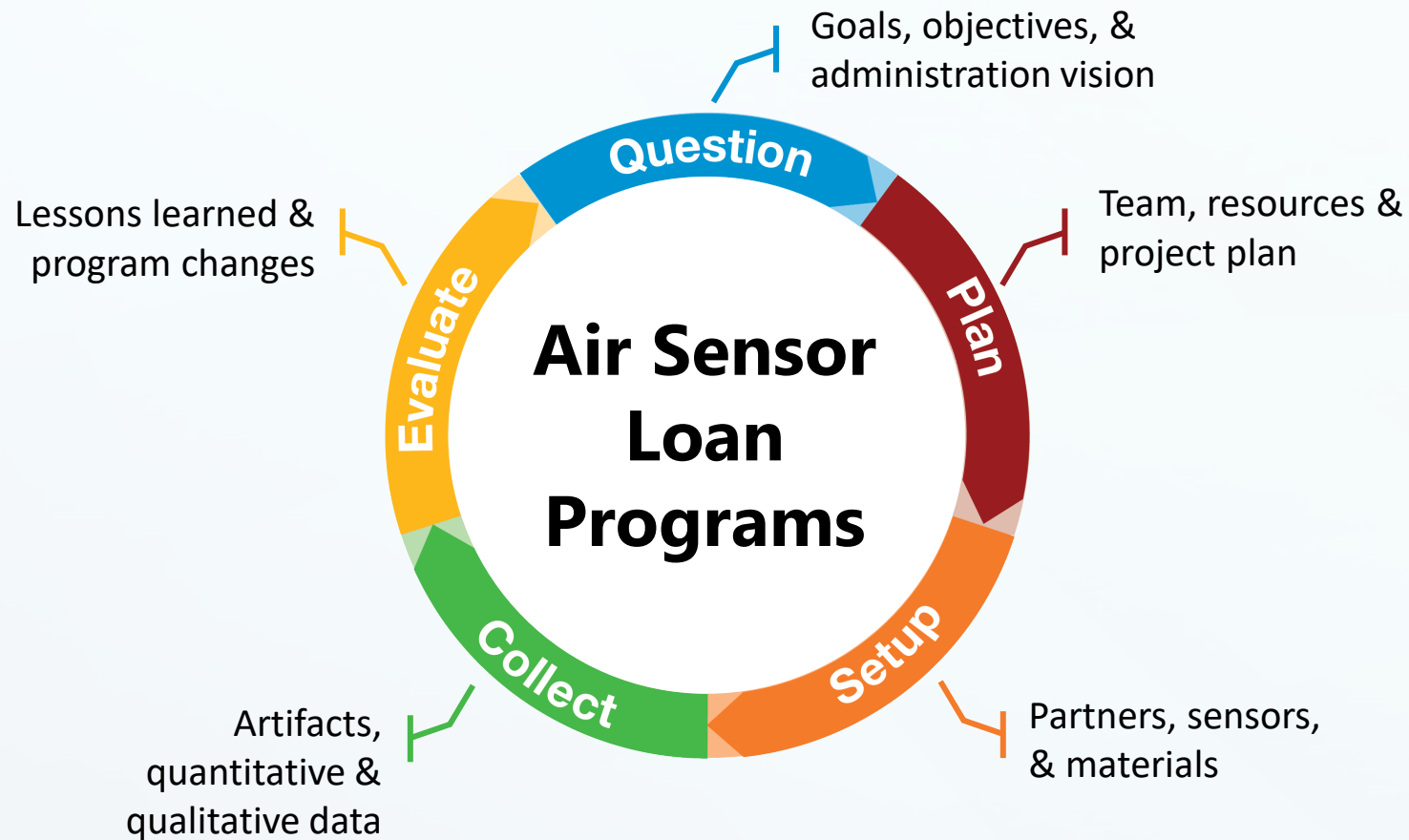




Best Practices for Starting an Air Sensor Loan Program



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The target audience for this presentation includes...



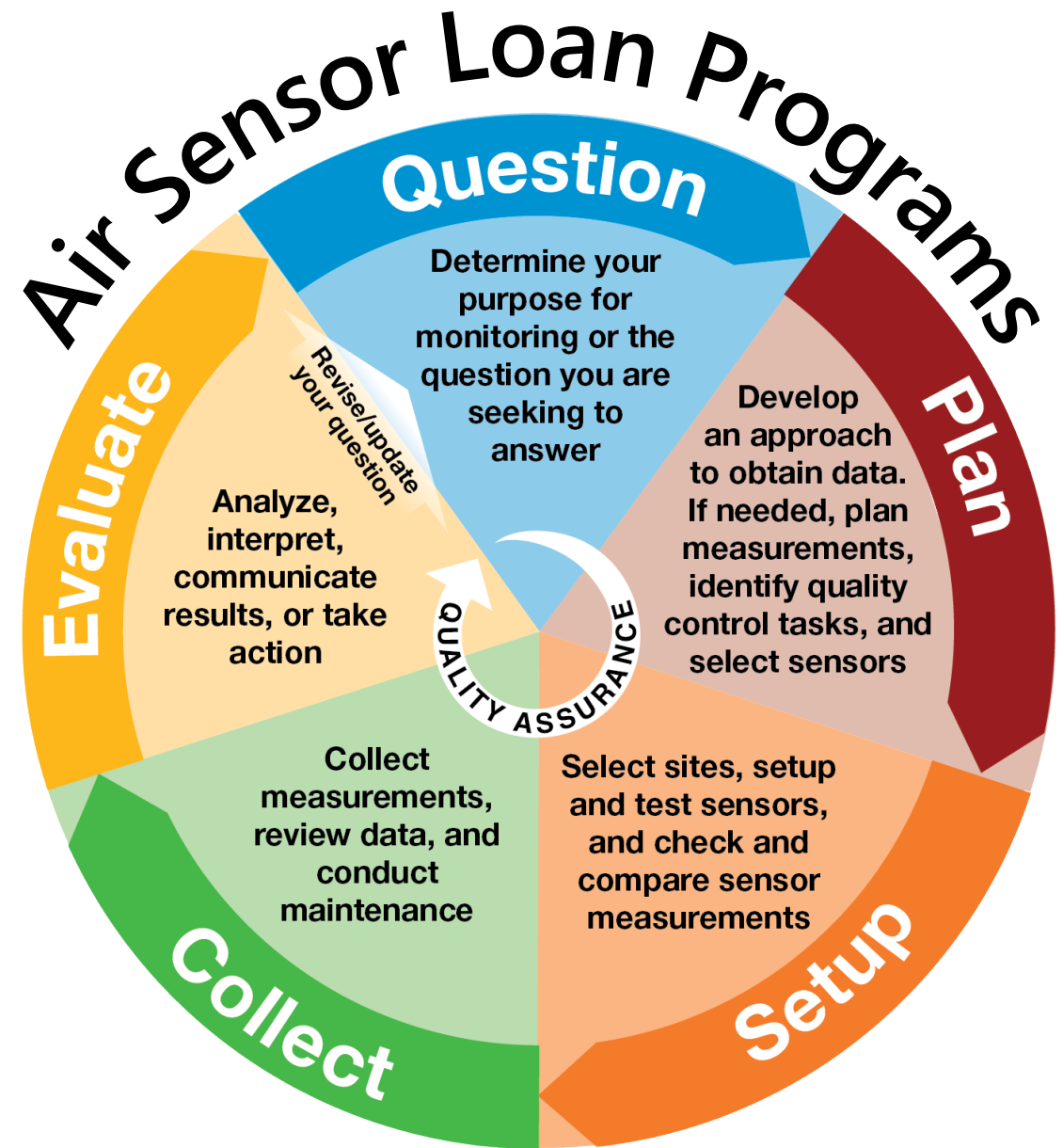
- Educators – schools, libraries, after-school programs, community organizations, other programs supporting STEAM education, etc.
- State/local/tribal air quality agencies
- Government agencies
- Academia
- Any group interested in starting an air sensor loan program

Purpose

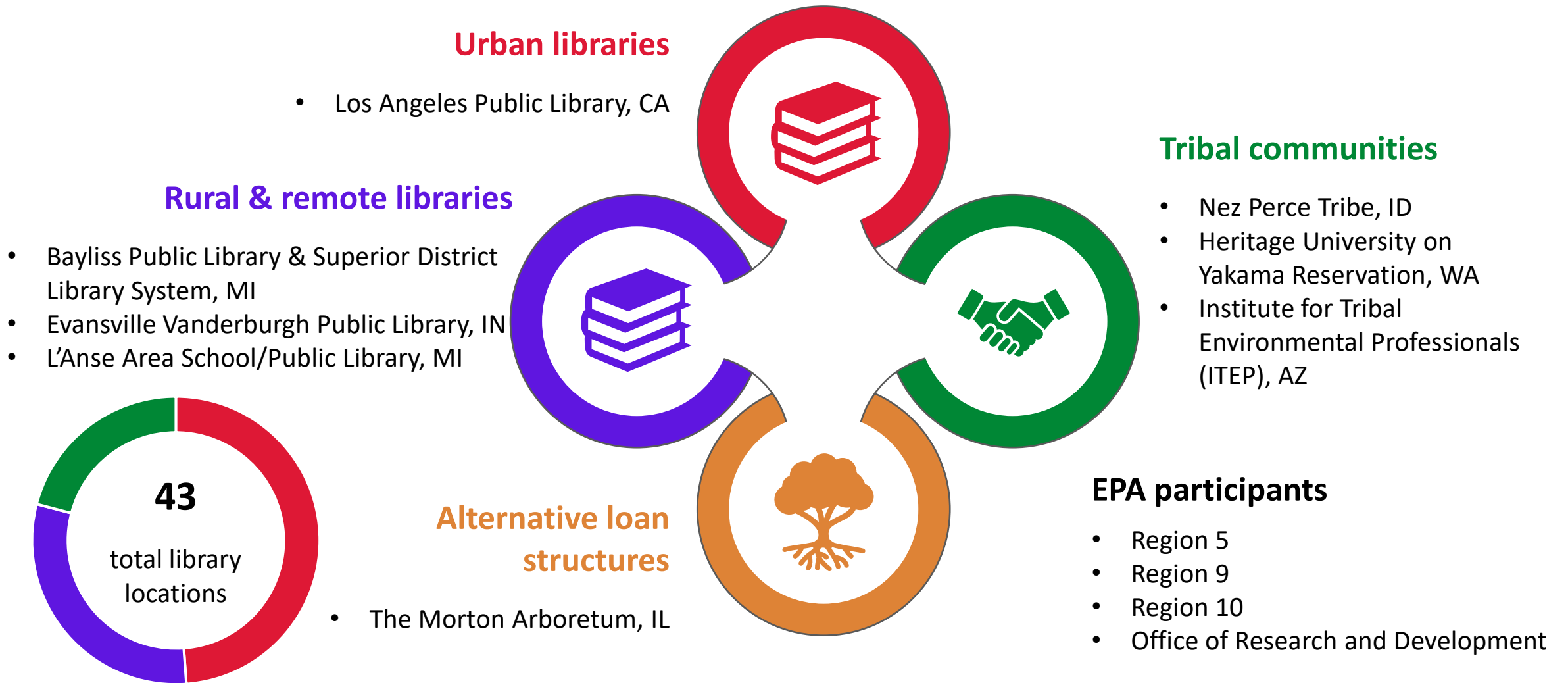
This presentation walks through EPA's Air Sensor Guidebook planning guide and how each step is applicable to establishing an air sensor loan program

Tip

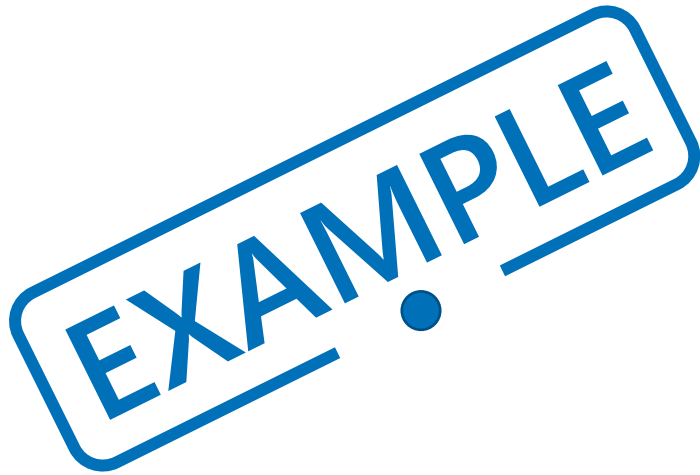
Click any wedge to jump to that section of the presentation.



