ASAP Living Guide to the Principles of Climate Change Adaptation

Contents

1. Introduction

This document is designed to articulate the values, norms, goals, and practices that have emerged through over a decade of experimentation, research, and on-the-ground work in the climate adaptation field. It is meant to be accessible by both experienced and new members of the field. This is not a how-to guide for undertaking an adaptation process. Rather, it is a collection of fundamental principles for engaging in professional activities in the field of climate adaptation. These principles will also underpin adaptation training, curricula, and standards developed and adopted by the field. This is an iterative effort: professionals and scholars in the adaptation field will have ongoing opportunities to improve this document.

The most important principle articulated here is, simply, **take action.** Take action for adapting to climate change, even in the face of uncertainty. Implement actions rather than only planning for them. Foster and capitalize on ambition, experimentation, and innovation. Start small if needed, take prudent risks, and adjust over time. Actions should adhere to the principles described in subsequent sections in order to avoid maladaptations and inequities.

Additionally, adaptation professionals must acknowledge that decisions underpin all actions. Adaptation professionals may find themselves informing decisions, making decisions, empowering decisions, or influencing decisions. Keep in mind that, by definition, decision makers hold power. That power is sometimes used to limit people's access to decision-making structures, particularly people with low incomes and people of color. It is critical that climate adaptation efforts create opportunity for underrepresented or oppressed people to build power through decision making. Whenever possible, those in power should use the principle of "decide with, not for." In situations where one must decide "for," they should seek to minimize harm (especially to people with little political power), maximize options (especially for people with little political power), and maximize transparency, accountability, and follow-through.

Further, good decision makers use best available information, and continually re-evaluate their choices based on new information and changing conditions. Adaptation professionals should ensure that decision makers can access and apply best available information. They should encourage long-term, iterative relationships with information users that equip and empower local experts to use climate information to understand risks and take action. They should encourage and employ decision making processes are flexible, transparent, inclusive, and iterative, following the tenets of adaptive management and holistic, systems thinking.

Finally, decisions happen because of bold, courageous leaders willing to take action, even in the face of uncertainty. Climate adaptation professionals should foster, support, and model effective leadership, including: identification of clear needs, setting of ambitious goals, supplying a forward-thinking vision for change, and maximization of ownership and follow-through. Remember that leadership can come from many places and all levels of society, and that recognizing leadership is critical for inspiring new leaders.

2. Desired Outcomes

This section articulates the core outcomes that adaptation professionals seek to achieve through their work.

Enhance adaptive capacity

Adaptation action should seek to enhance a system's ability to prepare for and adjust to climate change -- including climate variability and climate extremes. When taking action to enhance adaptive capacity, it is valuable to acknowledge that poor individuals and communities may have less capacity to adapt, and that rich individuals and communities may experience greater amounts of financial loss during extreme events.

Reduce exposure and sensitivity

The consequences of climate change can be reduced in magnitude by decreasing exposure and sensitivity, thus decreasing vulnerability. Reduce exposure by creating conditions for people to stay out of harm's way, for example: disincentivizing building in the floodplain. Reduce system sensitivity by protecting the things that regulate that system, for example: protecting tree canopy that mitigates extreme urban heat. Further reduce overall vulnerability by improving the underlying conditions that make one susceptible to harm, such as health, economic status, and access to resources.

3. Values, Beliefs, Strategies, and Approaches

This section articulates the values and beliefs of the climate adaptation field, and describes tried and true strategies and approaches for doing effective, ethical, and equitable adaptation work.

Think in systems

Acknowledge that we live in an interconnected world, and consider how problems, actions, and solutions relevant to one component in a system can trigger changes in the other components. Holistically consider the multitude of intersecting risks that social and ecological systems face. This includes risks derived from both climate and non-climate hazards. Look holistically at the benefits of solutions and actions. Articulate and exploit co-benefits to increase the inherent value of projects, and increase partnerships, support, and collaboration.

Recognize context

Contextualize adaptation research, policies, practices, communication, and actions to the appropriate issues, location, and scale. Design strategies to adjust over spatial and temporal scales, and account for variability and extremes.

