BREAKING GROUND:

Guidance for Carbon Removal Companies and
Funders on Responsible Project Deployment

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INTRODUCTION

IN JUST A FEW SHORT YEARS, CARBON REMOVAL HAS GONE FROM A RESEARCH AREA IN ACADEMIC LABS TO A VIBRANT ECOSYSTEM OF STARTUPS AND FUNDERS WITH HUNDREDS OF PROJECTS STARTING TO BREAK GROUND.

The growing recognition that gigatonne-scale carbon dioxide removal (CDR, or carbon removal) will be an essential part of meeting global climate targets has catalyzed action on many fronts. It is essential that the industry grows in ways that are good for people as well as the planet, with justice and responsibility in mind.

This white paper is intended to be a resource for both carbon removal companies as well as project reviewers and funders who are committed to ensuring the industry grows responsibly and prioritizes communities. It also introduces and provides context for the questions related to responsible deployment and environmental justice that form a part of the XPRIZE Carbon Removal Finalist Application, due February 1, 2024. Our aim is to share the research and learnings from this effort to support the broader ecosystem that is reviewing and deploying projects.

This work builds on XPRIZE and Carbon180's From the Ground Up report (published February 2023) that reviewed findings from the Milestone Round of the competition and offered recommendations for conducting community engagement and incorporating environmental justice into carbon removal projects. Here, we expand on those recommendations by integrating additional research and resources being developed for the carbon removal industry as well as insights from adjacent industries that may have applicability. In particular, the guidance offered here draws upon learnings from public engagement on energy and industrial projects, social and environmental standards applied to international development and finance projects, and best practices for working with Indigenous groups.

AT A HIGH-LEVEL, THIS DOCUMENT INCLUDES THREE PARTS:

1 **Key dimensions of responsible carbon removal projects,** which summarizes our research findings and presents the key aspects developers and funders need to be attentive to in designing and evaluating carbon removal projects. This section also describes the approach we used to derive these findings;

2 **Guidance for carbon removal companies** to work towards more just and responsible ways of designing and deploying carbon removal projects; and

3 **Guidance for reviewers and funders of carbon removal projects** on how to evaluate projects with respect to responsible deployment and justice considerations. **This section includes the questions XPRIZE will use in the selection of the 20 Finalists in 2024.**

> To complement this work, XPRIZE also supported the Carbon Business Council's development of the Carbon Dioxide Removal Responsible Deployment Training (CDR RDT). This new online training offers a primer for carbon removal companies on various aspects of responsible deployment and community engagement as well as practical resources to help carry out this work.

OUR APPROACH

In setting out to develop the evaluation criteria for the XPRIZE Carbon Removal Finalist Application, we first wanted to examine the current best practices for conducting related projects in ways that are responsible and environmentally just. Carbon removal is a new field, but adjacent industries and sectors can offer relevant guidance and lessons learned. The framework and recommendations produced herein build on best practices across a range of different sectors and experiences.

The source list for our analysis included guidelines from existing CDR funders, as well as material from other industrial projects, extractive industries, coastal spaces, REDD+, and additional contexts such as projects in the Global South and in areas with Indigenous communities. They offered insights regarding the responsible development of infrastructure, drawing on decades of experience implementing projects around the world. The specific sources are referenced throughout the rest of the document.

Drawing on these sources, we developed a list of the key dimensions of responsible carbon removal projects. We summarize these six dimensions in the following section. In producing this analysis, we also saw an opportunity to share our learnings with the broader carbon removal ecosystem. Thus, we also offer practical guidance and resources for how project developers can approach this work (Section 2) and how funders can review projects (Section 3).

KEY DIMENSIONS OF RESPONSIBLE CARBON REMOVAL PROJECTS

BASED ON OUR RESEARCH, WE IDENTIFIED SIX KEY DIMENSIONS OF RESPONSIBLE EARLY-STAGE CARBON REMOVAL PROJECTS:

1. Characterizing relevant communities

2. Conducting meaningful community engagement

3. Assessing and mitigating impacts

4. Exploring and defining benefits

5. Ensuring transparency and accountability

6. Building resources and capacity

While some of these dimensions require more attention during certain stages of a project, they are not linear steps. Instead, they should be understood as processes that need to be iterated throughout a project's lifespan, particularly as it evolves.

1 CHARACTERIZING RELEVANT COMMUNITIES

A key theme across the referenced literature is the importance of taking stock of the range of groups that might be potentially affected by project activities, or that might take an interest in them. Attention to the presence of Indigenous, minority or low-income groups is particularly essential, as well as to any groups or communities that may have experienced disproportionate harms from industrial or economic development or pollution (what we call here 'environmental justice' or 'EJ' communities). An adequate characterization of relevant communities involves conducting research to understand the cultural, socio-economic, legal, political, and ecological context of these groups in order to begin understanding their priorities and more effectively engage with them.

2 CONDUCTING MEANINGFUL COMMUNITY ENGAGEMENT

The goals of engagement are first to develop an iterative and reflexive process that informs decision-making on a potential project. A second goal is to explore the conditions (if any) under which relevant communities might support advancing a proposed project to further stages of research and/or deployment. Across the board, our research highlighted the importance of engaging communities in ways that enable them to participate actively in decision making throughout the lifespan of a project. When working in areas relevant to Indigenous communities, consent-based practices are of critical importance.