These best practices emerge from EPA pilot programs with 8 partners



Slides with this theme give examples of how best practices were implemented in or learned through the pilot projects

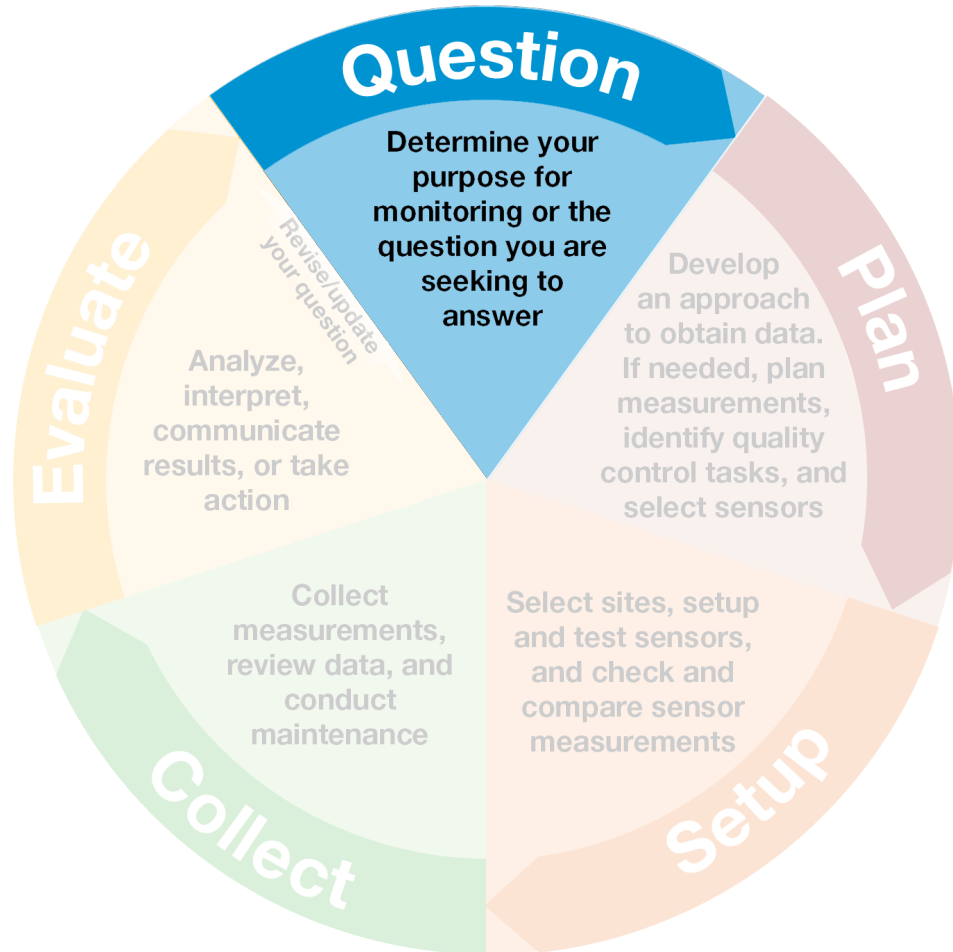


Slides with the blue box border like this slide show examples from the pilot loan programs

Impact

Each example slide will have an impact box describing the impact of implementing the best practice

Step 1. Question



Determine the purpose of your program

- Identify your program goals
- Record your program objectives
- Establish your program administration vision

Tip

Each bulleted sub-topic on a planning guide slide links to the first slide in that sub-topic's section

What is the difference between program goals and objectives?

Goals

Outcomes you intend to achieve that are generally broad and long term

Objectives

Shorter-term, measurable outcomes that can include changes in:

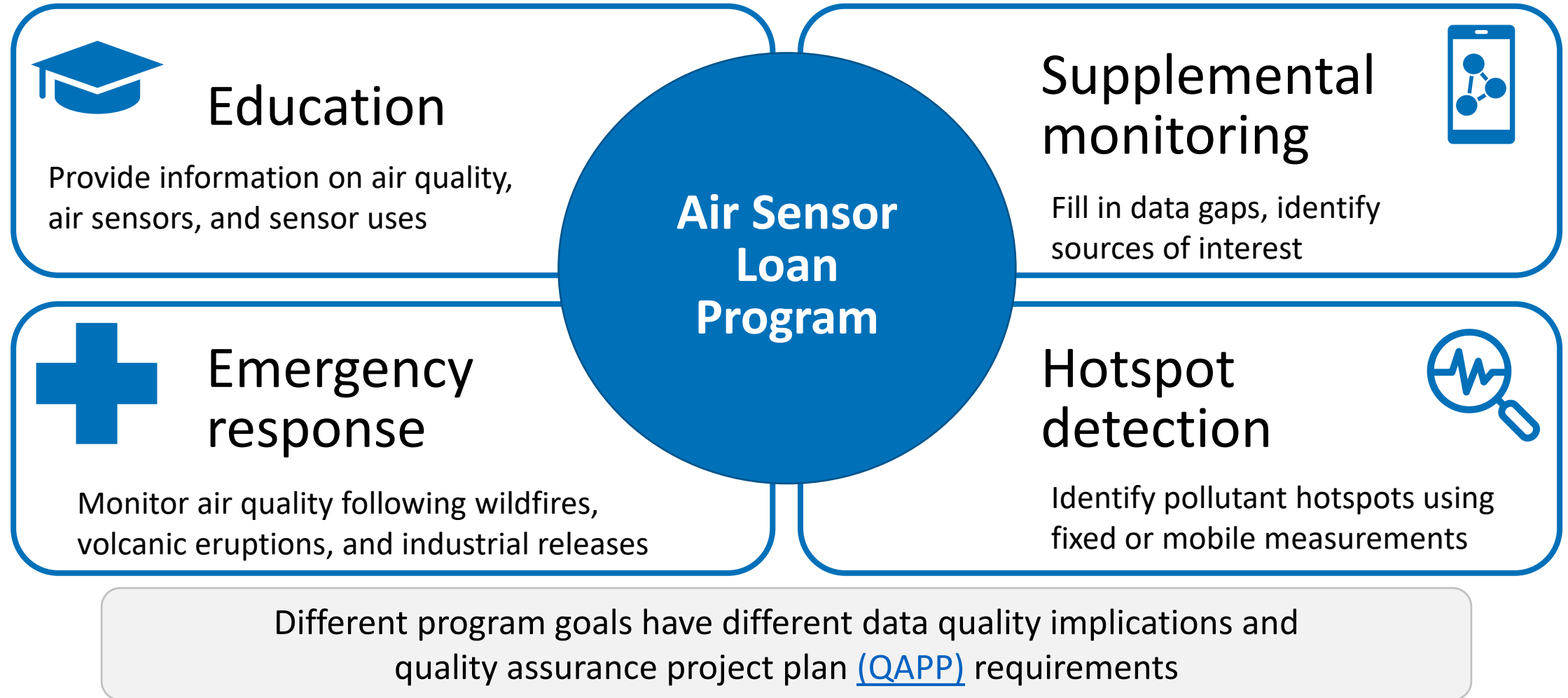
- Programs
- Practices
- Actions
- Knowledge
- Beliefs
- Attitudes



Set project objectives to accomplish project goals

Identify your program goals

Some common examples...



Write down concrete program objectives

Examples of objectives...

Data objectives relate to the type and quantity of information you want to collect.

Participant objectives relate to what changes or impacts you would like to see participants make because of your program.

Programmatic objectives relate to what program building or expansion you would like to see through the program.

Goal: **Supplemental monitoring**



Objective:

- **Data** on air quality is collected in areas without existing regulatory monitors

Goal: **Education**



Objective:

- **Participants** learn more about air quality and ways they can reduce their exposure to air pollution

Establish your program administration vision



Your program administration vision reflects how you anticipate loans will operate day-to-day and who will be responsible for different aspects of the program. A large range of options exists between administering loan programs **directly** and **through a partner**.



You administer program



Partner administers program



You design resources and train participants



You train partner and may create resources; **partner** trains participants



You design and implement programming



Partner designs and implements programming



Participants collect data; participants and/or **you** analyze data



Data belongs to **participants** and is not returned or reported

What do we mean by “partners”?



A partner can be anybody you want to work with on a project who can contribute to project activities.

Partners can range from community organizations, colleges/universities, and health organizations to other groups interested in starting sensor loan programs.

What if I don't have partners?

That's ok. Part of planning is choosing if you want to work with partners and, if so, finding people to work with. It is also fine to not have partners – just be prepared to complete the activities that a partner may otherwise have done.

Projects may benefit from having multiple partners, each of whom may bring specific skills needed to make the project more successful.

These pilot projects focused on education and supplemental monitoring goals administered through partners

The examples and best practices presented in this guide may apply most directly to similar programs.

If you want to learn more about other air sensor loan programs, visit EPA's [Air Sensor Loan Programs](#) webpage and consider talking to the contact person listed for those programs.

Impact

EPA was able to pilot air sensor loan programs administered through partners for the first time. Partners expanded the scope and reach of programs in their communities in ways that EPA alone could not have accomplished.

EPA Region 9 supported the LAPL library sensor loan program

Project Goal

Education: The library will become a primary educational resource for community members interested in learning about their air quality.

Administration Vision

Through a partner

Project Objectives

Programmatic:

- Support environmental education by creating air sensor loan kits for educators and fully-developed lesson plans.
- Integrate air sensor loans into the Neighborhood Science do-it-yourself program.

Participant: Community members will gain scientific literacy and tell others what they've learned about air quality.

Impact

EPA Region 9 collaborated with LAPL to develop an air sensor loan program and identify the resources needed for the program to be sustainable and effective.

EPA Region 5 supported library and living museum air sensor loan programs

Project Goal

Education: The partner will become a primary educational resource for community members interested in learning about their air quality.

Administration Vision

Through a partner

Project Objectives

Programmatic:

- Support environmental education by hosting training for educators about air quality and air sensor use.
- Host activities for children, youth, and adults to learn about air quality using air sensors.

Participant: Community members will gain scientific literacy and tell others what they've learned about air quality.

Impact

EPA Region 5 was able to describe **why** they wanted to start a loan program, what they wanted to **accomplish**, and what they were looking for in a **partner** when approaching potential partners and funders.

EPA Region 10 supported tribal partners' sensor loan programs

Project Goals

Supplemental monitoring: Increase air quality monitoring on tribal lands where data are sparse, and communities are affected by wildfire smoke

Education: Provide educational resources to partners to support their community outreach

Administration Vision

Through a partner

Project Objectives

Data: Collaborate with tribal partners to deploy air sensors on tribal lands and work with their communities to interpret sensor data

Programmatic:

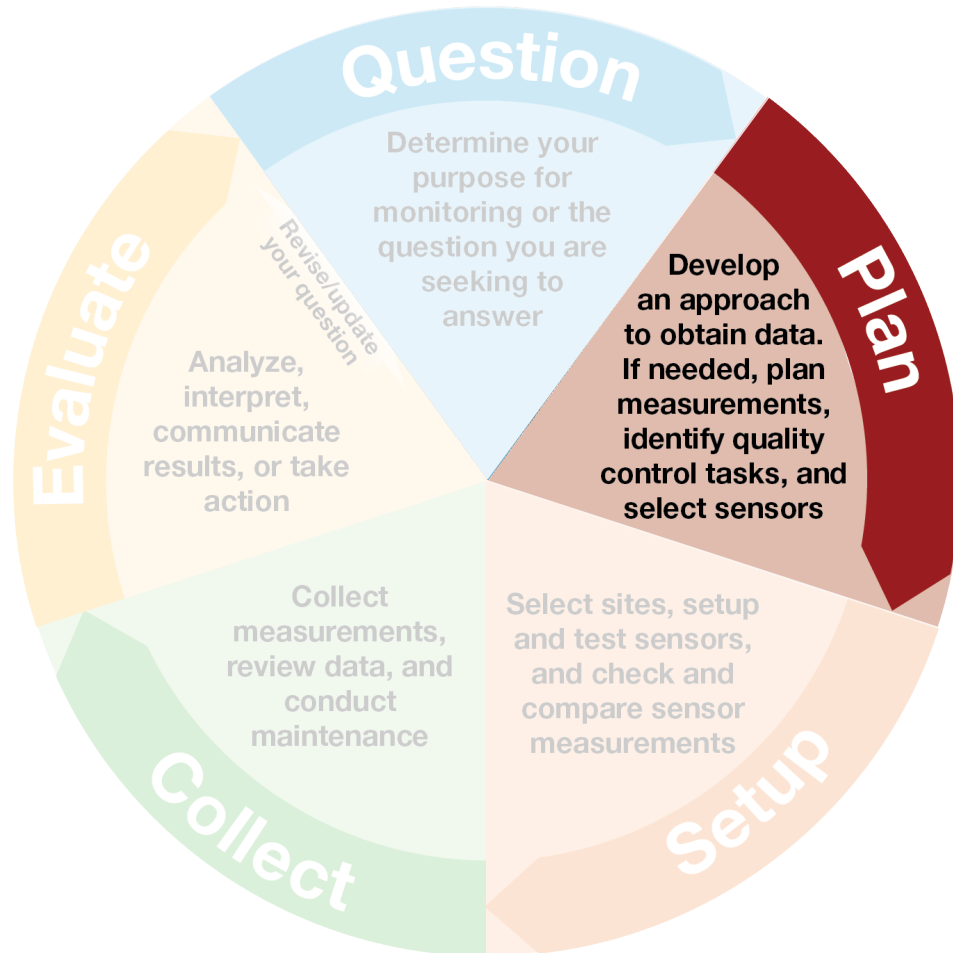
- Develop tailored lesson plans, based on partner needs, that accompany air sensors
- Provide air quality resources and technical support for partners to utilize within their communities

Participant: Tribal Community Participants learn about ways they can improve local air quality and reduce exposures

Impact

EPA Region 10 was able to describe **why** they wanted to start a loan program, what they wanted to **accomplish**, and what they were looking for in a **partner** when approaching potential partners and funders.