Safeguard people

Safeguard the safety, health, well-being, and existence of all people affected by an adaptation action. Focus on more vulnerable populations, engage those who have traditionally been disenfranchised, and consider stacked vulnerabilities, systemic injustice, and oppression when identifying problems and solutions. Assess all strategies to ensure that they do not have disproportionate negative impacts on these populations. If possible, adaptation strategies should actively strengthen these populations.

Safeguard nature

Explicitly address the needs of ecological systems, including fish, wildlife, and plants, in adaptation strategies. Assess all actions to ensure that they protect or enhance the capacity of ecosystems to sustain function over time, and that human communities can continue to sustainably derive benefits from them in the long-term.

Achieve equitable outcomes

Ensure adaptation actions address the varying needs and capabilities of different groups or populations. Ensure that climate adaptation strategies and processes recognize the economic and social determinants that compound vulnerability to climate risks. Pay particular attention to populations that are most vulnerable, which are often the poorest, those already overburdened by pollution, those who

lack economic opportunity, and individuals facing disenfranchisement and racism. Ensure that the costs of responding to climate change and the benefits of resilience-building are equitably shared.

Use best available science and knowledge

Ensure adaptation-related decisions are consistent with and responsive to the best-available science about climate change and current knowledge of how it will affect human and natural systems. Use of the full range of scientific tools, including both quantitative and qualitative methods, community knowledge, Traditional Ecological Knowledge, collaboration among the sciences, and the informed co-production of knowledge. When given the opportunity to design or implement an adaptation process, make sure you follow a vetted adaptive management process. Update policies and shift priorities as new information becomes available.

Use projections about future conditions

Whenever possible, use projected future conditions, rather than averages over time, when planning for social, economic, ecological and other impacts, and in assessing prospective risk and vulnerability. Incorporate the full range of possible climate outcomes in assessments and plans, including highly uncertain events, acknowledging that conditions are becoming increasingly dynamic. Consider projected future conditions across all variables that may influence the outcome of adaptation actions, such as demographic and economic conditions. Continually re-evaluate underlying goals in light of new knowledge about projected changes.

Avoid harm

Evaluate the impacts of adaptation actions on potentially affected systems, scales, and sectors for both short- and long-term time horizons. Guard against maladaptation by assessing potential impact across sectors, scales, and systems and by engaging multiple, diverse stakeholders in the process. Consider externalities, minimizing disproportionate impacts to some at the benefit of other regions, generations, social groups, or systems. Recognize that sometimes the optimal solution requires some level of harm to a sector, system, or population. In those instances, seek to minimize harm and maximize options of people with less political and social power.

Support mitigation

Acknowledge that adaptation will only be successful in the long-term if concurrent mitigation efforts are successful at maintaining safe levels of carbon dioxide in the atmosphere. Ensure that climate change adaptation actions are consistent with and supportive of mitigation actions. Certify that adaptation actions are low-emissions. Work in synergy with climate change mitigation whenever possible. Appreciate limits to adaptation and push mitigation.

Mainstream

Seek out opportunities for integrating adaptation strategies and efforts into systems, budgets, plans, policies, projects, and practices of all kinds. Consider adaptation at the inception of an action, rather than added in the middle or as an afterthought. Use mainstreaming opportunities to increase project co-benefits.

Network and learn together

We are all in this together, and our successes amplify and build on each other. Adaptation is contextual, but there are similarities in approaches across regions and sectors. Create templates and models that can be modified, tailored, or adapted to a particular context. Create the conditions for transferring and scaling solutions. Acknowledge that sharing best practices, learning by doing, and iterative and collaborative processes can help support local and overall progress. Use case studies, boundary organizations, and networks to connect and learn. Avoid reinventing the wheel by continuously communicating successes and challenges with peers and colleagues. Develop new, innovative ideas through dialogue and collaboration.

Improve connection to improve resilience

Recognize that connected human communities are more resilient, and protected and connected space is the foundation for resilience in the natural world. Take actions that increase connections among people, between human communities and natural systems, and between tracts of land suitable for species to thrive.

