

Community Science Guidance for Scientists

Getting to know a community and developing a project

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Getting to Know a Community

It is important to ask a range of questions so that you can understand community context, culture, and priorities.

Some suggested questions to ask include:

Community Capability - e.g. start from strength and respect.

- What makes your community special – if you could tell me one thing about it, what would it be?
- What are your greatest strengths?
- What are you most proud of?
- What have you done already and what changes have you made?

Versions of “What are your Issues that Touch on Earth and Space Science” *

- What does your community worry about in terms of weather, climate, and sustainability?
- What about natural disasters? Pollution? Health? Environmental Justice?
- What issues get relegated to the back burner that you wish you had more time to address now?

**Swap for whatever area of expertise you are ready to provide*

Solutions/Vision

- What changes would you like to see in 10 or 15 years?
- What do you want to see protected and preserved 10 to 15 years down the road?
- What would you like to accomplish this year that sets you up to accomplish even more next year?
- What does a 10-year-old in your community look forward to when they are 20?

Inclusion

- Who in the community is typically left out of these conversations?
- What barriers might exist for people who want to get involved and what would help overcome them? (Consider things such as time of day, internet access for online gatherings, childcare, job schedules, not feeling welcomed, language spoken at home, etc.)
- Who do these topics impact and do you have representation from all of those demographics?

Challenges

- What are the obstacles to addressing the issue(s) and priorities noted above?
- How have you attempted to overcome those obstacles so far? What happened?
- What do you think you need in order to take the next step?

Communication

- How do you typically interact with your peers and learn about new things in the community?
- Who do you want to engage and where do they typically get information about the community?
- What is the best way to introduce these issues? Don't be afraid to think of town halls, one-on-one's, informal events.

Developing Collaborative Projects

Once you've familiarized yourself with the community, it is time to formulate project ideas. This is often an iterative process. Hopefully, both you and your community partner will have initial ideas, even if they are incomplete. Your initial project ideas will help to generate conversation with the community, providing fodder for discussion and feedback. Together, you will learn more about each other and refine the project ideas as a team. Don't be too alarmed if your initial project ideas aren't met with wild approval or perfectly match your area of expertise. At this point, it is best to think about how you can best tap into your interdisciplinary knowledge.

Questions to Spark Thinking:

- What are the community priorities? Ensure that your ideas build off community priorities and support community objectives. This is the single best "foundation" for a project – based on specific community concerns, interests, and questions.
- What ideas do community leaders already have? This is a great way to kick-off brainstorming. Make sure you focus first on the best parts of their ideas and avoid negative or critical comments that could inhibit open conversation. If they do have ideas, make sure you tease them out with good questions:
 - 1.) What problem are they trying to solve with their idea?
 - 2.) What key questions would they like to answer?

Their initial ideas may not make great projects, but the concern or issue behind the idea might be the start of a different kind of technical project.

- How does this project idea relate to a pending decision? Consider any time-sensitive timelines that need to be met by the community.
- What categories do your ideas fall into? If folks are stuck, it helps to think in categories – what could you do that is related to pollution, environmental justice, agriculture, natural hazards, energy use? Combining categories can also help you think in an interdisciplinary manner.

Recommendations for Framing the Project:

- Consider: If I were the pro bono scientist on this project, would this be doable? Aim for something that could be accomplished with the inputs of one volunteer scientist committing 2-5 hours per week, on average, over a year.
- Every idea is valid: Ask what could make it work, not why it won't. A bad idea might launch a productive conversation. It is ok to say, "here are some ideas, let's make them better together!"
- Reframe your perspective. Is the question "how can I afford a truck that sweeps streets", or is it "how can I keep the streets clean"?
- Assess internal and external barriers. Think about politics or other barriers that might prevent the project from being completed and manage those from the outset.

- Consider: What are the community strengths? Outline the community's strengths and leverage them.

Caveats and Cautions

- Reserve most of any community data collection for a later project. Focus the initial project on making use of existing data.
- Don't default to published research. In community science, results are often shared and accessed more easily and usefully in other ways. How you share and translate your work may include peer review publication, but should extend to more accessible formats, such as infographics, community town forums, etc.



Angela Chalk, community member, Thriving Earth Exchange Fellow and Community Lead, discusses her project. Photo courtesy of Beth Bagley.

Values for Meaningful Engagement

Collaboration is an Iterative Process

Flexibility, responsiveness, and bi-directional engagement are key to a successful collaboration. Be prepared to adjust your original plans as new information or challenges come to light.

Ask and Listen

Acknowledge that there are types of knowledge beyond scientific and technical data; listen to community members about their needs; and respect their history, culture, and priorities. Communities are aware of the impacts they face. They possess unique knowledge about potential solutions through their experience, history, culture, and interactions with their neighbors and environment.

Mutually Define Goals

Scientists and community members may operate with differing cultural norms, expectations, and ways of expressing themselves. Make sure you're on the same page and in agreement when you chart out a collaboration's purpose, desired outcomes, and expected involvement (e.g., timeframes, deadlines, capacity).

Apply Your Science to Help Build Capacity

Scientific expertise can help provide communities with information that makes them stronger advocates. Your interactions with community groups can add value to their cause, be it through technical knowledge, skills, connections to other researchers, or credibility with decision makers or the media.

Communicate Openly and Effectively

Science is often steeped in technical terms, but communicating without jargon is critical not only to building understanding of your work, but also to bridging the divide that may exist between scientists and the public.

Consider the audiences with whom you will be communicating (e.g., local residents, decision makers, the media), their needs, and their understanding of the topic to shape how you share your research and scientific knowledge. Don't be afraid to ask community members for their advice about how to communicate more effectively.