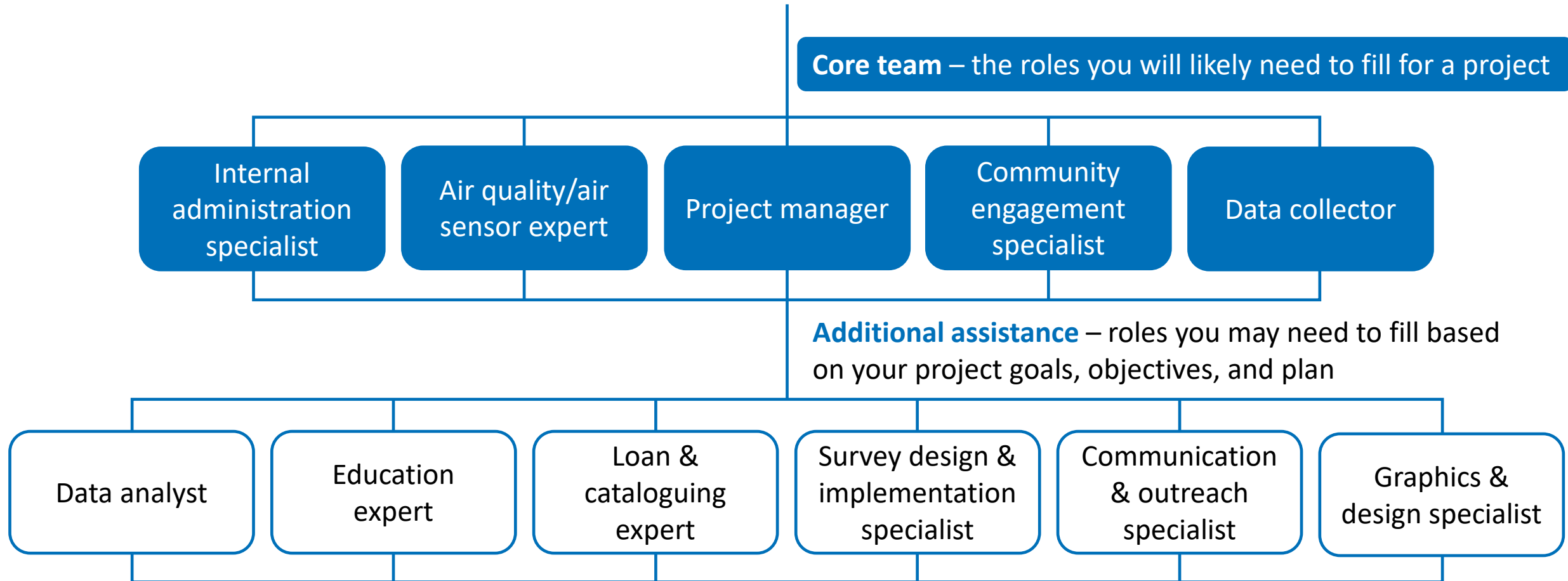
Step 2. Plan



Develop your approach

- Build your project team
- Identify your existing resources
- Write your project plan

Build your project team to support your goals and objectives



The same person can fill multiple roles on a project team, and the project team may include external partners

Examples of project team roles

Internal administration specialist

This person is knowledgeable about and experienced in the **administrative procedures** of your organization. For example, they may know about policies on survey distribution, what and how any funds can be spent, collecting personally identifying information, and what kinds of permissions you may need to work with children. They can anticipate and help the team follow policies that may be applicable to their loan project.

Project manager

Your project manager may not be the person responsible for the outcomes of the project. Instead, they are the team member tasked with making sure the **project runs smoothly**. They may organize and set agendas for meetings, help the team follow their timeline, and keep track of the many moving parts of your project.

Impact

A team with diverse skills can efficiently and effectively plan and carry out a multi-faceted project. An expert can often get better results in a fraction of the time it takes a non-expert to complete the same task.

Tip for building a team: outside support can enhance your program



Distributes the workload of the program on your personnel



Adds extra capability and expertise to your project team



Can include many types of people or organizations like colleges and universities, community colleges, interns, educators, contractors, etc.

If you decide to work with **contractors**...

Contract support may be **expensive**, so plan for it in your budget

Be sure to have someone on the project team with experience in **managing contracts**

Be prepared to **provide detailed information** about what you want developed so that the final product is as you expected

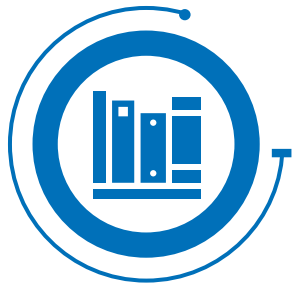
Resources and materials a sensor loan program might need



Funding for **air sensors** (including any ongoing costs for data storage, maintenance, etc.), printing materials and user guides, and **accessories** like cell phones, tablets, screen protectors, cases, covers, backpacks, binders, writing utensils, etc.



Access to expertise about air quality, air sensors, community engagement, teaching, loaning items, etc. as needed for your project



Educational materials including lesson plans, background material, and guidance on interpreting sensor data

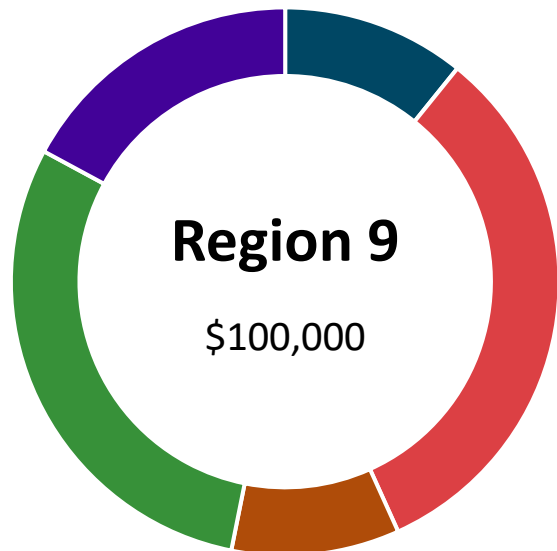


Technical materials including standard operating procedures, sensor siting guidance, quality assurance guidance, etc.

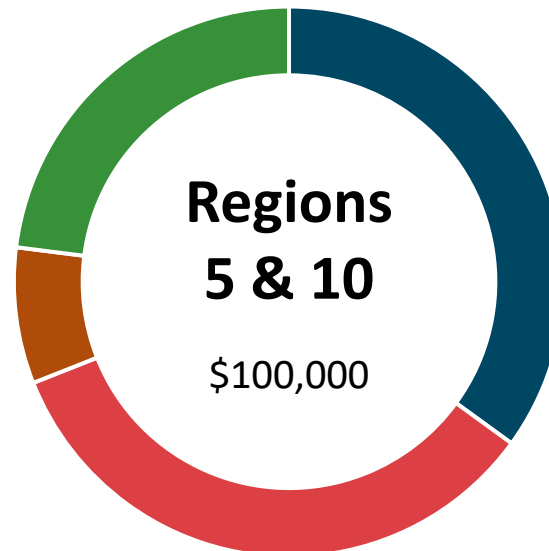
EPA's Air Sensor Toolbox website has many technical and educational materials that might be helpful:

<https://www.epa.gov/air-sensor-toolbox>

Pilot program costs



12%	Equipment	35%
36%	Lesson plans	34%
11%	Virtual training	8%
22%	Contract administration	23%
19%	Support materials	0%



Impact

Support materials developed for EPA Region 9 were adapted for Region 5 and Region 10, lowering those program costs. The lesson plans and support materials are available [online](#) for other to use.

These costs did not include:

- EPA or partner staff time for:
 - Meetings
 - Document reviews
 - Trainings
 - Partner development
- Air Quality Flag Program materials
- In-house flyer, promotional material, & resource development
- Sensor instructional video
- Translations
- Survey development & training
- Contract management
- Printing & laminating
- Sensor replacement
- Programming/events

Write your project plan, which should include:

Goals & objectives

Project team

Resources & materials

Implementation

Data collection & analysis



Identify your goals, objectives, and administration vision



List the roles and responsibilities of your team members



Gather and review existing materials and resources; identify any additional needs and who is responsible for them



Plan logistics of how the loan program will run; this can be refined or detailed after you have secured your partner(s)



Identify how you want to document your project, what data you would like to collect, and how you will analyze data

The project plan is a living document and should be refined and updated throughout your project

What is a quality assurance project plan (QAPP)?

A QAPP is a **written document** that explains how organizations ensure that data is of high enough quality to be used for its intended purpose through **quality assurance (QA)** and **quality control (QC)** activities.

Quality assurance (QA)

Planning activities you perform to manage the project and collect, assess, and review data.

Examples include having a data collection plan, training people who will collect data, and knowing where the data will go and who will have access to it.

Quality control (QC)

Technical activities you conduct to limit error from instruments or in measurements.

Examples include operating air sensors and reference monitors side-by-side ([collocation](#)), having criteria you can use to accept or reject data, and analyzing data in a repeatable way.

When do I need a QAPP?

A QAPP is useful for any program, but necessary for programs who want their data used or considered by others.

Air quality data

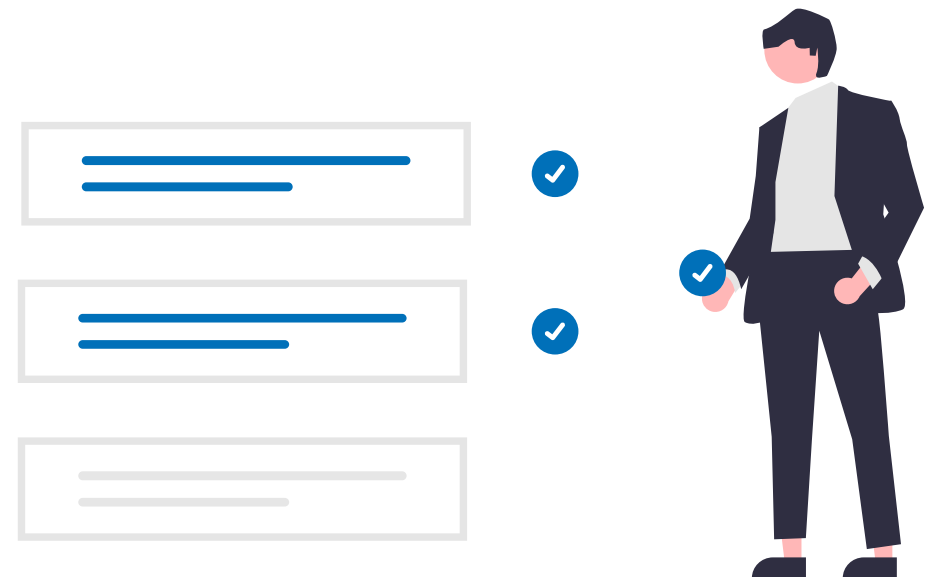
A technical expert should be able to help you understand the steps you need to make sure your air sensor data quality can support your objectives. You can also see EPA's [Air Sensor Guidebook](#) for more information on air sensor QA/QC.

Qualitative data

You may want to collect [qualitative data](#) if you have participant or programmatic objectives. Experts can help you form plans for collecting qualitative data. You might consider tagging narratives with a controlled vocabulary or asking other people to review your notes.

All programs

You should have a plan to routinely check air sensors and make sure they return valid data.



Some questions to consider about project implementation

Participant experience

- Who will train participants on how to use the sensors and how to interpret data? How can participants use the air sensor data?
- Do any materials need to be translated into another language?
- Can accompanying activities be completed independently or is a facilitator needed?

Events and outreach

- Will you have any events/programming? Who is in charge of them?
- Who should know about your program? How will they learn about it?
- How will you share your program successes?

Loan logistics

- Who will handle sensor loans?
- How will you handle lost/broken sensors?
- How will you check that sensors are functional, and that old data has been removed?
- How will you update/replace old sensors?
- Do you need any additional equipment to loan with the air sensors?
- Are you shipping air sensors? Who will pay for shipping?

Data collection

- What quantitative data will you collect? How?
- What qualitative data/feedback will you collect? How?
- Are you collecting any private information? How will you handle it?
- Is there a need to collocate the sensors with reference monitors initially or periodically throughout?
- What data quality is required and how will you ensure it?

