications of future conditions on project or program function, longevity and impact
- Build climate considerations directly into design, permitting and implementation phases
- Reduce liabilities or avoid actions that will be ineffective or cause additional harm under future conditions



Use	Value for completing the Checklist for this application
Grant Review	Systematically compare the ability of a proposal to deliver on its goals given the implications of climate change. Comparison between proposals also possible.
Scientific Research	Consider how climate change may affect the conduct or results of research if it is not explicitly incorporated into the study design and assumptions.
Restoration	Assess the sustainability of restoration project design for species, habitat or ecosystem function under future conditions.
Habitat/Species Conservation	Determine if a location will be suitable for target species or as a habitat loss/damage mitigation for the long-term. If conditions will not remain suitable, the location may be deprioritized, an alternative site may be preferred, or different conservation goals may be identified.
Infrastructure	Assess the suitability of infrastructure siting, design and function for future conditions and climate goals.
Social Services	Determine if services continue to be appropriate, feasible and accessible by all users under future conditions and aligned with climate goals.
Program Development	Evaluation of programmatic goals and approaches to assess and improve achievability given climate change.
Other Uses	The Checklist can be used to assess how climate change will affect long-term sustainability and effectiveness of anything in order to support improved design or siting to achieve intended benefits.

STEP 1: Identifying project type and climate change risk factors

Briefly describe the project goals, purpose and/or major activities:

If the project is....	Might it be affected now or in the future by...	YES	NO	DON'T KNOW	If you answered YES or DON'T KNOW, complete STEP 2 evaluations:
Near a shoreline	...sea level rise?	❒	❒	❒	**B** Sea Level Rise
	...flooding?	❒	❒	❒	**C** Precipitation change
	...erosion or slope instability?	❒	❒	❒	**C** Precipitation change
	... socioeconomic concerns?	❒	❒	❒	**G** Socioeconomics
Aquatic	...increased water temperatures?	❒	❒	❒	**A** Temperature Rise
	...diminished dissolved oxygen levels?	❒	❒	❒	**A** Temperature & **C** Precipitation
	...algal blooms?	❒	❒	❒	**A** Temperature & **C** Precipitation
	...changes in total flow?	❒	❒	❒	**A** Temperature & **C** Precipitation
	...changes in flow timing?	❒	❒	❒	**A** Temperature & **C** Precipitation
Marine or Estuarine	...increased water temperatures?	❒	❒	❒	**A** Temperature & **C** Precipitation
	...diminished dissolved oxygen levels?	❒	❒	❒	**A** Temperature & **C** Precipitation
	...algal blooms?	❒	❒	❒	**A** Temperature & **C** Precipitation
	...reduced pH?	❒	❒	❒	**E** Ecological Sensitivity
	...changes in salinity?	❒	❒	❒	**E** Ecological Sensitivity
In terrestrial, vegetated habitat	...changes in temperature?	❒	❒	❒	**A** Temperature Rise
	...changes in precipitation?	❒	❒	❒	**C** Precipitation change
	...drought?	❒	❒	❒	**C** Precipitation change
	...wildfire?	❒	❒	❒	**D** Wildfire
	...changes in vegetation composition?	❒	❒	❒	**E** Ecological Sensitivity
Infrastructure	...changes in temperature?	❒	❒	❒	**A** Temperature Rise
	...loss of utilities (water, sewer, power)?	❒	❒	❒	**A** Temp, **C** Precip, **D** Wildfire & **F** Emissions
	...sea level rise?	❒	❒	❒	**B** Sea Level Rise
	...flooding?	❒	❒	❒	**C** Precipitation change
	...stormwater or water control failure?	❒	❒	❒	**C** Precipitation change
	...drought?	❒	❒	❒	**C** Precipitation change
	...wildfire?	❒	❒	❒	**D** Wildfire
	...greenhouse gas emissions reduction policies?	❒	❒	❒	**F** Emissions
	... socioeconomic concerns?	❒	❒	❒	**G** Socioeconomics
Focused on Economic or Social Issues	...changes in temperature?	❒	❒	❒	**A** Temperature Rise
	...loss of utilities (water, sewer, power)?	❒	❒	❒	**A** Temp, **C** Precip, **D** Wildfire & **F** Emissions
	...sea level rise?	❒	❒	❒	**B** Sea Level Rise
	...flooding?	❒	❒	❒	**C** Precipitation change
	...drought?	❒	❒	❒	**C** Precipitation change
	...wildfire?	❒	❒	❒	**D** Wildfire
	...greenhouse gas emissions reduction policies?	❒	❒	❒	**F** Emissions
	... socioeconomic concerns?	❒	❒	❒	**G** Socioeconomics

You have two choices for STEP 2.