Be Transparent Throughout the Collaboration

Transparency and accountability from the start are essential to building trust. The information you gather and share with communities needs to be based on the questions they are asking. If you involve the community in a research project, be sure to share your data and findings with community members first, before disseminating it to broader audiences. Stay in close contact with the communities you work with and raise issues as soon as you notice them.

Tips and Strategies for Successful Community Science Projects

1. **Conduct a Needs Assessment:** Gather community leaders and stakeholders together through an interview or focus group to fully listen to their needs and questions.
2. **Build Sound Relationships:** Build projects from a place of authenticity and respect, in a mature manner.
3. **Ensure Safety:** Arrange interactions in a way that ensures physical safety, interactional safety, and epistemic safety of all participants. Interactional safety ensures that you do not alienate or anger people by placing them too far outside their comfort zone. Epistemic safety creates a space where participants are encouraged to raise doubts and ask questions. Remember, an unsafe learning environment can interfere with learning and potentially alienate team members.
4. **Value Local Knowledge:** Acknowledge that there are types of knowledge beyond the scientific and technical variety. Respect community history, culture, beliefs, and priorities.
5. **Design Projects Together:** Plan and organize projects together to help build trust within teams and ensure that community priorities are properly addressed.
6. **Be Accountable to Yourself & Your Team:** Set clear, measurable goals for each team member from the start of the project and outline team roles and assign tasks. Schedule frequent check-ins with your teammates to discuss progress made along the course of the project. Be honest about your capabilities and don't be afraid to ask for help.
7. **Engage in Action with Reflection:** Pause to self-reflect along the way...is the project meeting everyone's expectations? If not, have you built in enough flexibility to change course?
8. **Base Action on Evidence:** Ensure that the team is ready to base action on scientific evidence and not a political agenda.
9. **Manage Data Together:** Collect and manage data together with the community in a way that respects and honors community interests, tribal sovereignty, or spiritual places.
10. **Engage Broadly:** Ensure that all community members have a voice by engaging community members from across the community.
11. **Budget Together:** Seek funding together and allocate any awards 50/50 between yourself and the community. By jointly managing the money and sharing the overhead, you build trust in the outcome and process of community science.
12. **Think Broadly:** Draw on your broad knowledge and professional networks to find ways to engage with communities.

13. **Build Deliverables:** Develop products that go beyond publications and are broadly useful such as interactive maps, infographics, or a community awareness-raising initiative.
14. **Start Small:** Start small, start local. You can't change the world today, but you can act locally today.
15. **Use Agile Development:** Build deliverables iteratively with rapid prototyping and heavy user input that can be used even if the project ends early.
16. **Do No Harm:** Community science projects do not inhibit opportunities, damage natural systems, or harm ecosystems or people.



A Thriving Earth Exchange team discusses the Claiborne Ave project in New Orleans, LA. Photo courtesy of Beth Bagley.

Additional Strategies for Engaging with Communities

Listening

- Asking questions about what the community knows and does already (e.g. asset-based models of resilience and science literacy)
- Restating things you've heard to make sure you represented them well.

Honoring and Connecting to All Kinds of Expertise

- Offering science as one tool or source of insight, among many
- Connecting your deep subject knowledge to broad perspectives

Staying Positive and Focusing on Solutions

- Suggesting solutions or positive approaches, rather than just outlining challenges, risks, and vulnerabilities
- Providing concrete examples, including approaches that have worked elsewhere.
- Focusing on concrete, immediate actions - outlining first steps

Using Good Science Communication Practices

- Highlighting what science can say about something, rather than focusing on the things science can't say or debating details.
- Summarizing, in plain English, relevant scientific results and explaining why they matter.
- Pointing to a specific tool or data set that you think matches community needs or priorities.
- Translating climate science data and information into impacts that relate to a community's needs and priorities.

Less Effective Strategies

- Lecturing about what you think the community needs to know.
- Being alarmist or pessimistic; only emphasizing challenges, risks, or vulnerabilities
- Trying to get the community to endorse an idea or approach you dreamed up first or elsewhere.
- Putting science ahead of, rather than alongside, other community values or priorities
- Sending a copy of a highly technical paper for the community to read
- Suggesting community members look through an archive or tool repository without providing the proper support.
- Arguing with other subject matter experts about details
- Ignoring or devaluing the knowledge and experience of community members
- Developing elaborate, long-term plans without identifying a place to start

Get Involved with Thriving Earth Exchange

AGU's **Thriving Earth Exchange** has launched over 300 community science projects in six countries over the past ten years. This program connects communities with scientists and partner organizations and supports them as they work together to tackle local challenges related to natural hazards, natural resources, and climate change. Together with these collaborators, we work to empower communities to advance and advocate their priorities through science.

AGU's Thriving Earth Exchange brings science and communities together to address grand challenges such as climate change by involving communities in decisions about science, the doing of science and the benefits of science.

You can get involved in a few ways:

- **Community Leads:** Project design starts with community voice! If you represent a community including local or regional governments, tribal governments, community-based organizations, grassroots organizations, or other advocacy or non-profit groups, [launch a 6-18 month project with us!](#) We'll match you with a Community Science Fellow and Community Scientist(s) to drive local impact.
- **Community Scientists:** As a volunteer community scientist, you'll use your science to do good in a community. You'll use your scientific knowledge, networks, and skills to help refine the project and ensure it succeeds. Join our [community scientist network](#) to be notified regularly about opportunities to join a project team!
- **Community Science Fellows:** Fellows are the glue that holds together the project team, serving as project managers, facilitators, and connectors. [Apply to upcoming opportunities](#) to join a cohort of people from all backgrounds and careers stages interested in growing their practice of community science while guiding a project from idea to impact.