Working closely with a partner can help you better plan how to successfully implement a program

Los Angeles Public Library (LAPL) air sensor loan implementation

Participant experience

- Who will train participants on how to use the sensors and how to interpret data? [Librarians and printed material](#)
- Do any materials need to be translated into another language? [Yes. Spanish translations](#)
- What materials are needed for data to be useful to participants? [Lesson plans, quick start guide](#)

Events and outreach

- Will you have any events/programming? Who is in charge of them? [Yes. LAPL coordinates through STEAM/NeiSci outreach programs](#)
- Who should know about your program? How will they learn about it? [Schools through direct outreach, LAPL webpage](#)

Loan logistics

- Who will handle sensor loans? [LAPL](#)
- How will you handle lost/broken sensors? [\\$50 replacement fee charged to the library card holder](#)
- Can you update/replace old sensors? [Yes. Supported by funds from the library's foundation](#)
- Do you need any ancillary equipment to loan with the air sensors? [Yes. Backpacks, screen protectors, instruction packet](#)

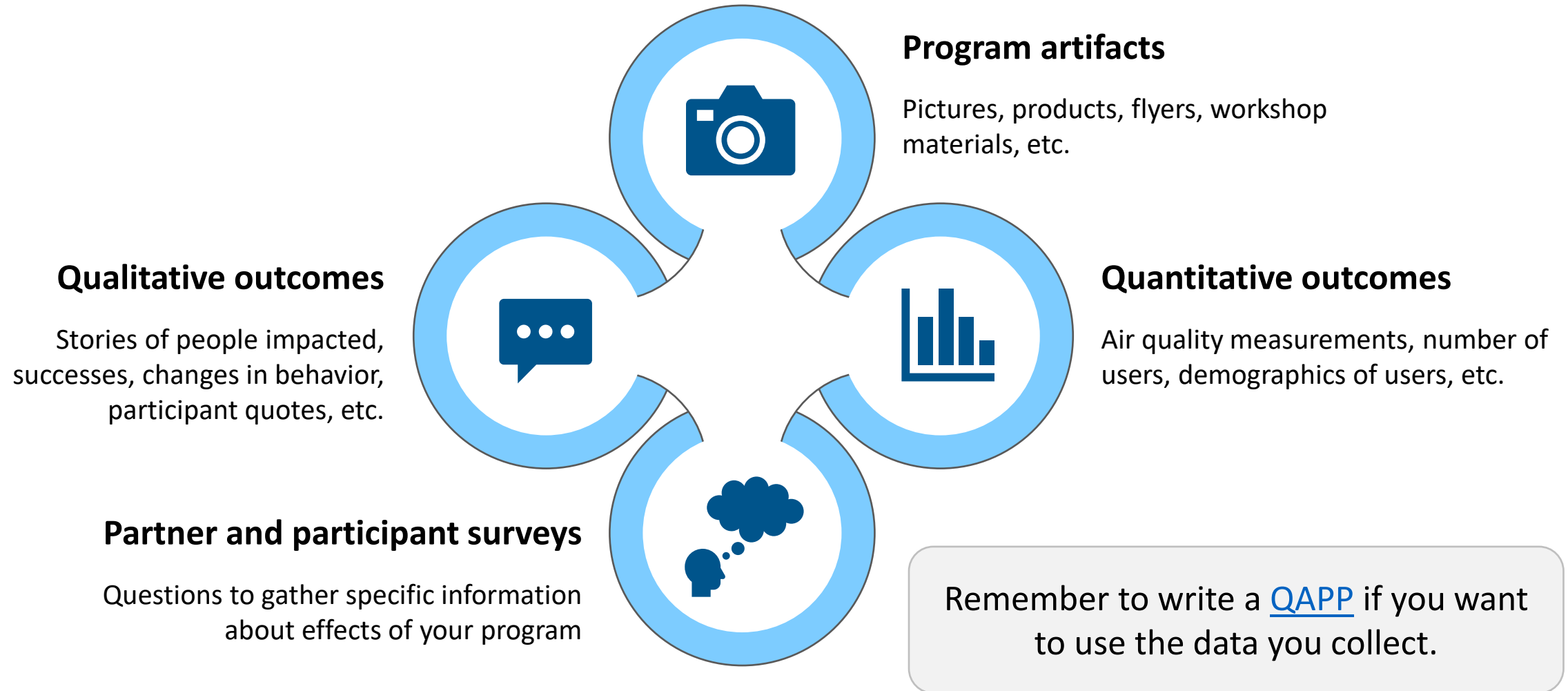
Data collection

- How will you collect feedback and data? [Library inventory system, feedback from participating librarians](#)
- Are you collecting any private information? [No. Not lending phones to avoid collecting private data](#)

Impact

EPA Region 9 and LAPL collaboratively designed implementation to simultaneously meet the goals of both organizations.

Project documentation and data collection categories



Considerations for including a survey in a project



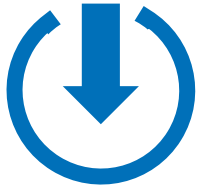
Survey expert

Have an expert in survey development, validation, and deployment on your team to ensure you get the information you want.



Data storage and analysis

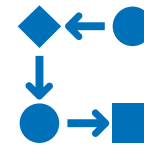
Surveys can generate large amounts of data, which you will need to store. Having an expert in data analysis can help with processing survey results.



Internal and external controls

There can be controls on survey development and deployment
Internal control examples: Institutional Review Board (IRB) approval, Paperwork Reduction Act (PRA).

External control example: Partners may have their own processes in place.



Survey process

Investigate the survey process early to know what steps are involved and to save time – sometimes the process is complicated and long.

Different programs are available to help create surveys, including SurveyMonkey, Google Forms, and Qualtrics. Note that data privacy differs.

If you want a formal feedback process, you may need to **talk to an ethics committee or an IRB** if it is required by any organization with whom you are working. They determine if you need formal approval or if you may go through an expedited process.

EPA Region 9 designed a short user survey for the LAPL program

Who?

- Who used the sensor?
- What was the age range of users?
- How many people used it?
- Optional contact information for follow-up

How?

- How did you use the data you collected with the sensor?
- How easy was it to: Use the sensor? Follow the sensor instructions? View the sensor data? Follow the activities?
- How satisfied are you with the loan program overall?

Why?

- Why did you want to borrow an air sensor?

What?

- What air sensor resources did you use, if any?
- Do you have any recommendations for improving the loan program or anything else you would like to share about your experience?

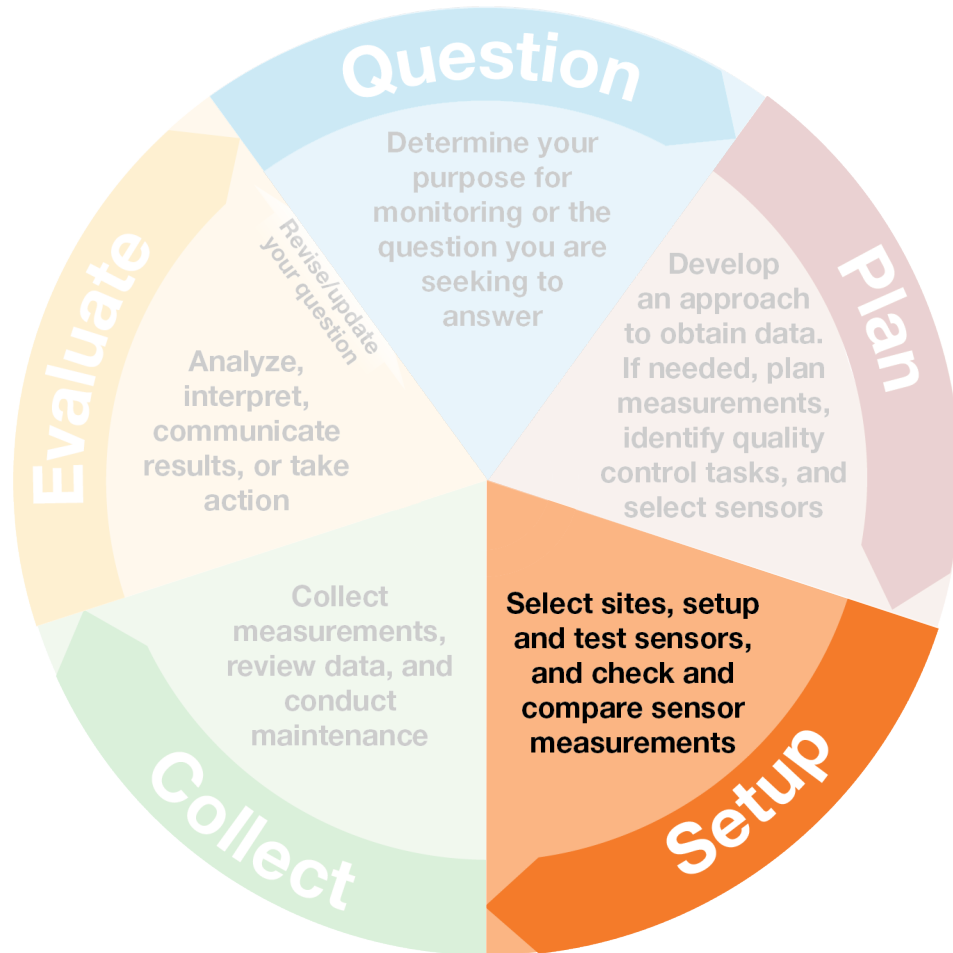
Where?

- Where did you hear about the air sensor loan program?
- If you received assistance outside the library on how to use the sensor, where did you go for that information?

Impact

EPA and LAPL could collect information from participants directly related to participant and programmatic objectives.

Step 3. Setup

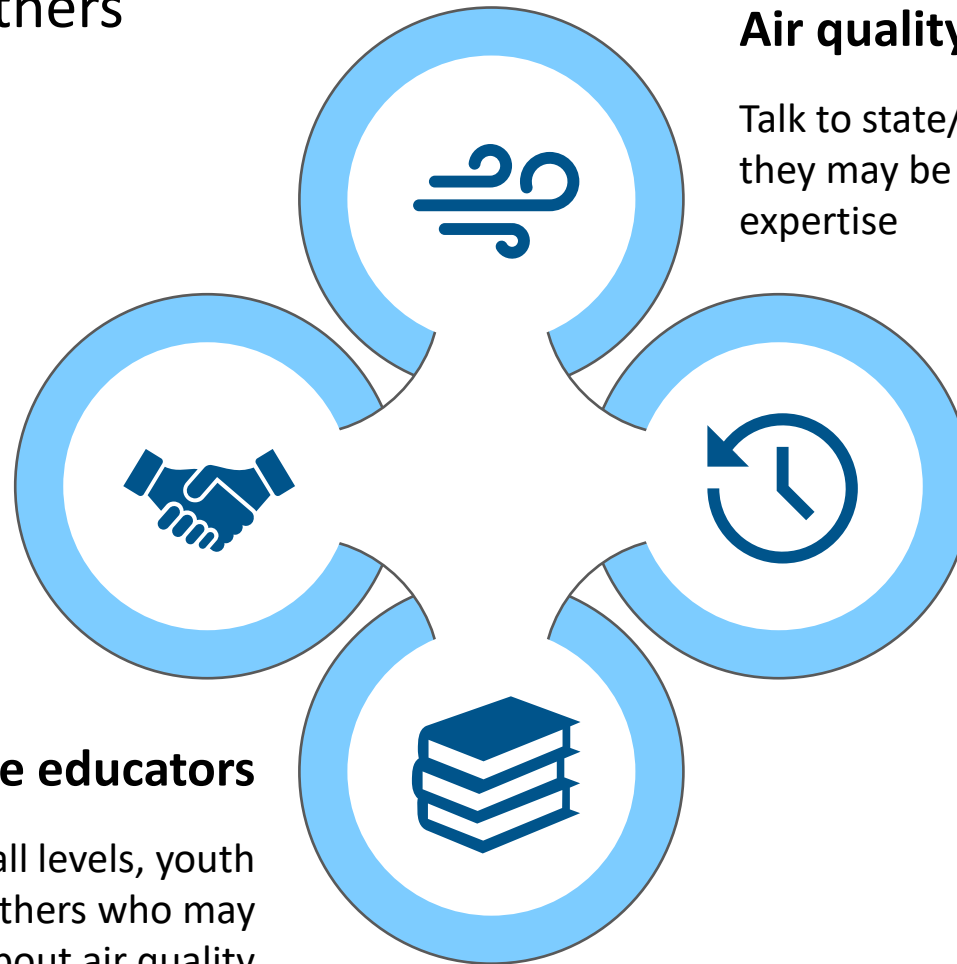


Set up your project

- Identify potential partners
- Initiate partnership
- Establish partner goals and responsibilities
- Refine your project team and project plan
- Establish loan procedures
- Plan for project sustainability
- Select and purchase air sensors
- Develop training and materials as needed

Brainstorm a list of potential partners

Some categories of partners you might consider:



Air quality agencies

Talk to state/local/tribal air quality agencies to see if they may be willing to provide technical support or expertise

People with previous interest

Contact individuals/organizations that have previously expressed interest in air quality projects. Individuals may be able to connect you with local organizations who may be potential partners.