Know a lot about climate change? Try STEP 2 MINI for your analysis.

or

Need more help thinking about climate change? Use STEP 2 FULL.

STEP 2: MINI Evaluation of Climate Impacts on a Project

Use the MINI to evaluate the project based on the information you already know. The MINI may identify additional questions that need to be asked of the applicant.

Project description:

_____

_____

Impacts (from Step 1)		Implications for the project		Adaption Option	Follow up questions to ask applicant or proponent?	Is this a significant issue for the success of the project?
		Ecological	Socioeconomic			
❒ A	Temperature Rise					
❒ B	Sea Level Rise					
❒ C	Precipitation Change					
❒ D	Wildfire					
❒ E	Ecological Sensitivity					
❒ F	GHG Emissions					
❒ G	Socioeconomics					

Decision:

❒ Fund

❒ Modify the project to improve outcomes, given climate impacts, by: _____

_____

❒ STEP 2 MINI was not enough to know what to do next, continue to STEP 2 FULL to learn more.

STEP 2: FULL Evaluation of Climate Impacts on a Project

This version of the assessment can be undertaken in conversation with the project proponent. It can guide a conversation in which you both explicitly explore the full range of potential impacts due to climate change on the project and you understand how they are planning to address those challenge. It provides both the questions to guide this conversation and the data you might require to better understand the threats.

A. Evaluate the proposal with respect to future air & water temperature patterns.

Has applicant evaluated the project's suitability to future temperatures, referring to data sources and local knowledge? Here are questions to consider whether this project has accounted for such potential changes or if in considering such changes in conversation with the applicant, how the project might be affected:

- Does future temperature look different than present?
- Will the amount of change projected affect your project site, species, or infrastructure
- How may water quality be affected (pH, dissolved oxygen, temperature, turbidity, salinity, contaminants, nutrients, sedimentation)?
- Will temperature change affect crucial functions (e.g., evapotranspiration)?
- Will invasive species benefit from new conditions?

Possible Data Sources (use local data if available*)

NOAA Climate Explorer: https://crt-climate-explorer.nemac.org

Projected Sea Surface Temperatures: https://online.ucpress.edu/elementa/article/doi/10.1525/elementa.191/112778/Projected-sea-surface-temperatures-over-the-21st

NOAA ENSO Status & Predictions: https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

Future climate projections for Pacific Northwest and Great Basin Tribes: https://climate.northwestknowledge.net/NWTOOLBOX/tribalProjections.php

IPCC Working Group 1 Interactive Atlas: https://interactive-atlas.ipcc.ch/

*Possible sources of local data include products from the Climate Adaptation Science Centers,(https://www.usgs.gov/products/web-tools), the Climate Resilience Toolkit (https://toolkit.climate.gov/#tools), regional universities, regional climate research groups, and state and federal agencies.

STEP 2: FULL Evaluation of Climate Impacts on a Project

B. Evaluate the proposal's suitability with respect to local sea level rise and/or lake level change projections.

Does the proposal explain how sea level rise may affect the project? Here are questions to consider whether this project has accounted for such potential changes or, if in considering such changes in conversation with the applicant, how the project might be affected.

- Does future sea level look different than present?
- Will the amount of change projected affect the project site, species or infrastructure?
- Will it affect slope stability or coastline erosion?

If the proposal has not considered sea level rise, use regional sea and/or lake level projections for 2100 (or other date relevant for the project) and local knowledge related to coastal flooding. Projections should be mapped for a proposed project area (inclusive of its access corridors and key infrastructure) in relation to projected future coastal flood zones and frequently flooded areas (both episodic and chronic) based on the sea level rise projections. You can use a sea level rise and/or lake level change viewer or your own GIS. If options exist, use high greenhouse gas emissions scenarios (e.g., RCP8.5 or similar), likely or 50% assessed probability.

When answering, consider how this many interact with other aspects of climate change you are evaluating.