3 ASSESSING AND MITIGATING PROJECT RISKS AND IMPACTS

When planning a project, it is important to assess all potential project impacts in collaboration with communities and with the support of independent sources. This will ensure projects minimize negative impacts as much as possible. A wide range of impacts should be considered, ranging from ecological to health-related to cultural to labor-related. In addition to direct impacts in the project area, other indirect (e.g., broader supply chain) and cumulative impacts (i.e., of multiple projects) should be considered. In conducting these assessments, it is essential that communities actively participate, so that their relevant and historical knowledge and insights inform the assessment, mitigation and management of project risks, as well as decisions about when risks may be too great to move forward with next project steps.

4 EXPLORING AND DEFINING BENEFITS

Projects with demonstrated social and environmental benefits should be prioritized, particularly those that benefit vulnerable populations and ameliorate past harms. Beyond promising jobs, projects with robust benefits emphasize commitments to labor rights and job quality, and broader economic, social, and ecological co-benefits of relevance to the community. Models of community ownership should be considered and explored. Crucially, the definition and selection of any benefits must be led by communities, rather than by project developers.

5 ENSURING TRANSPARENCY AND ACCOUNTABILITY

Open information sharing is a key feature of responsible projects. Projects should share information with communities on project plans, risks and benefits, and engagement plans. Community views on a project, which will emerge from engagement activities and also outside of them, should be shared with the broader project team, and, crucially, it should be transparent how that feedback will be integrated into project planning. Any potential benefits should be formalized in order to support accountability.

6 BUILDING RESOURCES AND CAPACITY

Giving adequate attention to the dimensions discussed above requires internal resources, including funding and personnel. Also important to consider is whether communities have sufficient expertise and capacity to collaborate; facilitating their effective engagement and financially compensating them for their time via additional funding may be necessary. Communities themselves should play a central role in guiding how and where this capacity is developed. Longer term investments in communities— for example, building the local know-how and infrastructure for future community-led carbon removal projects—also support just deployment.
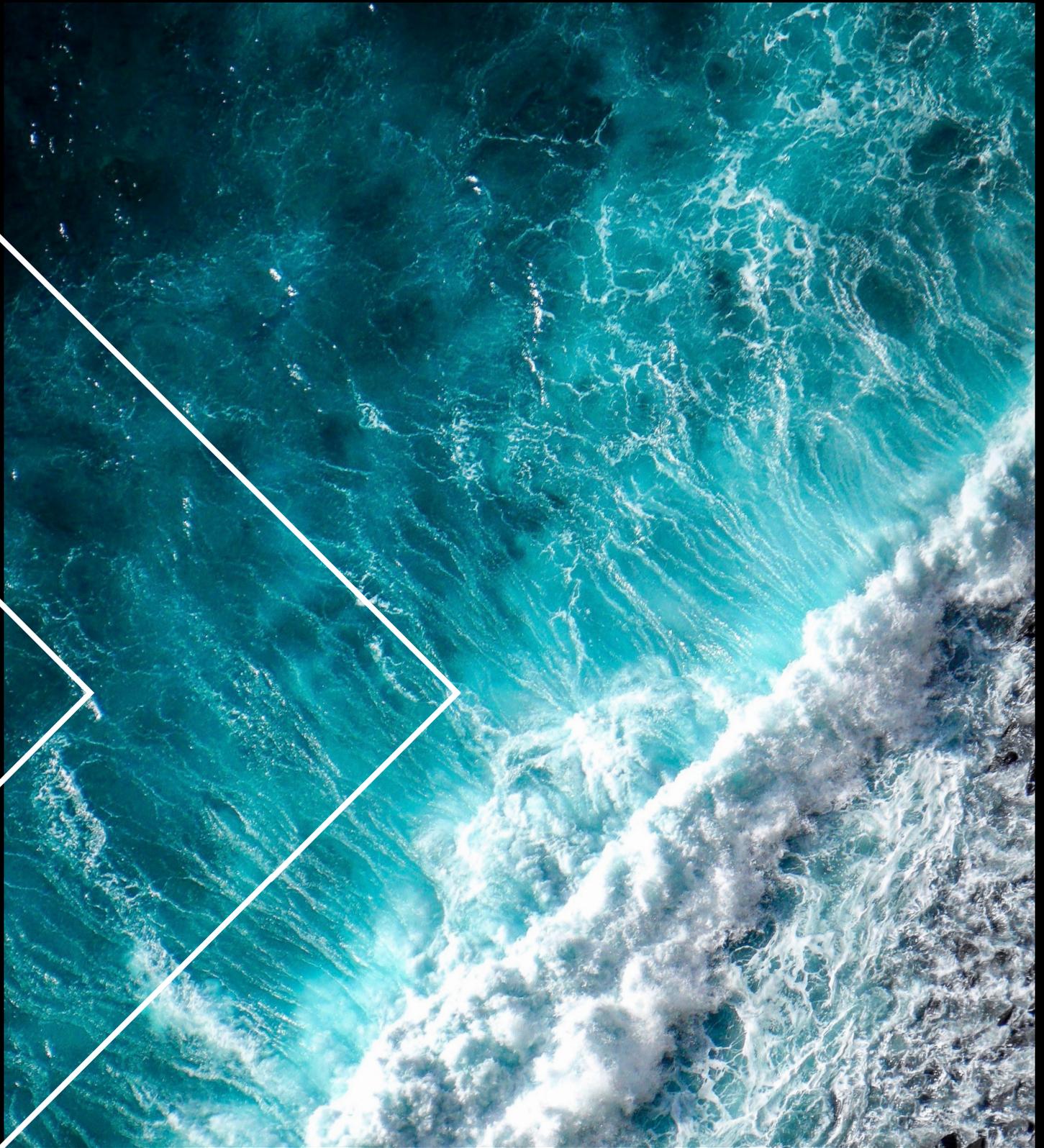
GUIDANCE FOR CARBON REMOVAL COMPANIES

Designing more just and responsible carbon removal projects

IN THIS SECTION, WE EXPAND ON EACH OF THE DIMENSIONS OUTLINED ABOVE AND OFFER PRACTICAL GUIDANCE FOR CARBON REMOVAL COMPANIES.