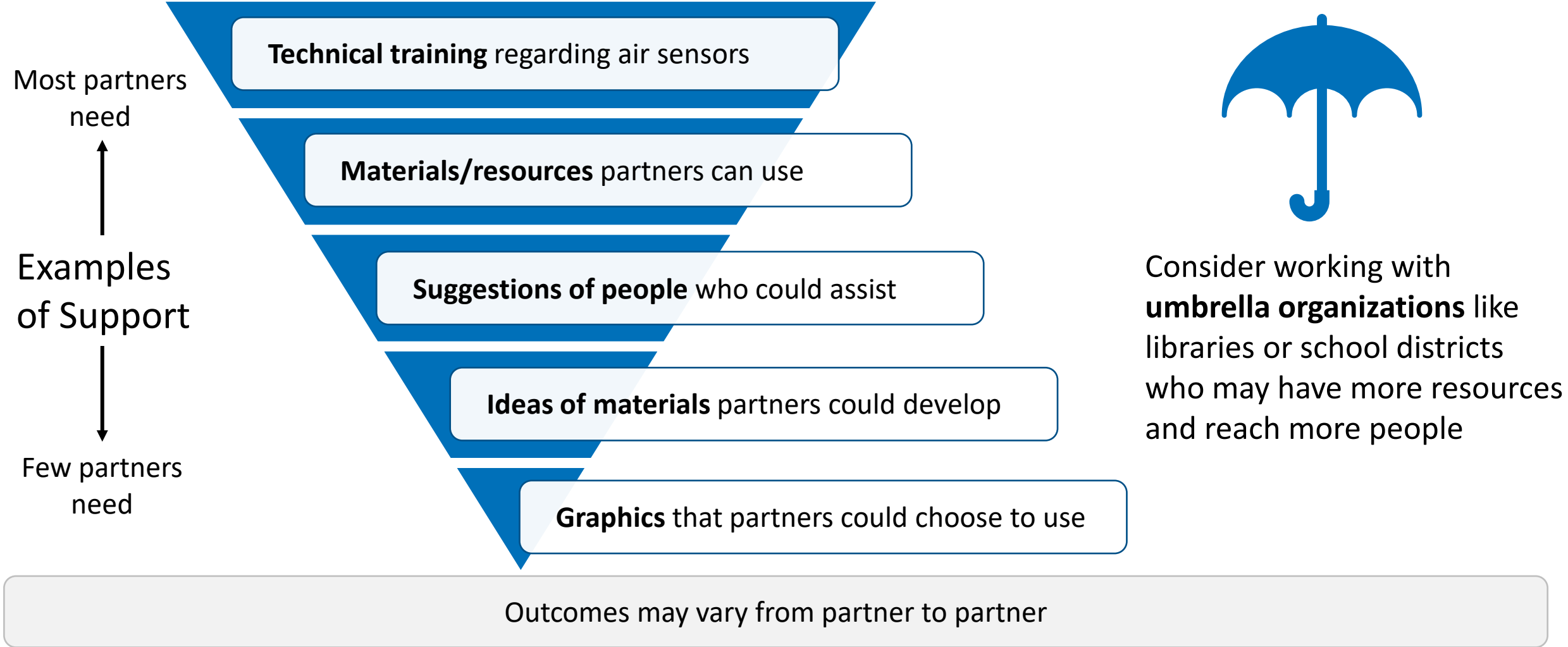
Past partners

Reconnect with partners that your organization has successfully collaborated with before

Science educators

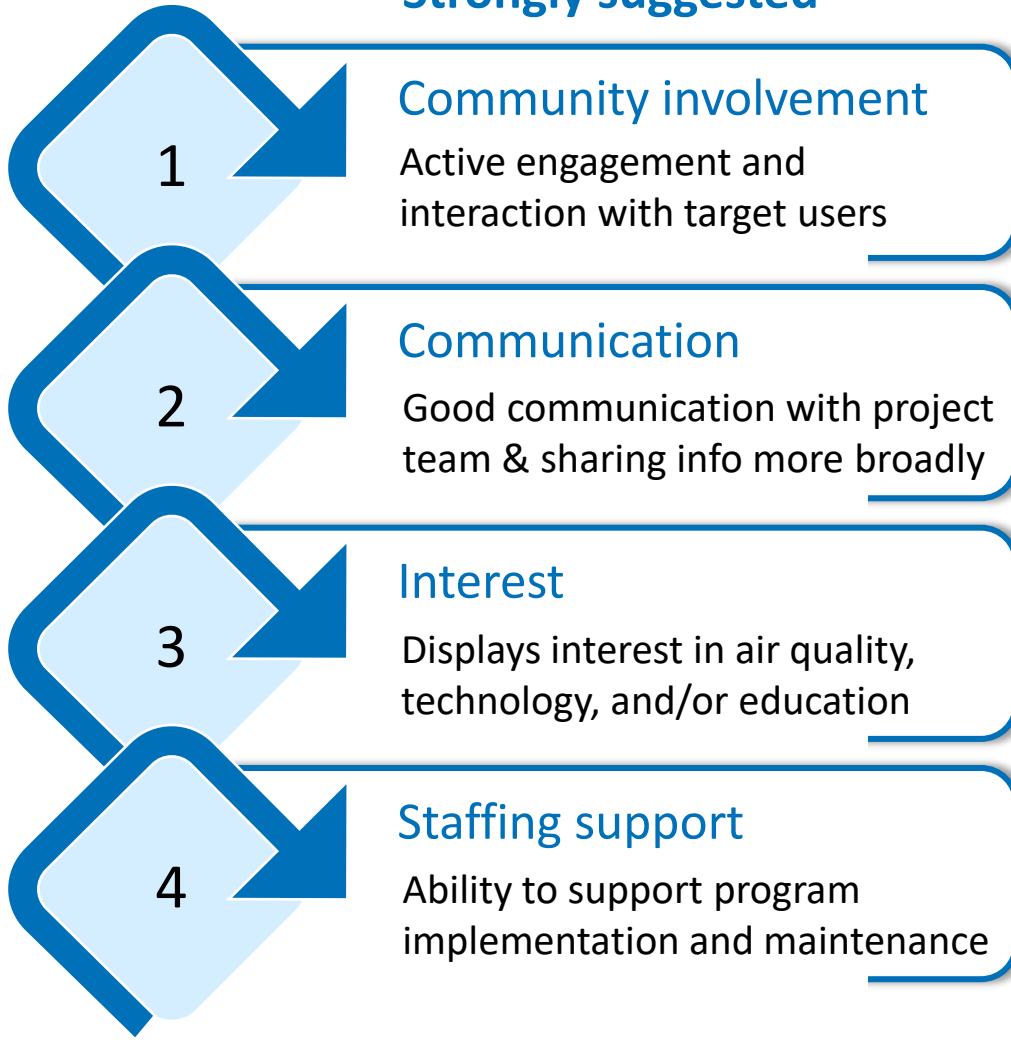
Reach out to science educators at all levels, youth program coordinators, librarians, and others who may have interest in teaching/learning about air quality and technology

Consider what amounts and types of support you can offer a partner

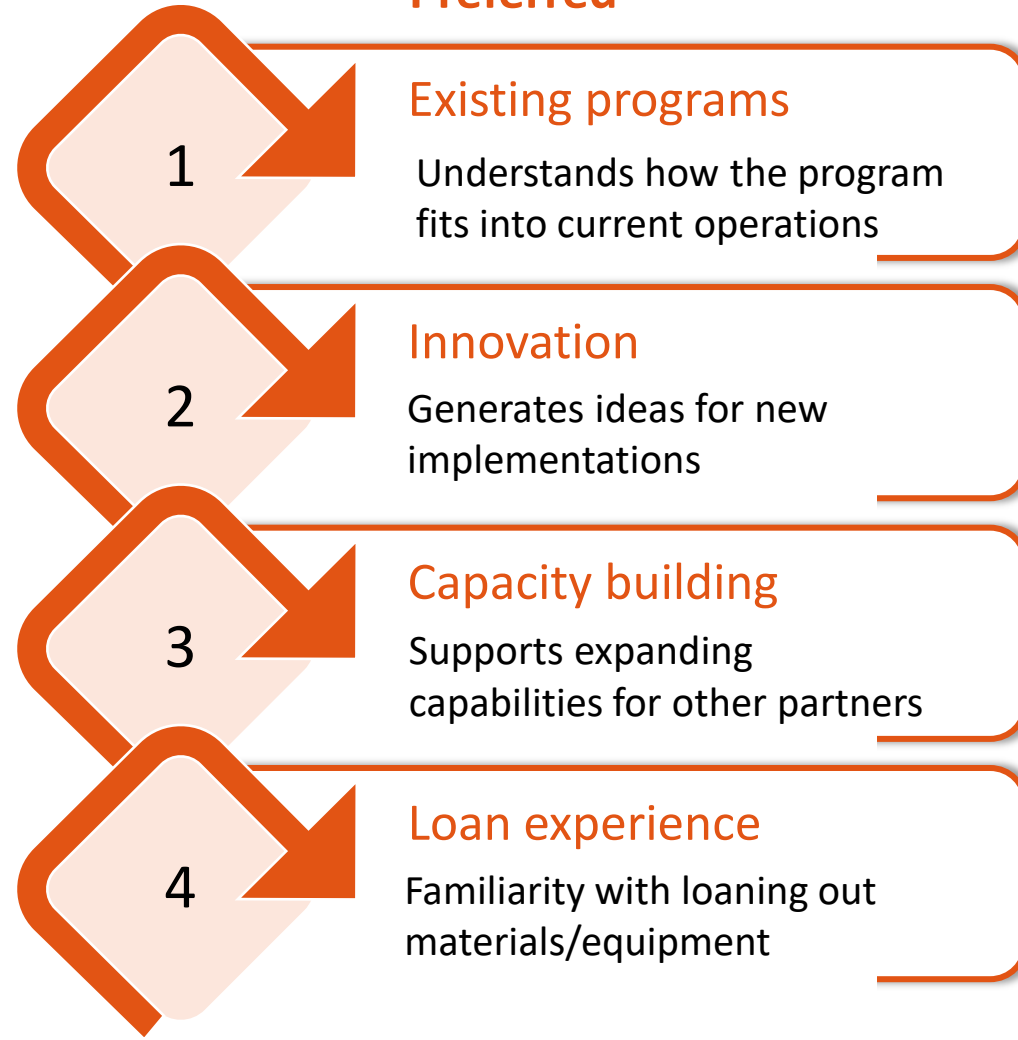


Tips on what to look for in a partner

Strongly suggested



Preferred



Be sure your partner can **articulate participant needs and desires** – you may never interact with users directly

Examples of some preferred partner capacities

Existing programs

EPA Region 9 partnered with the Los Angeles Public Library (LAPL), who integrated the air sensors into their **Neighborhood Science (NeiSci)** program. They also provided their expertise in loaning and tracking books and other items.

Impact

LAPL was able to use **an existing program** (NeiSci) to help patrons interact with air sensors. Their loan experience made cataloguing and tracking sensors easy.

Innovation

EPA Region 10 partnered with the Nez Perce Tribe to put air sensors in public libraries on the Reservation. Librarians opted to **participate** in the Air Quality Flag Program and **offer workshops** about making a DIY box fan air filters.

Impact

The flag program **prompted patron engagement** and librarians were able to educate patrons about air quality. The DIY filters gave patrons an **actionable step** to improve their air quality.

Capacity building

EPA Region 5 partnered with The Morton Arboretum, which developed a vegetation training program for educators about air quality & soil science. Sensors are available to educators for classroom use and **materials are available** to partners.

Impact

The Morton Arboretum has a dedicated team of experts to help develop materials. **Other partners** were able to **benefit** from their capabilities when The Morton Arboretum shared their educational materials.

Steps for initiating partner relationships

Pitch project



Develop a project pitch that you can send to potential partners before an initial meeting. Include your goals, what support you can offer, and the anticipated role of the partner in the project.

Align goals



Ask potential partners about their goals and see how they align with yours. See how their strengths can enhance the project.

Communicate benefits



Explicitly communicate benefits of a potential collaboration.

Clarify project scope



Ensure that potential partners understand appropriate uses and limitations of air sensors. This may be especially important if your project has goals other than education.

Establish partner goals, objectives, and responsibilities

Ask your partner to **list their goals and objectives** for the project. Discuss the **feasibility** of the list and offer suggestions and ideas where needed.

Discuss your **partner's responsibilities** in the project. Explicitly talk about what **resources and support** you can offer and ask what they can provide. Ask about what **assistance** your partner would need from you for the program to succeed.

Establish baseline expectations but be flexible and willing to adapt to unforeseen circumstances. Be open to new opportunities.