Ensure flexibility, robustness, and redundancy

Manage uncertainty about the future by implementing actions and processes that can respond to changing circumstances (flexible) and perform well under a variety of conditions (robust). Manage the tradeoffs between flexibility and robustness by creating safeguards in the case of failure (redundancy). Consider near and long-term implications of action. Account for future climate influence on long-term project impacts.

Align incentives and penalties to promote ideal outcomes

Align social, financial, legal, and regulatory incentives and penalties to achieve preferred adaptation outcomes, avoid maladaptation, and form the foundation for many adaptation actions and successes.

Use windows of opportunity

Use windows of opportunity, such as natural disasters or scheduled updates to plans, to build support for adaptation action. Balance this reactive strategy with use of other, proactive strategies such as mainstreaming.

Use existing best practices

Many of the promising practices for adaptation work are general best practices that apply outside of the adaptation field as well. Two prominent categories are program design and management, and communications and engagement. The sections below describe best practices for each that should be applied in adaptation work.

Program design and management

As with other changes to the status quo, adaptation happens happens through programs, initiatives, projects, and plans. Practitioners should apply best practices for designing and managing them, including:

- Establish needed financial and human capacity.
- Consider project longevity and continuity, especially with respect to political changes and funding changes.
- Design for and incentivize implementation.
- Maintain contact with stakeholders throughout the program's life.
- Establish shared goals and expectations with stakeholders.
- Maximize effectiveness and efficiency by modeling work on pre-existing models or templates modified for your context.
- Monitor and evaluate your work to inform improvements in future projects.

Communication and engagement

Effectively communicate and engage with all stakeholders, particularly residents affected by climate impacts or adaptation actions. Best practices for effective communication and engagement include:

- Articulate co-benefits to encourage stakeholder support.
- Use language and concepts that resonate with your audience. In particular, consider cultural and political implications of using the phrase "climate change."
- Respect and consider people's point of view, especially people who have experienced oppression or trauma
- Work with boundary organizations, community organizations, and other trusted messengers to communicate and engage.
- Establish shared goals and objectives with stakeholders.
- Use transparent and iterative processes.

- Be respectful of people's time and wary of stakeholder burnout. Lower barriers to engagement by paying people for their time, communicating with them in their language of choice, and offering food and childcare.

Collaborate

Integrate a diverse set of individuals and types of organizations into adaptation work, including representatives from government entities at all scales, non-governmental organizations, corporations and businesses, community groups, and philanthropy. Create opportunities to include people at multiple levels of organizations, and unaffiliated individuals. Create a common agenda that is beneficial to all parties. Develop shared processes and align effort to maximize connection and efficiency. Involve all partners in all actions, from problem identification through evaluation. When feasible, create infrastructure and dedicated staff that cuts across sectors and organizations.

4. Categories of Action

This section describes tried and true categories of action that illustrate how the principles above are put into action.

Measure and Learn

Monitoring changes in the climate system, gathering and analyzing data to build understanding of climate impacts and climate risk, and monitoring and evaluating actions taken to adapt to climate impacts.

Examples:
- Enhance, develop, test, or deploy inventory, monitoring, observation, and information systems at multiple scales to detect and describe climate impacts on people, built environment, fish, wildlife, plants, and ecosystems.
- Assess the vulnerability and risk of communities to climate impacts.
- Monitor and communicate progress towards implementation of climate adaptation projects.
- Evaluate adaptation options, including social, environmental, and economic costs and benefits.
- Monitor and evaluate the outcomes and impacts of adaptation projects and programs
- Process and reflect on the lessons from adaptation projects and programs and integrate them into future projects and programs.

Values and Strategies in Action
- Think in Systems: Formulate research questions based on a holistic understanding of threats and risk. Evaluate projects based on a holistic understanding of success. Design observation systems and research projects that look at entire systems.
- Collaborate: use partnerships to fund research, put monitoring systems in place, and collect data.
- Network and Learn Together: share data, analysis frameworks, and lessons learned.
- Use projections about future conditions in assessments

Plan

Considering climate science, climate impacts, and climate risk in institutional planning

Examples
- Incorporate adaptation into existing plans, such as state or local hazard mitigation or comprehensive plans; species, habitat, or land management plans; and sector-specific planning such as water resources or coastal plans
- Create new planning processes, following a vetted adaptive management approach.