This consists of questions to assist in reflecting on gaps in your current plans and making steps to address these. We also offer 'further reading' suggestions to help you locate additional resources and guidance.

1 CHARACTERIZE RELEVANT COMMUNITIES

The starting point for project developers should be to understand and characterize the communities that might be affected by or take an interest in project activities.

Take stock of local groups and communities that might potentially be affected by project activities, or that might take an interest in them. Particular attention should be given to minority, low-income, and Indigenous populations, and those who have experienced past harms or are located in areas with a history of industrial projects. Attention should be given to ensuring that any groups that are geographically mobile or use spaces seasonally are captured. It is worth noting that determining which groups 'might' be affected is not a straightforward question in many cases, particularly for example in the context of marine or coastal areas. Casting a wider net than you think necessary is a good practice to ensure that you are capturing all the potential groups who may take an interest in your project.

Develop a comprehensive understanding of the cultural, economic, ecological, legal, political context of these groups. You will need to gather information to inform structuring engagement, such as local culture and tradition, power structures, community dynamics, decision making processes, cultural context, and local capacity and planning. This information will help you ensure that you structure engagement activities to be effective and respectful. You will also need to gather information relevant to anticipating local priorities and concerns (such as regarding land usage, natural resources, local economic conditions, customary rights, and more). This information will help you begin to understand the types of risks and benefits that your project might potentially generate. Finally, information regarding prior infrastructure projects in the area, and the community responses to it, can be helpful to know in advance—these associations and past experiences will likely inform how people respond to your project, in either positive or negative ways.

QUESTIONS TO GUIDE YOUR PLANNING:

> What kind of resources can you draw upon to begin characterizing relevant communities? How can you ensure a mix of different types of resources?

> What groups might be potentially affected by your project?

> Is there any possibility that you are operating in locations with Indigenous groups, minority or low-income populations, or with legacies of past harm from industrial projects?

> What can you find out about the local cultural and political context (e.g., local cultural traditions, decision making processes) as well as local priorities and concerns (e.g., local land usages)?

> Which learnings from this initial characterization might help you improve how you design engagement and/or what might be the possible risks and benefits of the project?

FURTHER READING:

Creating a Community and Stakeholder Engagement Plan (DOE 2022)

Community Guide to Environmental Justice and NEPA Methods (NEPA 2019)

Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities (FAO 2016)

2 CONDUCT MEANINGFUL COMMUNITY ENGAGEMENT

Once you have an understanding of which groups and communities might be relevant, you should begin the process of conducting engagement activities with these groups. The earlier you begin engagement, the better.

Organize structured activities that involve communities in meaningfully shaping a project. Crucially, engagement is 'two-way'—meaning that it is not just about you sharing information with communities (or only about them sharing views with you); rather, the goal is to collaboratively shape project planning. Engagement should not just explore views on your planned activities, but also views on and preferences for alternatives to your project. It is important to note that engagement does not just happen once: rather, it is an iterative process that you will do throughout your project, particularly as you consider expanding or scaling operations, either in scope or volume, or to new sites. Engagement should occur early and continuously, and it should be treated as relationship building, where iterative cycles facilitate greater mutual understanding and trust between projects and communities. It is important to ensure that the project dedicates resources for these activities, including relevant expertise where needed.

To engage effectively, ensure that you have removed barriers to participation. Engagement will only be useful if you assemble the spectrum of relevant groups, so it is important to ensure that you design engagement activities in ways that are accessible and culturally sensitive. It is best practice to create spaces where communities feel safe, and there is no space for coercion, intimidation, discrimination or harassment.

Consent-based processes are a tenet of good engagement. Quality engagement explores people's 'free, prior and informed' consent (FPIC) to a project's specific activities (e.g., the next stage of field trials; or, an initial deployment at specific sites). People's 'right to refuse' should be upheld: following an FPIC process does not guarantee approval, and it is possible that consent is not provided or that it is later withdrawn.

Indigenous and EJ communities should be treated with particular care and respect in engagement. Ensuring FPIC for Indigenous groups is a principle of the United Nations Declaration on the Rights of Indigenous Peoples, and is critical to abide by. Indigenous representative bodies and organizations should be involved in these processes. Enough time should be provided to ensure that Indigenous and other communities that have experienced disproportionate past harms have time to participate in decision-making processes, and it should be confirmed that they have understood the information provided and that they have received expert advice.

QUESTIONS TO GUIDE YOUR PLANNING:

> What steps can you take to identify Indigenous and EJ groups that need to be involved in the engagement process?

> What kinds of activities might you plan to involve relevant communities in shaping your project design? How might those activities evolve as the scope of your work changes?

> What internal processes can you put in place to ensure that findings from your engagement activities are integrated into your broader planning?

> How will you approach and determine 'consent' to each stage of your project work? What will you view as 'consent' to proceed? What will happen if a group says 'no' to something you're planning (e.g., a trial, further research) or says 'yes' only under specific conditions?