Examples of pilot program partner responsibilities

Since the EPA Region 5, 9, and 10 programs were administered through partners, the partners:

Gathered feedback
Collected feedback and used it to improve the program as appropriate

Provided programming
Designed and provided interactive programming for loanees to learn about air sensors as contextually appropriate

Facilitated loans

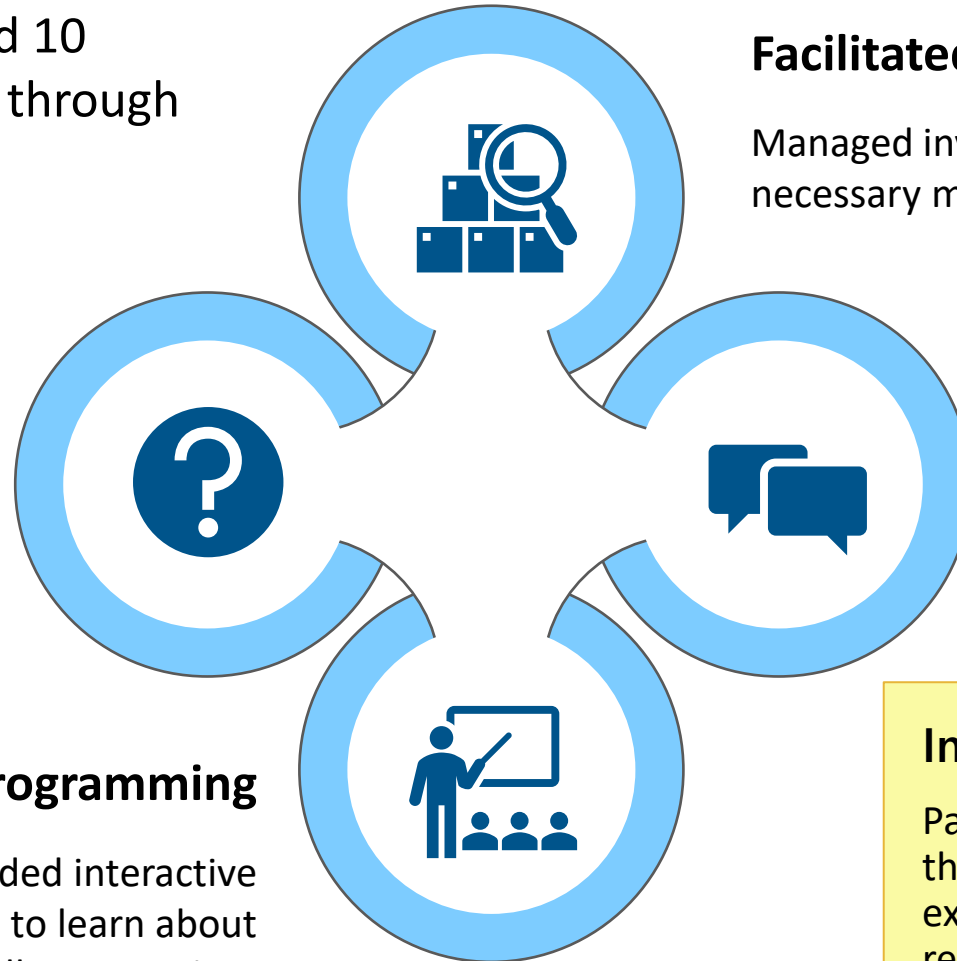
Managed inventory and ensured that all necessary materials were given to loanees

Interacted with loanees

Handled questions and helped loanees with technical difficulties

Impact

Partners were the public interface to their communities. They were experienced in these types of responsibilities and excelled in them.



Communication was the key to successful partnerships

In the experience of the pilot programs, three pillars supported project success:

1

Relationship

Regions prioritized building strong relationships with their partners. Relationship was, by far, the most important factor in a successful project.

2

Managing expectations

Regions established expectations from all parties early but were flexible with changes.

3

Messaging

Project teams ensured that communications were clear and consistent.

Impact

The relationships and goodwill developed through the pilot programs continued after the grant period. Clear communication improved efficiency and allowed needs to be addressed promptly.

Refine your project team and project plan with your partner




Review your plan. Be sure to:

- Determine if you need any **additional assistance** to meet your revised goals and objectives.
- Fill in **details** of your implementation plan.
- Gather and review existing materials. Determine if **additional materials** must be developed, how they will be developed, and who will develop them.

Establish loan procedures

Consider answers to the following questions:

- 
- Where will sensor and accessories be stored?
 - How will the sensors get from the storage location to the user?
 - How long will the loan period be?
 - How will you track sensor and accessory inventory?
 - What information do you need to catalogue items?
 - Will each item you lend in a kit (sensor, user guide, etc.) be catalogued separately?
 - What fines may you charge for overdue items?
 - What replacement fee may you charge for a lost or damaged item?
 - Is there a chance that you will collect personal or personally identifying information?
How will you deal with that? How will you make sure that user data is deleted?
 - How will you ensure that all peripheral materials (charger, guides, etc.) are returned?
 - Would you like to label items to keep sets together (especially any paired items)?

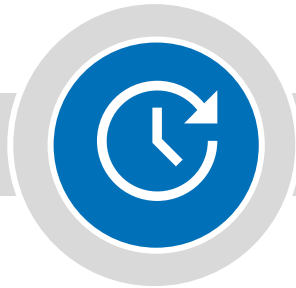
Plan for project sustainability

Project champion



Identify a project champion who will help the program get off the ground

Partner capacity



Build capacity so that the project can succeed long-term without the champion

Continued funding



Discuss the timelines and costs of air sensor and accessory replacements, supplies, etc.

Program evaluation

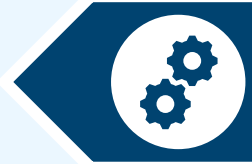


Regularly evaluate your program to ensure that your goals are being met and that programs are relevant to your audience

Purchase sensors that support your goals and objectives

Technical specifications

Consider pollutant, environmental conditions, concentration levels, and collocation requirements



Privacy needs

Understand user registration and location information that sensors may require



Interface & data processing needs

Match user interface, data processing, and data visualization to partner/user requirements



Data access & storage

Determine how you and others can access your data and where your data will be stored



Sensor cost

Consider upfront, ongoing, maintenance, and replacement costs of your chosen sensor



Procurement

Make sure that sensors are available for purchase and that lead times fit with your project timeline



Equipment lifetime

Look for warranties and know that lifetime varies with sensor type, sensor use, and use conditions



User manuals

Evaluate if the user manual will equip users to operate sensors and ease data processing



Ancillary technology

Identify other technology necessary for your sensor application (e.g., cell phones, weather data, etc.)



You may not be able to meet all your sensor preferences; balance your priorities against one another.

Develop training and materials as needed

Remember to consider:

Technical materials

Instructions for sensor collocation, operations, data processing, and data interpretation as required

Data collection mechanisms

Data collection sheets, surveys, forms, storage for electronic data, etc. as required

Comprehensive training

Training for partners to operate and maintain sensors and to use existing and newly-developed materials

Activity materials

Outreach materials and any materials that partners will need to support their programming



You may not need to reinvent the wheel. Look for materials you can use or adapt before starting from scratch. You may be able to find people or online forums who are willing to provide materials, share ideas, and discuss experiences.

EPA created training and some materials for library loan partners



EPA provided partners training to bolster air quality knowledge, ability to use air sensors, and familiarity with resources



EPA worked with partners to tailor resources to partner's needs, goals, and contexts

Impact

Partners were empowered to teach users how to use air sensors, conduct educational activities and outreach, and creatively expand their programs.

EPA Region 9

- 8 hours of training over 3 days

EPA Region 5

- 4 hours of training over 2 days
 - Training repeated once to accommodate all partners

EPA Region 10

- 4 hours of training over 2 days
 - All partners were trained simultaneously

Partners created additional programming and resources



Nez Perce Tribe

Translation of Air Quality Index (AQI) chart



The Morton Arboretum

*[Curriculum](#), training, and loan kits
for educators*



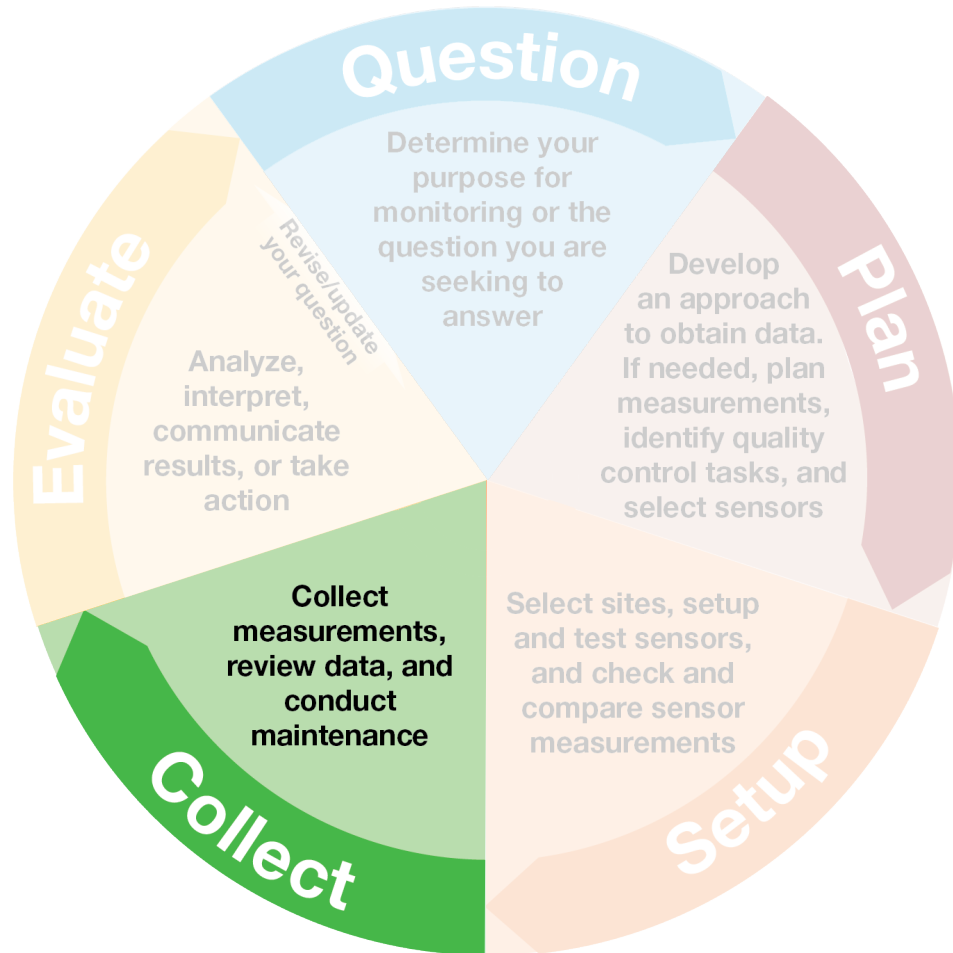
Los Angeles Public Library

Loan kits for educators

Impact

Partners tailored resources to their contexts and implemented additional programming where they saw opportunity and need.

Step 4. Collect



Launch your loan program and collect program data

- Launch your program
- Follow your project plan to collect program artifacts and data
- Review the data to assess if there are any immediate changes needed

Launch your program

Consider incorporating some or all of the following:

Launch events

Invite your target users to an event where you can **introduce your program**. This could be an educational event, a webinar, an opportunity to view/use a sensor, or having a technical expert talk about sensors.

Be creative and consider coordinating with other events/celebrations like [Earth Day](#), [Air Quality Awareness Week](#), or a community's event programming.

Advertising

Tell people in your target user group about your program. Information could be posted on your website or in a community newsletter, or you can directly reach out to contacts who may be interested.

Select programs be listed on the EPA website – go to <https://www.epa.gov/air-sensor-toolbox/air-sensor-loan-programs> and click the **contact** button to inquire if you are interested.

Outreach

Outreach is a great way to share your program with your target audience. It could be done through presentations to schools or other academic groups, meetings with community groups, webinars, or other venues.

Outreach is also an **educational opportunity** to teach about what air sensors can do and why air quality matters. It also bolsters your connections in the community and can increase positive associations people have with your organization.

Collect program artifacts and data



Program artifacts

What is it? Pictures, products, flyers, workshop materials, etc.

Be sure that you have a centralized location to store program artifacts and a clearly defined agreement among your partners on how they may or may not be used. Collect any participant consent required to share stories, photos, videos, etc.

Qualitative outcomes

What is it? Stories of people impacted, successes, changes in behavior, participant quotes, etc.

Also gather feedback from your partners and the project team. Collate data in one place so that you can look for exceptional stories and overarching themes.

Quantitative outcomes

What is it? Air quality measurements, number of users, demographics of users, etc.

If you are working with a partner who routinely loans items, they may be able to pull data directly from their inventory management system. Be sure to document collection protocols, any metadata that might help interpretation, where data is stored, and how data is processed.

Qualitative outcomes from pilot library loan programs

User benefits

Increased access to technologies that may have otherwise been unobtainable

Educational materials to learn and teach about air quality and air sensors

Impact

Users were empowered to collect local air quality measurements. Air sensors were used for education and to help individuals make decisions effecting their health.

Partner benefits

Established loan programs in urban, rural, and tribal communities

Built capacity to be a community resource about air quality and air sensors

Impact

Partners became community resources about air quality. In some libraries, patrons visited specifically to discuss air quality conditions and measurements.

EPA benefits

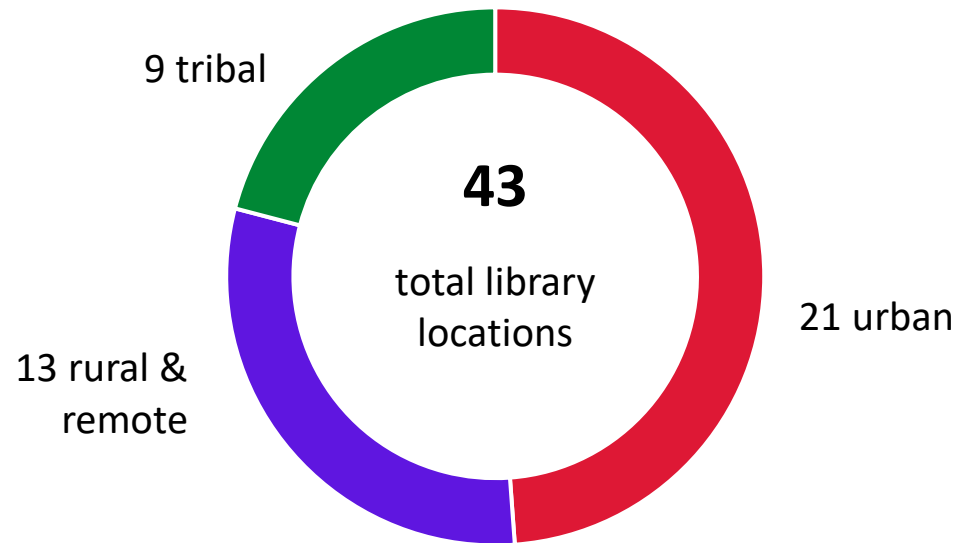
Advanced EPA's research priorities involving air quality, environmental justice, and participatory science

Provided opportunities for EPA to interact with partners and their wider communities.