Possible Data Sources (use local data if available)

NOAA Sea Level Rise Viewer: https://coast.noaa.gov/slr/ (only shows <6 feet. For scenarios >6 feet, use Surging Sea: https://riskfinder.climatecentral.org/state/california.us?comparisonType=county&forecastType=NOAA2017_int_p50&level=3&unit=ft

NOAA Coastal Flood Exposure Maps: https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html

Lake Level Viewer: https://coast.noaa.gov/llv/

FEMA Flood Maps: https://msc.fema.gov/portal/home

Climate Central Coastal Risk Screening Tool: for global maps of areas threatened by sea level rise and coastal flooding. https://coastal.climatecentral.org/

NOAA Sea Level Rise Technical Report: https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report.html

STEP 2: FULL Evaluation of Climate Impacts on a Project

C. Evaluate the proposal's suitability for future precipitation patterns and determine impact

Does the proposal account for future precipitation patterns, referring to data sources and local knowledge? Here are questions to consider whether this project has accounted for such potential changes or, if in considering such changes in conversation with the applicant, how the project might be affected.

- Does future precipitation (annual or seasonal) look different than present? Is timing and intensity of precipitation projected to change? Will there be a change from snow to rain?
- Will the amount of change negatively impact the ability to meet goals, negatively affect design integrity, or otherwise affect the proposal's stated outcomes?
- Will there be flooding challenges?
- Will there be slope instability or erosion?
- Will water control or stormwater management design still function?
- Will needed utility (water, sewer, power, broadband) services be available during flooding?
- Will there be unacceptable low flow, or prolonged seasonal, annual or multi-year drought?
- Will invasive species benefit from new conditions?
- How might water quality be affected?

When answering, consider how this many interact with other aspects of climate change you are evaluating.

Possible Data Sources (use local data if available)

Precipitation Data
NOAA Climate Explorer: https://crt-climate-explorer.nemac.org

Drought Data
National Integrated Drought Information System: https://www.drought.gov/forecasts

Flood Data
Map your project area (inclusive of its access corridors, key infrastructure) in relation to flood zones , frequently flooded areas (both episodic and chronic) and implications for slope stability and erosion.

Stream Flow Data
Calculate or locate stream flow projections for your project site with a time horizon relevant to the lifetime of the project (10 years, 25 years, 50 years, or 100 years). Consider not just annual flow, but also temperature, seasonal variability, high flow and low flow periods.

NOAA Coastal Flood Exposure Maps: https://coast.noaa.gov/digitalcoast/tools/flood-exposure.html

FEMA Flood Maps: https://msc.fema.gov/portal/home

Streamflow Metrics: https://www.fs.usda.gov/rm/boise/AWAE/projects/modeled_stream_flow_metrics.shtml

Slope Stability Data
Local slope stability or geologic hazard data-if available

STEP 2: FULL Evaluation of Climate Impacts on a Project

D. Evaluate the proposal's vulnerability to wildfire and determine impact

Does the proposal explain how efforts may be affected by or affect wildfire? Here are questions to consider whether this proposal has accounted for such potential changes or, if in considering such changes in conversation with the applicant, how the project might be affected.

- Will long-term temperature and precipitation trends cause shifts in vegetation and habitats affecting your project's vulnerability to wildfire?
- Will climate changes affect land management techniques that rely on fire (e.g., prescribed burning)?
- Will needed utility (water, sewer, power, broadband) services be available during fire, under fire prevention measures (planned power outages), and/or fire response measures (fuel breaks, water harvest)?

To answer these questions, map project area and its access corridors against Wildfire Hazard Areas or other local wildfire risk mapping tools. When answering, consider how this many interact with other aspects of climate change you are evaluating.

Possible Data Sources (use local data if available)

Projected fire regime changes:
https://www.fs.usda.gov/treesearch/pubs/55029

Wildfire Risk Explorer (for communities but could inform regionally):
https://wildfirerisk.org/explore/

E. Evaluate the proposal's vulnerability to changes in ecological function (e.g., shifts in phenology, range, composition, connectivity, fitness, predation)

Does the proposal explain how future conditions could affect ecological function, including ecosystem services, vital to the project and how that change could adversely affect project success? If not, consider such changes and their potential for driving changes in ecological function relavent to the proposal in conversation with the applicant.