QUESTIONS TO GUIDE YOUR PLANNING:

❯ What are some potential barriers to participation in engagement activities that you might anticipate and preemptively address?

❯ How will you respond to the findings from your engagement work? How much flexibility is built into your project to adequately act on community concerns, and how might you create more flexibility?

FURTHER READING:

Community Engagement: CoastAdapt Information Manual (National Climate Change Adaptation Facility 2016)
Stakeholder Engagement Guide For Nature-Based Solutions (Pacific Institute/CEO Water Mandate 2022)
Guidelines for Community Engagement in Carbon Dioxide Capture, Transport, and Storage Projects (WRI 2010)
Community Energy Planning: Best Practices and Lessons Learned in NREL's Work with Communities (NREL 2022)
Inclusive Ocean Data for Decision Making (Ocean Nexus 2023)

3 ASSESS AND MITIGATE PROJECT IMPACTS

Community engagement is essential to identifying the full scope of potential impacts. Although you may assume that communities are not 'experts' and cannot offer insight into these impacts, they in fact have important knowledge and insights that are necessary to fully understand potential impacts of your project. Engagement activities should be centered around listening and trying to understand the community's concerns about how a potential project might affect them, and what actions project developers need to take to minimize and mitigate these impacts. Formal assessment led by third parties is also needed.

Assess and track a wide range of potential impacts. These might include impacts relating to: **health** (e.g., disease exposure, traffic and road safety, emergency response, air quality, drinking water, violence from security personnel, food insecurity, pollutants); other impacts to wellbeing such as **pollution** (including noise and light pollution); **ecology** (e.g., biodiversity loss, invasive species, habitat loss); **ecosystem services** (impacts to benefits that people derive from ecosystems—e.g., to products like food, freshwater, timbers, fibers, medicinal plants; regulation of ecosystem processes like surface water purification, protection from natural hazards; cultural services like sacred sites; and others); **economic displacement** (e.g., rent increases, energy unaffordability, economic losses); **loss of cultural heritage** (objects, sites—e.g., sacred groves, lakes, waterfalls; intangible culture—e.g., knowledge, innovations, practices); **physical displacement** (e.g., relocation, loss of land or shelter, with particular attention to displaced people that don't have formal rights to land); **labor and working conditions** (e.g., collective bargaining rights, freedom of movement and association, non-discrimination and equal opportunity, child labor, forced labor, occupational health and safety); and **access to services** (e.g., industrial waste disposal, roads and infrastructure; water consumption; housing; schools).

Develop plans to ensure that all potential impacts are minimized and mitigated, and that these mitigation plans are monitored. A mitigation hierarchy approach ensures that you avoid impacts where possible—where not possible, you should minimize them; and where residual impacts still remain, you should explore whether those are acceptable to communities, and if so, how communities would want to be compensated for these. To anticipate (and measure) impacts, assess baseline conditions vs. potential (and actual) changes that arise. Third-party and community involvement in monitoring and verification are necessary.

Address impacts beyond the immediate project area, including cumulative and indirect impacts. For example, make sure that you pay attention to labor rights and conditions for supply chain and contract workers; risks of conversion of natural and/or critical habitat due to activities elsewhere in the supply chain; cumulative impacts of multiple projects; and impacts associated with infrastructure needed for energy production, transmission, and distribution.

QUESTIONS TO GUIDE YOUR PLANNING:

> What work might you undertake to comprehensively understand risks to people and the environment that might arise as a result of your project? What types of risks do you have capacity in-house to assess at present, and what other types do you lack capacity to assess? How might you fill those gaps? How will you involve community groups and independent third parties in these assessment processes?

> How will you give or have you given attention to indirect impacts? What other groups (regulators, government planning efforts etc.) might you consult with to better anticipate cumulative impacts in the region you plan to operate in?

> If you have already conducted some research on potential impacts, what other types of impacts might you anticipate? Which could be avoided via modification of project plans, and which could only be minimized? How will you determine what impacts are unacceptable to communities? Of those impacts that are deemed acceptable, what will you do to compensate communities and how will you involve them in determining compensation?

FURTHER READING:

International Finance Corporation Performance Standards (IFC 2012)

Creating a Justice40 Plan (DOE 2022)

Environmental and Social Framework (World Bank 2016)

Environmental and climate justice and technological carbon removal (Batres et al. 2021)

4 EXPLORE AND DEFINE BENEFITS

In addition to mitigating and managing project impacts, it is also key that projects prioritize social and environmental benefits. Rather than dictating what these might be, project developers should work with communities via engagement processes to co-define non-carbon benefits that a project could yield.

Benefits should prioritize environmental justice, Indigenous and other marginalized communities. Projects should be prioritized that generate benefits, economic, cultural, or otherwise, for vulnerable populations, and those that address past harms caused, for example, by legacies of industrial activity.

Provide quality labor arrangements, beyond jobs. While it may be tempting to emphasize solely 'job creation', robust projects will make commitments to labor rights in the form of collective bargaining, union support, job quality (wages and benefits, education and training, and health and safety), and attention to diversity, equity, inclusion and access (DEIA) in jobs created.

Explore opportunities to put ownership in community hands. In addition to collaborating with communities on specific monetary or in-kind benefits, projects should explore configurations of ownership and governance that center economic stake and decision making power in communities.