Impact

Advanced EPA's research priorities. Partnerships will continue moving forward, and additional programs are being developed.

Quantitative outcomes from pilot air sensor loan projects



Evansville-Vanderburgh Public Library launched their program with two public outreach events in the local community over the Earth Day weekend.

Within 2 days they had **loaned out all 7** of their available portable sensors and had people on their waiting list.



The Morton Arboretum hosted **40 educators** at their first training session.

Impact

Quantitative data are often used to justify spending and receipt of funds. Support for your programs may increase if you can show how many people participated, how you are meeting your program objectives, and the impact of your program.

Review the data to assess any immediate changes needed

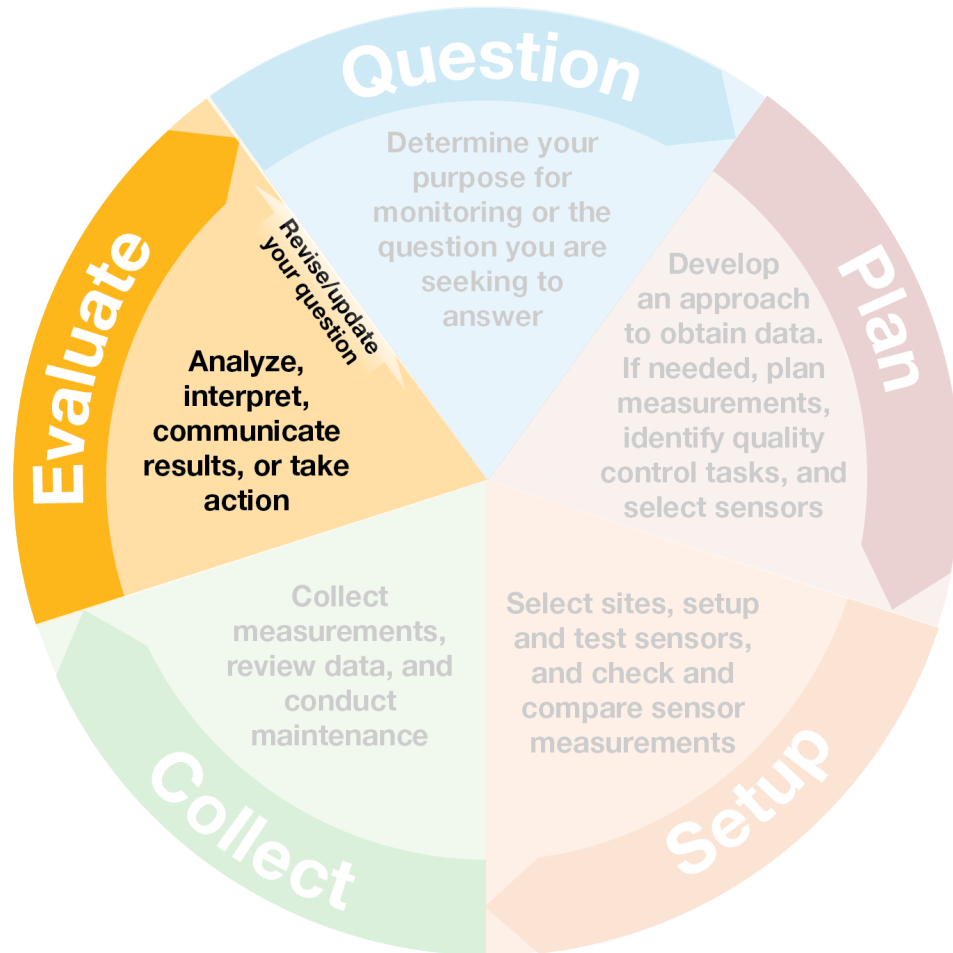


If your project has **data collection and data quality objectives**, this is especially important. Be sure your sensors are maintained and functioning as expected. Look for data transmission outages. Be aware of any additional collocation needs.

Pay attention to user **feedback** as it is reported. Minor adjustments can make big differences in your user's experience with an air sensor.

Simple screening can help you tell if sensors are malfunctioning. For example, if one sensor is reporting zero while other sensors of the same type are not, the sensor may be malfunctioning. If sensors malfunction shortly after you purchase them the manufacturer may be willing to replace them.

Step 5. Evaluate



Evaluate your project

- Conduct data analysis
- Assess whether you met your goals and objectives
- Document lessons learned and share them if possible
- Refine your program as necessary

Conduct data analysis

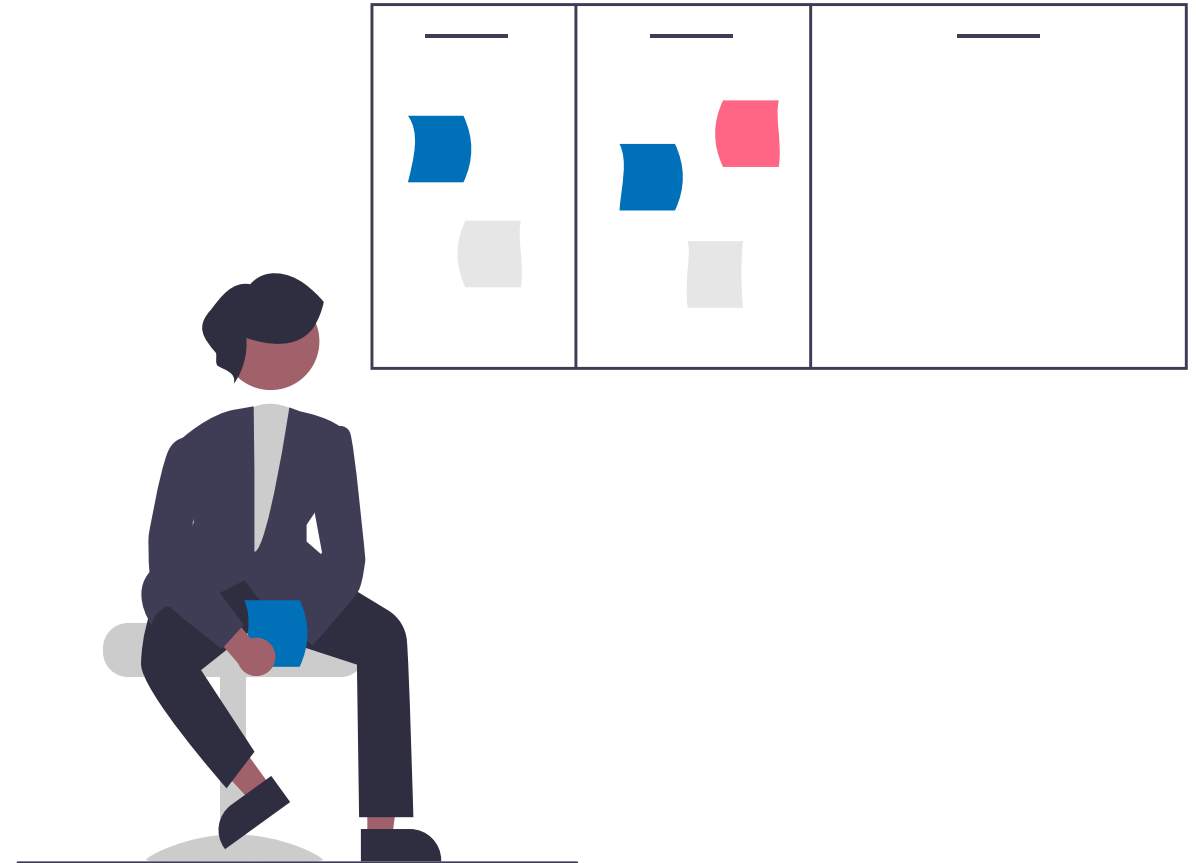
Qualitative data

- Highlight specific quotes and stories to share
- Consolidate feedback – affinity mapping can be a useful tool

Affinity mapping/diagramming

Affinity mapping is a way to group similar information which helps reveal themes in qualitative data or feedback. The process has four steps:

1. Record each piece of data on a separate electronic or physical card or sticky note.
2. Read each record, looking for patterns or themes.
3. Create a group for each pattern or theme. Remember that each record may fit into more than one category.
4. Record the main point or key insight from each group.



Conduct data analysis

Quantitative data

- Analyze numerical data (air quality, survey data, data about loans, etc.)
- Consult with your technical expert about data analysis – analysis tools may be helpful
- Be sure your quality assurance, quality control, and quality assessment steps match your intended data use

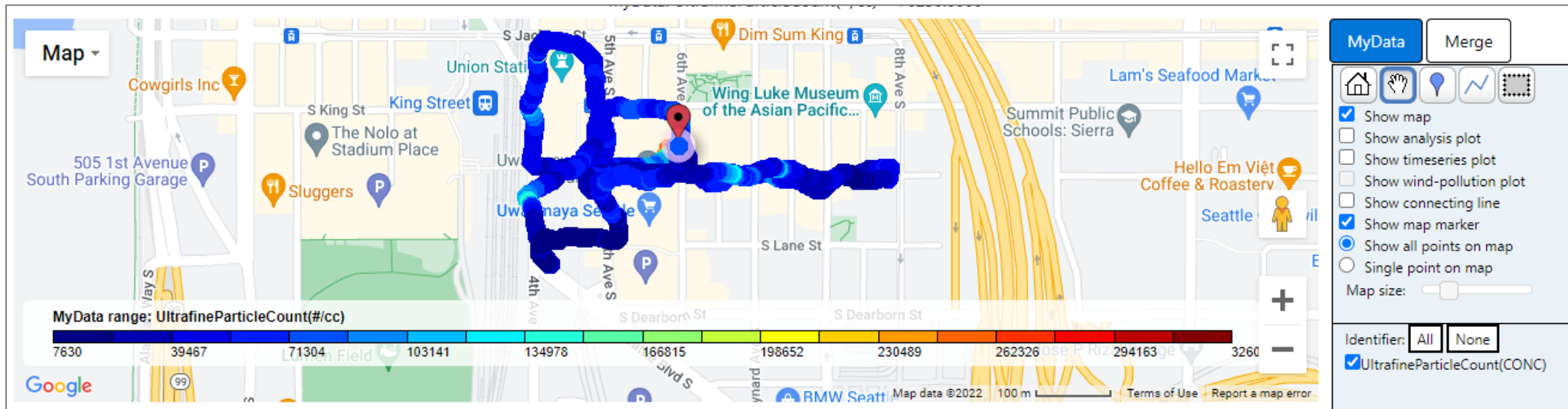
Free tools to help analyze collocation data and visualize geospatial data:

Collocation – Air Sensor Collocation Macro Analysis Tool

<https://www.epa.gov/air-sensor-toolbox/air-sensor-collocation-macro-analysis-tool>

Geospatial – Real Time Geospatial Data Viewer (RETIGO)

<https://www.epa.gov/hesc/real-time-geospatial-data-viewer-retigo>



Example of
air quality
data map
generated in
RETIGO

Assess whether you met your objectives and advanced your goals

Objectives

Your **data analysis** should be able to address whether you met your objectives.

If an objective was met, note any **key project activities** that contributed to the objective.

If an objective was not met, document **roadblocks** that may need to be addressed in the future.

Goals

Goals are often long-term and may not fully accomplished in any one project. Instead, consider whether the project **worked toward completion** of the goal. Take specific note of how the project advanced the goal.

Consider the **impacts** of your project holistically as you evaluate goals.

Additional outcomes

As you analyze your project, you may have **other important outcomes** that were not envisioned when you established your objectives and goals. Record those outcomes. Compile any data that demonstrates the outcomes.

Also list any **materials or resources** that were developed for the project.

Summarize any **themes** from your qualitative data analysis.

Not meeting project objectives does not mean the project was a failure!

Sometimes it means that the focus of the project shifted during implementation. Remember that many things can impact your project. Your project plan is a living document and can be modified as your project progresses, including re-evaluating objectives or altering your approach to achieve your original goals.