When answering, consider how this many interact with other aspects of climate change you are evaluating.
For marine projects: In addition to previously mentioned impacts, explain how ocean acidification might affect ecological function.

Possible Data Sources (use local data if available)

Restoration Seedlot Selection Tool: https://seedlotselectiontool.org/sst/

Invasive Species

Invasive Range Expander Listing Tool:
https://www.eddmaps.org/rangeshiftlisting/

Forest vegetation change

Climate Forest Vegetation Simulator:
https://www.fs.usda.gov/fvs/whatis/climate-fvs.shtml

Ocean Acidification

NOAA Ocean Acidification Buoy Data: https://oceanacidification.noaa.gov/WhatWeDo/Monitoring/TabId/2987/PID/14727/evl/0/TagID/818/TagName/buoy/Default.aspx

Climate Change Tree Atlas:
https://www.fs.usda.gov/ccrc/tool/climate-change-tree-atlas

STEP 2: FULL Evaluation of Climate Impacts on a Project

F. Evaluate the proposal's contribution to greenhouse gas emissions and sequestration

Does the proposal explain its contribution (during implementation and maintenance) to greenhouse gas emissions and carbon sequestration? Here are questions to consider whether this project has accounted for such potential changes or, if in considering such changes in conversation with the applicant, how the project might be affected.

- Does the project require use of an energy source (e.g., transportation, infrastructure)?
- Will this result in greenhouse gas emissions from fossil fuel use?
- Could there be greenhouse gas emissions from land use change or fire?
- Is carbon sequestration considerd in the proposal? If so, discuss risks to permanence, leakage, additionality?

When answering, consider how this many interact with other aspects of climate change you are evaluating.

G. Evaluate the proposal's effects, both positive and negative, on socioeconomic health and equity.

Has the proposal evaluated how community stakeholders would benefit from or be adversely affected by this proposal, especially low-income and traditionally underserved populations? Here are questions to consider whether this project has accounted for such effects, if in considering such changes in conversation with the applicant, how the project might be affected.

- Do the proposal's objectives preclude future use or access to the site inequitably?
- Are there quality impacts to which the project would contribute (positive or negative)?
- How does the proposal use common community resources? Does it use them to the advantage of one group over another?
- Does the proposal increase or decrease the burden of energy or other costs to lower income community members?
- Does the proposal perpetuate inequities created by past practices such as redlining?

When answering consider how this may interact with the other aspects of climate change you are evaluating. In particular, it may also be important to consider how climate-driven demographic changes could influence the implementation of or support for the proposal.

STEP 3. Checking your work

How will you know if the project can achieve or is achieving its goals, especially given the added complication of climate change? STEP 3 uses a theory of change approach to allow you and the project proponent to identify how you will know the project is working. If you need a place to get started considering adaptation actions, see Adaption Action Examples on page 11.

Project Action (including any adaptation actions added in STEP 2)	What climate stressor and impact of that stressor is relevant to this action?	Effectiveness: How will you know this action is having the desired effect (including how it is ameliorating the climate impact)?	What can you measure to monitor this and how can that monitoring be implemented?

Decision:

❒ Fund

❒ Implementing adaptation actions identified will increase project climate resilience

❒ Project needs further exploration with proponent to achieve climate resilience

Adaptation Action Examples

STEP 2 asks the evaluator to look for evidence that the proposal has integrated consideration of the many ways in which shifts in climate may impact the implementation or outcomes of the planned work, and STEP 3 facilitates accounting and preparing for those changes using climate adaptation approaches. Below are some examples of how the various climate risks might intersect with a specific type of project in providing adaptive measures that will increase the likelihood of success under climate change.