QUESTIONS TO GUIDE YOUR PLANNING:

> What kinds of non-carbon benefits do you anticipate your project providing? Have these been discussed with, reviewed by, and/or formalized with communities?

> What kind of commitments to labor rights might your project offer?

> Are there ways that you can explore placing aspects of ownership in the hands of communities?

FURTHER READING:

Community Benefits Plan Template (DOE 2023)

Community Benefit Agreement Toolkit (DOE)

Community and Labor Benefits in Climate Infrastructure: Lessons for Equitable, Community-Centered Direct Air Capture Hub Development (Data for Progress 2023)

Expert Insights on Best Practices for Community Benefits Agreements (Sabin Center 2023)

From the Ground Up: Recommendations for Building an Environmentally Just Carbon Removal Industry (XPRIZE and Carbon180 2022)

5   ENSURE TRANSPARENCY AND ACCOUNTABILITY

Sharing information with communities is key to trust building and good-faith deployment. As discussed above, this sharing of information must be two-way—the goal is not just to facilitate sharing developer information with a community, but rather, for communities and developers to participate in a two-way dialogue about the project. There are a few components to this that you should consider:

Share information with communities both on the project itself and your plans for engaging them. It is important to share information that you have on project activities, in as much specificity as possible. Also important is telling communities in advance what you will be doing to collaborate with them, so that they know when and how to expect to engage with you and share their own feedback on a project.

Track and report important project metrics. Key metrics should be agreed with communities, and might include data on project benefits, such as levels of local hiring, and risks such as noise and light pollution. Disclosing those metrics and reporting the data allows for the community to hold a developer accountable and facilitates third-party auditing.

Work collaboratively with communities to delineate and formalize benefits via agreements. So as to avoid miscommunications and (perceptions of) false promises, community-led delineation of benefits that are anticipated in association with a project should be laid out in as much detail as possible, and mechanisms for accountability in fulfilling such agreements should be put in place.

Implement systems and mechanisms to address issues as they come up. Communities should have a way to voice issues that come up as a project unfolds and there should be transparency around how those issues are acknowledged and resolved.

QUESTIONS TO GUIDE YOUR PLANNING:

> What plans do you have or can you create to share information with communities regarding the project? How can you most effectively share information with them information on your plans for engaging them in project design and planning?

> How have you involved communities in determining key metrics to track regarding risks and benefits? How are you tracking and reporting these?

> How will you ensure that communities are setting the agenda on what benefits might be? At what point in conducting engagement and developing project plans might it make sense to formalize benefits in agreement with communities?

> What processes can you put in place to flexibly and transparently address issues that come up as a project rolls out?

FURTHER READING:

Guidelines on Stakeholder Engagement in REDD+ Readiness: With a Focus on the Participation of Indigenous Peoples and Other Forest-Dependent Communities (UN-REDD 2012)

IFC Performance Standards (IFC 2012)

6 BUILD RESOURCES AND CAPACITY

All of the dimensions described here will take resources (time, personnel, funding, etc.) to implement. There are a few particular dimensions of this that are important to give attention to.

Integrate attention to environmental justice, community engagement, and DEIA into your project. You may want to consider a dedicated engagement and/or environmental justice staff position, a steering committee, or an advisory council to ensure that engagement is done well and these considerations are integrated into project work. Also important will be to ensure that you have staff with relevant expertise and experience on conducting engagement and working with Indigenous and environmental justice communities, which requires specialized expertise.

Consider providing funding to support communities' own engagement capacity. Communities may lack the expertise, or funding to hire expertise, required to meaningfully aid them in engaging with you. Working with an independent expert can help them engage more effectively, but it is important to ensure that any such representatives in fact represent views of individuals and communities.

Ensure that projects in environmental justice and Global South communities invest in capacity development in long-term and meaningful ways. Working in these communities must be accompanied by improvements to local knowledge systems and expanded access to intellectual property, so that these communities have greater future capacity to participate in other economic activities (including carbon removal) of their own.

QUESTIONS TO GUIDE YOUR PLANNING:

> How might you ensure that your project brings a community more economic capacity than it had when you began? How can you develop infrastructure, monitoring capabilities, etc. in ways that support capacity and local knowledge building? How can you ensure sharing of intellectual property?

> How might you need to expand your team in order to effectively engage communities (including environmental justice, Indigenous and Global South groups)?

FURTHER READING:

Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector (OECD 2017)

Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities (FAO 2016)

Guidelines for Community Engagement in Carbon Dioxide Capture, Transport, and Storage Projects (WRI 2010)