Values and Strategies in Action
- Use Best Available Science to inform planning, and follow a vetted adaptive management process when designing your planning activities.
- Use projections about future conditions when determining what you are planning for
- Collaborate: Coordinate climate change planning efforts across jurisdictions, such as at the regional scale. Consider establishing a central coordinating body responsible for addressing climate change and long-term planning.
- Mainstream: incorporate adaptation into existing plans, capitalizing on co-benefits of integrated planning.
- Support mitigation by planning to create conditions that will simultaneously increase climate resilience and decrease greenhouse gas emissions.
- Use communication and engagement best practices to integrate diverse individuals into the planning process and ensure plans represent the interests of the full fabric of the community.

Fund and Invest

Repurposing, leveraging, or obtaining public or private funds to finance or invest in adaptation actions

Examples
- Integrate adaptation into capital improvement plans and budgets
- Create a microfinance system to provide capital for small neighborhood projects.
- Establish an infrastructure bank to leverage private finance for climate resilient capital projects.
- Use municipal bag fees to fund stormwater improvements and prepare for severe urban heat.
- Apply for public and private grants.

Values and Strategies in Action
- Achieve equitable outcomes: prioritize allocating adaptation funding to those who are most vulnerable.
- Mainstream: optimize use of existing funding sources and leverage existing investments.
- Align incentives and penalties to promote ideal outcomes: use financial penalties from maladaptive actions towards adaptation work.
- Use windows of opportunity: Use climate-related extreme events and disasters as an opportunity to open a conversation about the cost of inaction, and inspire allocation of additional funds to climate adaptation work.
- Think in Systems: holistically articulate and exploit co-benefits to create additional value in adaptation work and encourage allocation of additional funds.

Develop and Deploy Technology

Developing and deploying climate-resilient technologies, and technologies that enable climate resilience.

Examples
- Create drought-resistant crop varieties
- Establish advanced early warning systems
- Advance low-carbon energy technology

Values and Strategies in Action
- Ensure flexibility, robustness, and redundancy of technology so it is resilient in the face of changing future conditions.
- Think in systems: Address problems and solutions holistically by designing technology that addresses complex problems and offers multifaceted solutions.
- Network and learn together: dialogue and iterate with colleagues and users to create truly useful products and services.

Communicate and Engage

Communicating with people and institutions the information they need to prepare for climate impacts, communicating information about adaptation actions being taken on their behalf, and engaging individuals and institutions in iterative processes to increase the effectiveness and equity of climate adaptation action.

Examples
- Disseminate climate information and decision support tools to people and institutions, and hear and integrate their feedback to improve them.
- Develop and deliver trainings and workshops to help practitioners and the public build adaptation-related knowledge and skills, and hear and integrate feedback to improve them.

Values and Strategies in Action
- Recognize context: tailor information, tools, and education products and processes to local culture, needs, hazards, and assets.
- Use communication and engagement best practices
- Use windows of opportunity: Use climate-related extreme events and disasters as an opportunity to encourage increased participation in education and engagement opportunities and increased use of climate adaptation information and decision support tools.
- Mainstream: communicate and engage on climate adaptation through existing, well-used channels in the community.

Build Physical Infrastructure

Building new or improved physical infrastructure aimed at providing direct or indirect protection from climate hazards

Examples
- Preserve and restore habitat features to maintain ecosystem function and resilience to climate change.
- Install nature-based infrastructure, such as bioswales and green roofs, to increase urban flood and heat resilience.
- Enhance pumping, piping and storage infrastructure and drainage systems to protect from intense urban flooding.

Values and Strategies in Action
- Use program design and management best practices: in particular, monitor and evaluate projects to ascertain effectiveness and improve future projects.
- Network and learn together: explore what others have done and learn from their successes and challenges.
- Mainstream: incorporate climate considerations and adaptation principles into existing plans for infrastructure projects.
- Use projections about future conditions to design infrastructure that will function well under future climate conditions.
- Ensure flexibility, robustness, and redundancy in structural design.