	Temperature Rise	Sea Level Rise (SLR)	Precipitation Change	Wildfire	Ecological Sensitivity	GHG Emissions	Socioeconomics
Grant Review	Grantee clearly sees temperature rise implications	Grantee planning for sea level rise (if relevant)	Grantee clearly sees precipitation change implications	Grantee planning for changing wildfire regimes	Grantee considers ecological impacts of climate change	Grantee accounts for relevant GHG emissions	Grantee works to ameliorate associated climate impacts on communities (if relevant)
Scientific Research	Temperature changes are considered in data evaluation to correct for effect	Control sites account for SLR	Precipitation projections are included in data analyses	Future wildfire regimes are accounted for	Climate impact to parameters being assessed is understood	The carbon footprint of the research is considered	Implications of research for associated communities has been identified and addressed
Restoration	Species used are tolerant of future temperature regimes	Site of restoration is out of SLR zone or restores for intertidal coditions	Species used are tolerant of future precipitation regimes	Restoration accounts for changing wildfire regimes	Species used are evaluated for how their function and interactions may shift	If desired, carbon sequestration potential of plan is quantified	If access is a goal, equitable access and benefit is designed for
Habitat/ Species Conservation	Target species' sensitivity to projected temperatures and implication for conservation is clearly considered	SLR explicitly integrated into conservation planning to avoid or reduce risk to conservation goals	Target species and their supporting habitats are evaluated for persistence under precip changes	Treatment strategies to reduce wildfire risk to achieving conservation goals are integrated	Shifts in species sensitivity to changing wildfire regimes are evaluated	If desired, carbon sequestration potential of habitat is quantified	If access is a goal, equitable access and benefit of habitat is designed for
Infrastructure	Influence of future temps on installation, maintenance and ongoing operation of infrastructure is addressed	SLR projections are clearly considered when planning infrastructure siting or operations	Infrastructure materials and siting are appropriate given expected precipitation shifts	Infrastructure is built to avoid areas of high wildfire risk or be tolerant of fire	Stormwater grey/ green approach accounts for shifts in how vegetation uptakes floodwater	Lower carbon intensive materials are considered in designing needed infrastructure	Accessibility, use of planned infrastructure by local community is explicitly considered
Social Services	Temperature projections are evaluated for impacts on delivery of and access to services	SLR is explicitly considered for risks to delivery of and access to services	Flooding projections are evaluated for their potential to impact provision of social services	A risk assessment is completed for community health care assets and wildfire projections	Account for shifts in vector borne diseases due to chaning climate and take action to mitigate.	Ensure that changes in social service delivery are achieved without increasing GHGs.	Social services are designed to ensure continued equitable access in a changing climate.
Policy Development	Designed to achieve goals under future temperatures	Accounts for land use changes due to SLR	Delivers outcomes with altered precipitation patterns	Can adjust timing or resources in response to fire	Will not damage ecosystems if sensitivity increases due to climate change	Requires renewable and energy conservation options	Does not disproportionally impact frontline communities, ideally benefits them.

Climate Change Adaptation Checklist for Philanthropies Resources and Acknowledgments

Resources:

Here are additional resources that can help you, colleagues, and grantees bring more climate savviness to their project or policy planning:

Climate Change Adaptation Certification Tool: This tool was developed to support communities implement climate savvy planning goals and policies that will enable community services, infrastructure, ecosystems, and economies to better anticipate and respond to the effects of climate change. http://www.cakex.org/tools/climate-change-adaptation-certification-tool

Adaptation Checklist for Climate Smart Projects:A Tool for Natural Resource Agencies: This tool was developed to help natural resource agencies evaluate the potential vulnerability of a project, policy or action prior to implementation. https://sites.google.com/ecoadapt.org/adaptation-checklists/home

Acknowledgements:

In order to make this document useful to grant makers and others in the philanthropy sector, the authors explored ideas around the process of applying a tool like this and tested the actual tool with those working in the philanthropy sector. Early exploration took place at the Biodiversity Funders Group in 2019, and with the David and Lucile Packard Foundation's Conservation and Science Program. The authors would like to thank the co-authors of the previous editions of this tool created for other user groups (Stacey Justus Nordgren, Lynn Helbrecht, James Hansen, and Christopher Hoving), and David Gordon who beta tested the tool and provided invaluable feedback.

Creation of this document was supported by the David and Lucile Packard Foundation.

It is our hope that everyone interested in a better future in a changing climate will employ a climate lens like this to ensure their decisions are climate savvy.

Recommended Citation:

Hansen, L.J. and D.A. Rudnick. 2023. Climate Change Adaptation Checklist for Philanthropies. EcoAdapt. Bainbridge Island, WA.

EcoAdapt™
Meeting the challenges of climate change

EcoAdapt provides support, training, and assistance to make planning and management less vulnerable and more Climate Savvy. EcoAdapt, founded by a team of some of the earliest adaptation thinkers and practitioners in the field, has one goal—creating a robust future in the face of climate change. We bring together diverse players to reshape planning and management in response to rapid climate change. www.EcoAdapt.org