From the Ground Up: Recommendations for Building an Environmentally Just Carbon Removal Industry (XPRIZE and Carbon180 2022)
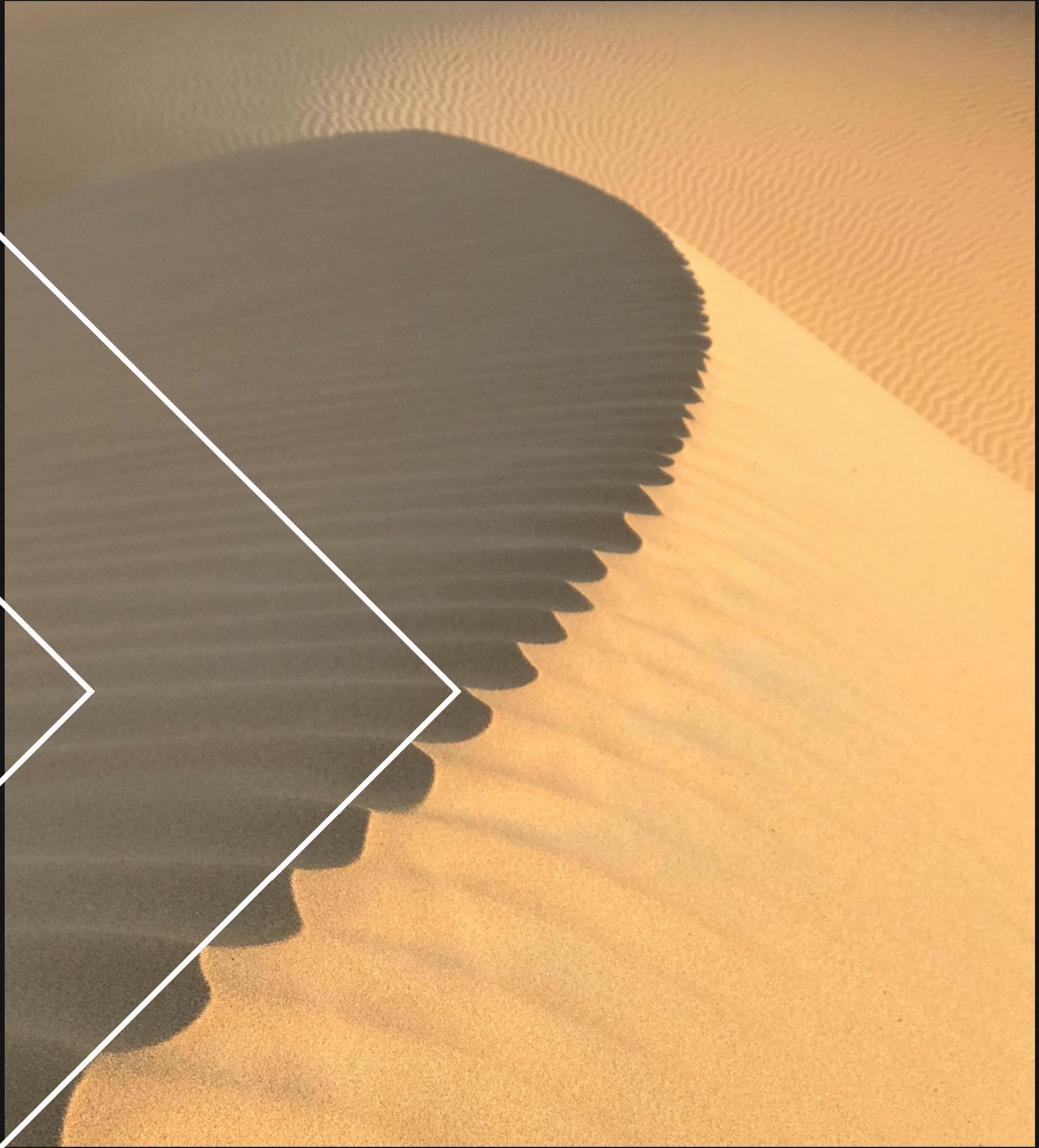
GUIDANCE FOR
REVIEWERS AND FUNDERS:

Evaluating attention to justice and responsibility in
carbon removal research and development

THIS SECTION IS INTENDED TO BE A RESOURCE FOR OTHER PROJECT REVIEWERS AND FUNDERS WHO ARE COMMITTED TO SCALING THE CARBON REMOVAL INDUSTRY RESPONSIBLY, AND ARE LOOKING FOR EXAMPLES AND GUIDANCE ON HOW TO EVALUATE PROJECTS.

The questions presented here have been designed to support XPRIZE's work at its current stage, as described above. They give attention to the following time horizons:

1. **Past work** to understand project impacts and community needs

2. **Near-term future plans** to address responsibility and justice

3. **Long-term future plans** (i.e., working toward gigaton-scale deployment) support attention to responsibility and justice

We emphasize that this last, long-term time horizon is particularly important for funders to keep in mind. Given that the carbon removal sector needs to scale exponentially, and rapidly, it is not too soon to begin thinking long-term. Furthermore, without this kind of anticipatory approach to planning, there is a strong risk of locking in approaches that do not sufficiently emphasize attention to the important dimensions discussed here.

XPRIZE APPLICATION QUESTIONS ON JUST AND RESPONSIBLE CARBON REMOVAL

1 CHARACTERIZING RELEVANT COMMUNITIES

1.1

Describe the process and methods you have taken (and will take in the future) to identify the groups potentially affected by your project, understand the local cultural and political context (e.g., local cultural traditions, decision making processes, past experiences with other infrastructure projects), and local priorities and concerns.

1.2

Outline the populations you have identified as relevant to your project (whether directly or indirectly) and briefly describe what you have learned about their local context and priorities. Are you operating (and/or will you operate) in locations with Indigenous groups, minority or low-income populations, or in communities with legacies of past harm from industrial projects? If not, describe how you have determined that these groups will not be affected by your project.

1.3

How have these insights on local contexts and priorities informed how you are planning engagement efforts?

2 CONDUCTING MEANINGFUL COMMUNITY ENGAGEMENT

2.1

Describe what efforts you have taken to involve potentially affected communities in shaping project design, what you have learned from these efforts, and what modifications you have made based on this feedback. How will you continue this approach as you scale up?

2.2

What steps have you taken or will you take to ensure that a broad range of groups can participate in engagement activities? Examples include: compensating people and community organizations for their time, offering multiple and flexible times for engagement or accommodations like child care, etc.