Shift Management Practices and Recurring Behavior

Incorporating climate adaptation considerations into land management, and day-to-day practice and behavior of professionals and laypeople

Examples
- Encourage use of climate-resilient soil, land management, and livestock management techniques.
- Encourage adaptation action on personal property such as rainwater collection and energy efficiency practices.
- Conserve, restore, and establish new ecological connections among conservation areas to facilitate fish, wildlife, and plant migration, range shifts, and other transitions caused by climate change.
- Optimize urban street tree maintenance protocols for new climate conditions.
- Create targeted education and outreach efforts and stewardship opportunities that help institutions, communities, or individuals achieve behavior or management change.
- Develop and bolster human and social capital to increase connectedness of communities.

Values and Strategies in Action
- Recognize context: promote behavior change and management practices that align with local culture, capacity, and needs
- Network and learn together: explore options and offer ideas based on experiences in other places.
- Align incentives and penalties to promote ideal outcomes
- Think in systems: emphasize co-benefits of behavior changes, such as cost savings from energy efficiency.

Change Policy and Law

Revising, or creating new, law, policy, or regulation that requires or incentivizes adaptation action and penalizes maladaptation.

Examples
- Ensure local policies and regulations reduce exposure to hazards. For example:
  - Modify local ordinances to limit development and redevelopment in coastal high hazard areas.
  - Implement buy-out and relocation programs.
- Create policies that encourage nature-based infrastructure. For example:
  - Eliminate regulatory barriers to installing living shorelines.
  - Create financial incentive for incorporating green infrastructure into new commercial/industrial buildings.
  - Require cool roofs on new homes.

Values and Strategies in Action
- Achieve equitable outcomes by assessing how law and policy changes will impact different populations
- Think in systems: ensure changes in policy, law, and regulation do not transfer problems from one place to another.
- Align incentives and penalties: use law and policy changes to encourage adaptation action and discourage maladaptation.
- Ensure flexibility, robustness, and redundancy: create processes for policy and law to continue to change over time.
- Mainstream: change existing laws and policies where feasible, and create new when needed.
- Use windows of opportunity: use increased desire for action, such as following a natural disaster, as a window of opportunity for success in proposed law and policy changes. Design desired law and policy in advance to be ready when an opportunity arises.

Appendix 1: Research Protocol Summary

Research purpose: Advance and bring greater consistency to the work of climate adaptation and community resilience professionals. Inform the work of climate-affected professionals.

Research Scope: Identify generally agreed upon leading adaptation practices.

Methodology: qualitative content analysis with a combined deductive and inductive approach.

Methods
1. Identify unit of analysis: "promising practice" (ie "principle").
2. Conceptualize analysis matrix articulating existing knowledge about "promising practice" categories.
3. Gather data by content. Data sources:
   a. Notes from informal ASAP focus groups on this topic.
   b. Self-identified "promising practices" (ie - practices, themes, approaches, strategies, implementation actions) as they appear in executive summaries, tables of contents, conclusions, or recommendations sections of [major climate adaptation synthesis reports](#).
4. Group: relate pieces of data to analysis matrix, and code: develop new groupings.
5. Categorize: develop and synthesize groupings to create list of promising practices/principles.
6. Write report: contextualize, model, conceptualize, synthesize, and challenge the promising practices.

Assumptions
1. List of major climate adaptation synthesis reports is comprehensive.
2. Synthesis report authors have summarized the most relevant information about promising practices in something identifiable as such (e.g. executive summary, conclusion, list of practices or themes.)

Biases
- Researcher used judgment about what is or is not relevant data for the report (see assumption #2 above)
- ASAP focus group rigor has not been assessed.
- Some synthesis reports *capture* what is being done on the ground, and some reports *analyze* what is being done and make recommendations based on effectiveness. Researcher did not identify an objective way to differentiate between the two.

Mechanism for ensuring rigor: Iterating with ASAP members and other individuals from across sectors and scales in the climate change adaptation community.

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