2.3

What steps have you taken to determine local views on your project? Describe what kind of 'consent' you have received for project activities—e.g. who has offered support, for what specific type and scale of activities, under what time frame, and under what conditions? How will you continue to consider issues of consent as the project scales up (both at an initial site and to other sites)? If applicable, have you taken steps to enable Indigenous representative bodies and organizations to participate in this consent process?

3 ASSESSING AND MITIGATING IMPACTS

3.1

What work have you done or plan to do to comprehensively understand the risks to people and the environment that might arise as a result of your project? Describe how you have assessed possible impacts (e.g. if you have used an independent assessor), and what your plans are for minimizing or compensating for impacts. How will these plans evolve as you scale project operations?

3.2

Describe the kinds of impacts you anticipate from your project, both near term and at later stages of deployment. Will your project generate impacts related to **human and community health** (e.g. traffic and road safety, air quality, drinking water impacts), **pollution** (e.g. noise and light pollution), **ecosystems or ecosystem services** (e.g. habitat loss, loss of natural hazard protection), **economic displacement** (e.g. energy unaffordability, economic losses), **physical displacement** (e.g. relocation), **cultural heritage** (e.g., loss of sacred natural spaces), **labor** (e.g. collective bargaining rights) or **access to services** (e.g. roads, housing)?

3.3

How do you, and/or how do you plan to, assess and manage impacts outside of the immediate project area (e.g. supply chain impacts, contract workers, expansion of infrastructure, conversion of critical habitats)? How have you determined (or will you determine) what impacts are unacceptable to communities and how will you ensure those are avoided? Of those impacts that are deemed acceptable, what have you or will you do to involve communities in determining compensation for these impacts?

4 EXPLORING AND DEFINING BENEFITS

4.1

How have you assessed non-carbon benefits that your project will provide or may provide in the future? Describe any plans to quantify potential benefits and formalize these in agreements with communities. How have communities been involved in ensuring that benefits offered are those that they would like to see? Have you explored, or do you have plans to explore, different models of community co-ownership of project assets?

4.2

Does your project, or will your future work, benefit vulnerable populations and/or address past harms? How may your project or future work support Indigenous sovereignty, cultural revitalization and well being?

4.3

In addition to offering employment, do benefits of your project or future work include other commitments to labor rights (e.g. collective bargaining protections, union support, quality wages and benefits, education and training, health and safety)?

5 ENSURING TRANSPARENCY AND ACCOUNTABILITY

5.1

Describe how you have worked (or plan to work) with communities to agree on a set of key metrics for monitoring and reporting, and who will be independently auditing this data.

5.2

Describe how you have shared (or plan to share) information with communities regarding the project, its potential risks and benefits, your approach to engaging them on the project, the identities of all project funders and partners (and potential future partners), and all monitoring of key project metrics.

5.3

Describe your plans moving forward to collect and respond to input from communities. Describe how you plan to act on the insights generated from both engagement work and other feedback that arises outside of engagement activities, and how you will ensure that your project is flexible enough to respond to any community concerns that may arise in the future.

6 BUILDING RESOURCES AND CAPACITY

6.1

Describe the resources you have dedicated to engagement and environmental justice and how you plan to obtain the expertise needed to carry out your plans outlined in your responses. For example, have you created a dedicated staff position, steering committee, advisory council or other body to oversee this work? How will you expand this as your project scales?

6.2

Describe any efforts you have or are making to develop local capacity through your project. For example, are you planning any training efforts, partnerships with local research institutions, investment in local monitoring systems and/or infrastructure, or sharing of intellectual property?

CRITERIA FOR EVALUATING CARBON REMOVAL PROJECTS' ATTENTION TO JUSTICE AND RESPONSIBILITY

The following table outlines a high-level approach to evaluating responses to the above questions.

STRONG RESPONSE

· Detailed responses to questions posed, showing research has been done to understand the communities where projects will be sited, and have started conducting meaningful community engagement with comprehensive plans in place moving forward

· Dedicated expertise, either within the team or via external consultants, in place

DEMONSTRATES COMMITMENT, WORK IS UNDERWAY

· Thoughtful responses to questions posed, showing an effort to begin characterizing the communities where projects will be sited and an intention to begin conducting community engagement

· Commitment to working on these issues going forward and bring in the necessary resources and expertise

NEEDS ATTENTION, CAUSE FOR CONCERN

· Response indicates that applicant has not meaningfully considered or done background research to address questions posed

· No evidence of dedicated resources to considering these topics
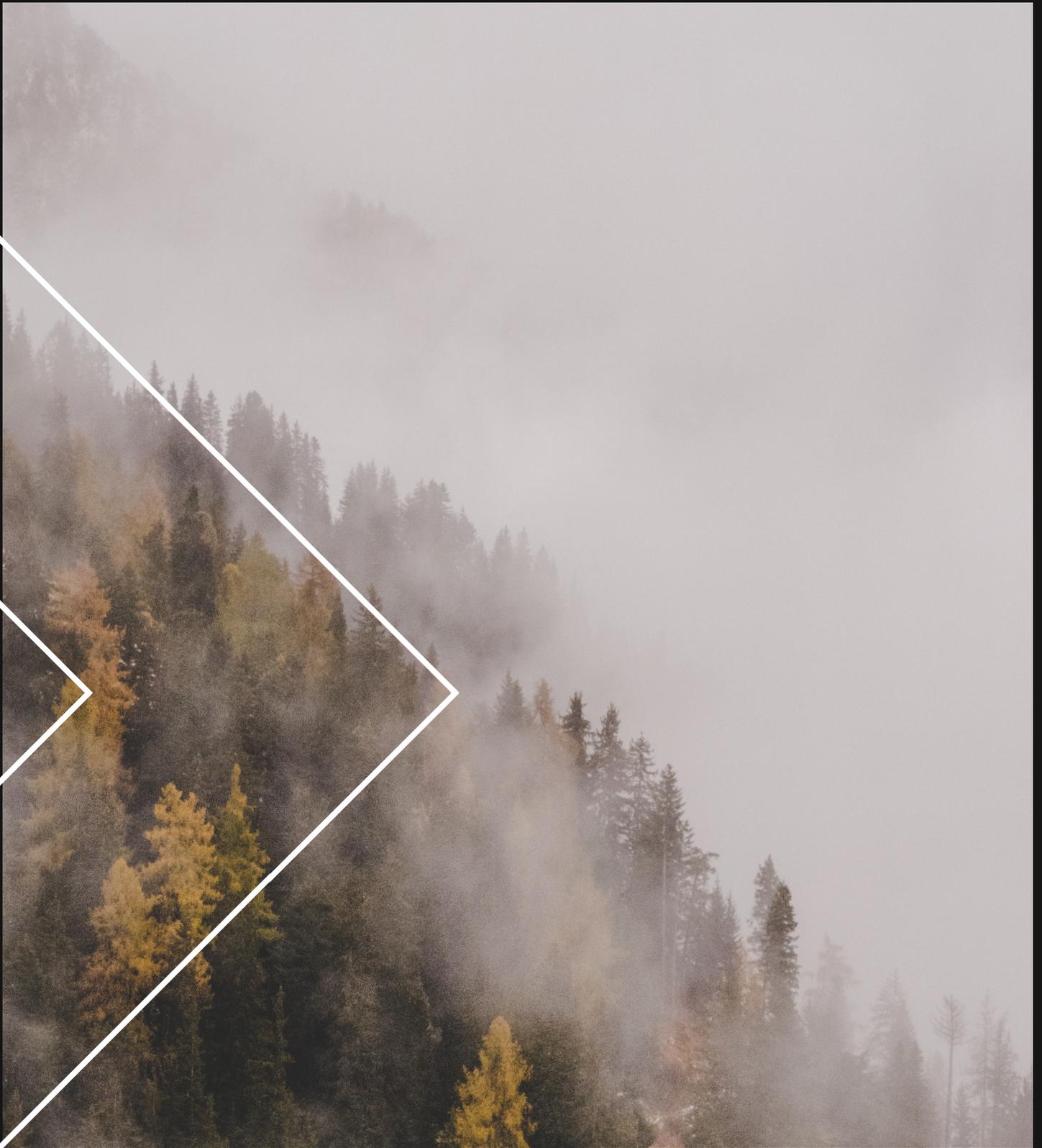
APPENDIX:

List of sources reviewed

SELECT ACADEMIC LITERATURE ON JUST AND RESPONSIBLE CARBON REMOVAL

The Role of Corporates in Governing Carbon Dioxide Removal: Outlining a Research Agenda (Battersby et al. 2022)

Environmental and climate justice and technological carbon removal (Batres et al. 2021)

Principles for Thinking about Carbon Dioxide Removal in Just Climate Policy (Morrow et al. 2020)

GUIDELINES AND RECOMMENDATIONS ON CARBON REMOVAL

From the Ground Up: Recommendations for Building an Environmentally Just Carbon Removal Industry (XPRIZE and Carbon180 2022)

Criteria for High-Quality Carbon Dioxide Removal (Carbon Direct and Microsoft 2023)

Community and Labor Benefits in Climate Infrastructure: Lessons for Equitable, Community-Centered Direct Air Capture Hub Development (Data for Progress 2023)

Creating a Community and Stakeholder Engagement Plan (DOE 2022)

Creating a Justice40 Plan (DOE 2022)

Community Benefit Agreement Toolkit (DOE)

INVESTMENT STANDARDS + FRAMEWORKS FROM RELATED/RELEVANT SECTORS

Verified Carbon Standard (Verra)

Investment Framework (Green Climate Fund)

International Finance Corporation Performance Standards (IFC)

Environmental and Social Framework (World Bank)

GUIDELINES AND RECOMMENDATIONS FROM RELATED/RELEVANT SECTORS

Community Guide to Environmental Justice and NEPA Methods (NEPA 2019)

Community Energy Planning: Best Practices and Lessons Learned in NREL's Work with Communities (NREL 2022)

Guidelines for Community Engagement in Carbon Dioxide Capture, Transport, and Storage Projects (WRI 2010)

Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities (FAO 2016)

Indigenous Principles of Just Transition (IEN 2017)

Guidelines on Stakeholder Engagement in REDD+ Readiness: With a Focus on the Participation of Indigenous Peoples and Other Forest-Dependent Communities (UN-REDD 2012)

Stakeholder Engagement Guide For Nature-Based Solutions (Pacific Institute/CEO Water Mandate 2022)

Community Engagement: Coast Adapt Information Manual (National Climate Change Adaptation Facility 2016)

Due Diligence Guidance for Meaningful Stakeholder Engagement in the Extractive Sector (OECD 2017)

BREAKING GROUND:

Guidance for Carbon Removal Companies and
Funders on Responsible Project Deployment