Share findings, materials developed, and lessons learned if possible

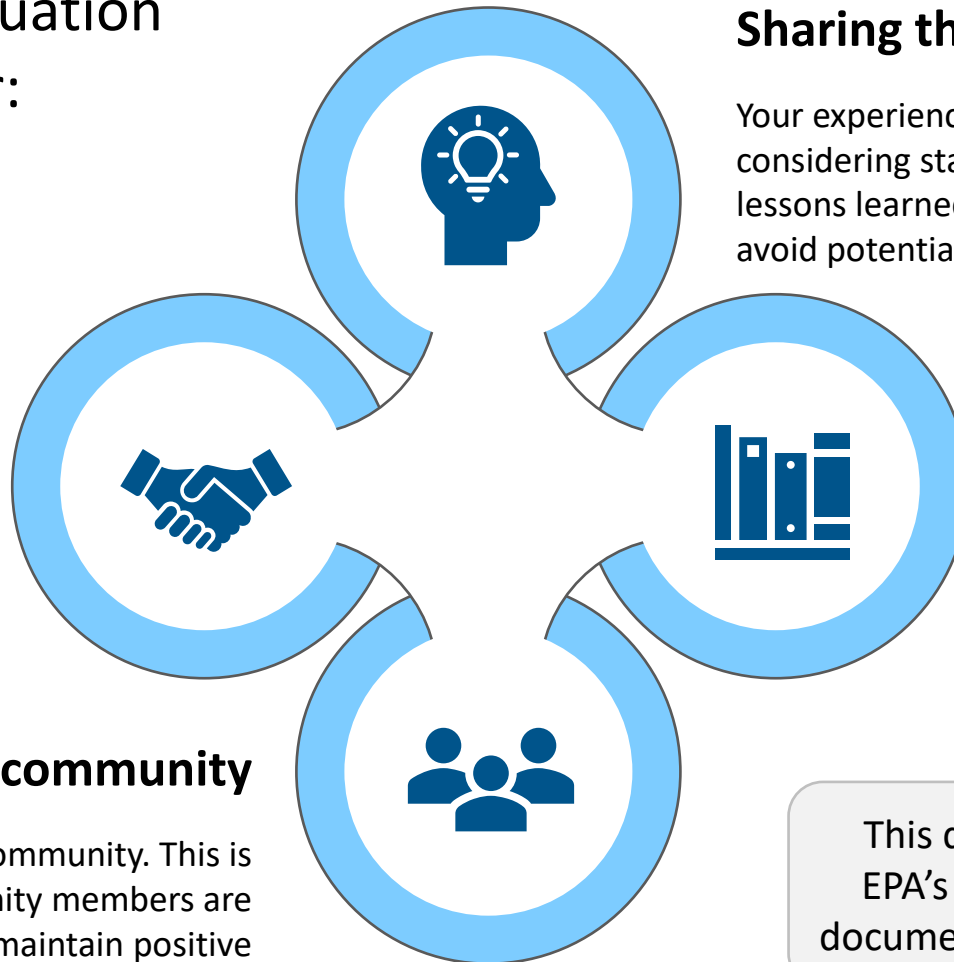
As you wrap up an evaluation of the project, consider:

Informing other sensor users

Other sensor users or organizations with loan programs may be interested in the outcomes of your program. You may find interested people online, for example in a manufacturer or community forum.

Reporting back to the community

Share your findings with the community. This is especially important if community members are partners. Sharing can maintain positive relationships and potential future partnerships.



Sharing the lessons learned

Your experience can be valuable to others who may be considering starting a similar program. Even a short list of lessons learned can help others know what works well and avoid potential roadblocks.

Sharing the materials developed

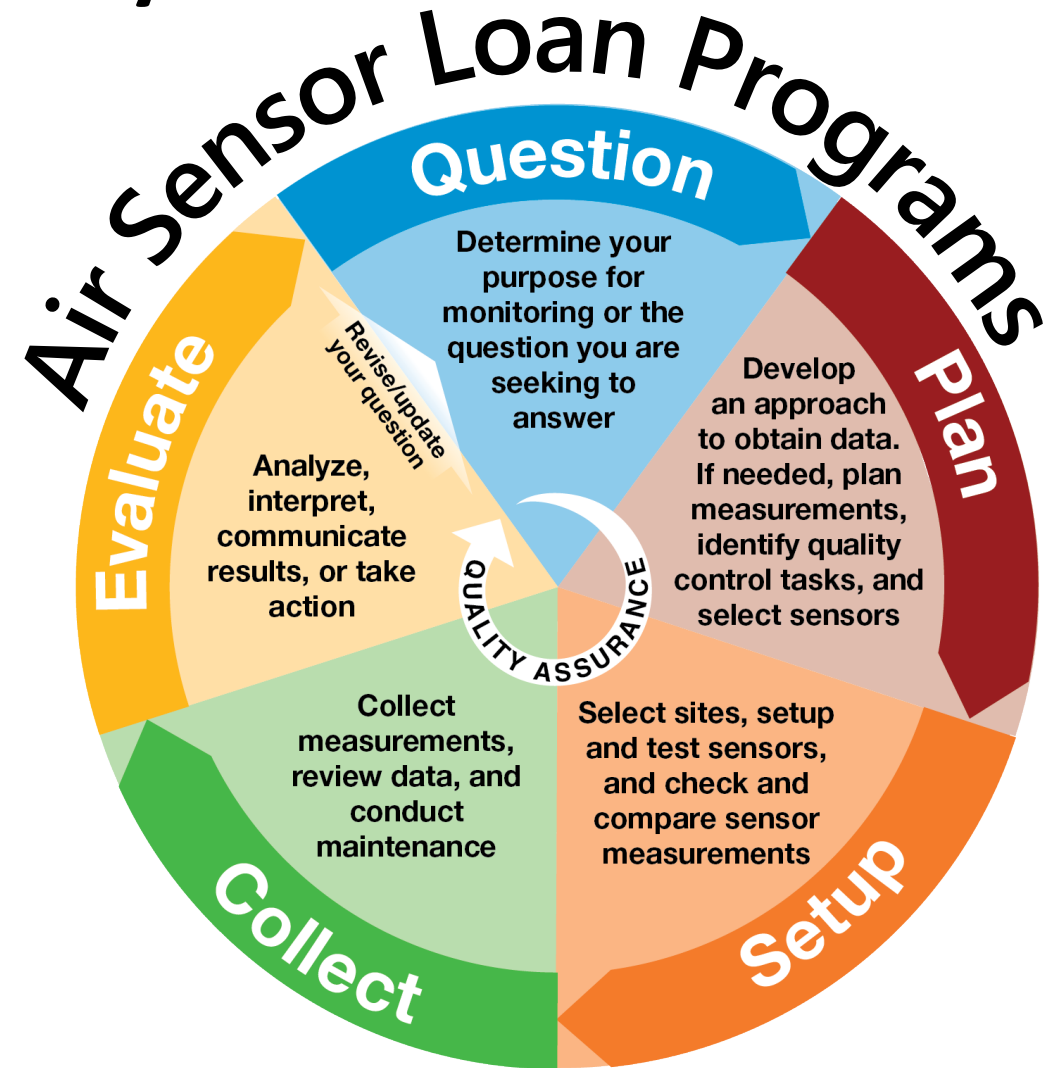
Sharing materials can help save time as you develop a program. Others may adapt your materials, which can help expand the impacts of your program and give you and others additional materials to use.

This document and the materials posted on EPA's Air Sensor Toolbox website are part of documenting and sharing the pilot loan projects.

Refine your program as necessary

If your program is continuing, refine your project plan and operations based on the results of your evaluation. Start the cycle in in the planning guide again.

Be sure to plan for program continuity. Add members to your team to replace any lost or to add any helpful skills. Consider any anticipated turnover before your next evaluation cycle ends.



Summary of best practices

- Identify your project goals and objectives before you start.
- Build a project team with different expertise to address all aspects of your project.
- Develop a project plan that clearly states objectives, goals, responsibilities of team members, implementation, required materials and resources, and data collection and analysis procedures.
- Maintain communication with your partners throughout the project.
- Plan for loan program sustainability from the start of your project.
- Carefully select equipment to meet your and your partner's goals.
- Provide training and resources for your partners and sensor users – different projects will have different needs.
- Be flexible! A project plan is a living document. There are many ways you can meet your and your partner's goals.
- Collect qualitative and quantitative data/feedback and use it to improve and inform future programs.
- Share findings, materials developed, and lessons learned if possible.
- If your project had significant community involvement, report back to the community throughout a project.

Many resources are available through EPA's Air Sensor Toolbox

General information

- [Air quality & air sensor video series](#)
- [Frequently Asked Questions about Air Sensors](#)
- [Air Quality 101](#) presentation

More about air sensors

- [Introduction to Air Sensors](#) presentation
- [Air Sensor Guidebook](#)
- Sensor evaluations by [EPA](#) and [other organizations](#)
- [Air Sensor Advanced Topics](#) presentation
- [Six Questions to Consider Before Purchasing Air Sensor Technology](#)

Materials developed for pilot programs

- EPA's [Air Sensor Loan Programs](#) webpage
- Resource Guide
- Frequently Asked Questions
- [AirBeam2 Quick Start Guide](#)
- PurpleAir PA-II Quick Start Guide
- [AirBeam2 Instructional Video](#)
- [Fully developed lesson plans](#) related to/using air sensors

Additional resources

- [Air Sensor Siting and Installation Guide](#)
- [Standard operating procedures](#) for air sensors

Visit EPA's Air Sensor Toolbox Website: www.epa.gov/air-sensor-toolbox

Other resources are also available to inform your program

Participatory science and QAPPs

- EPA's [participatory science](#) webpage
- EPA's [Quality Assurance Handbook and Toolkit for Participatory Science Projects](#)

More about air sensors

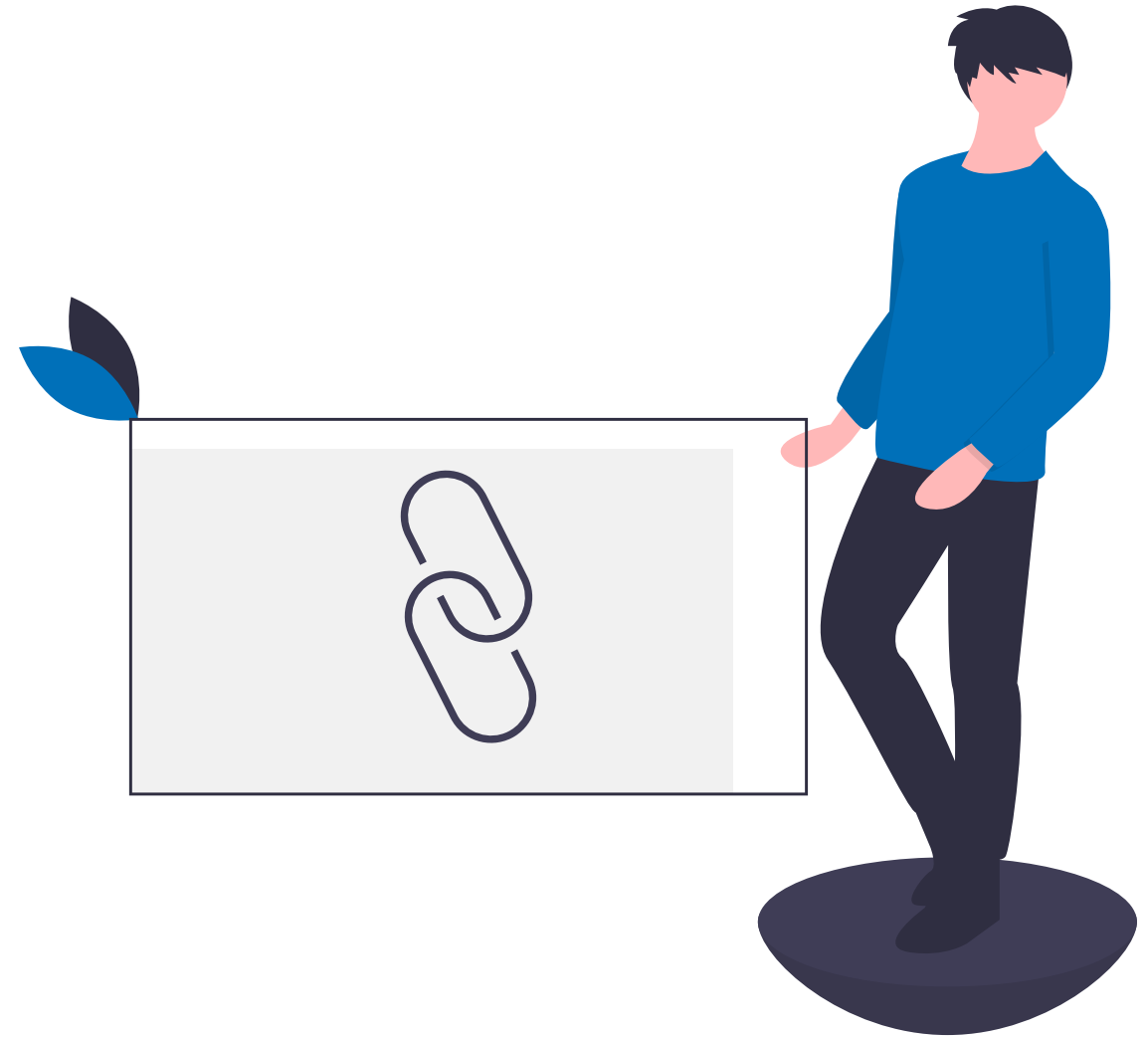
- South Coast Air Quality Management District's [Air Sensor Educational Toolkit](#)
- New Jersey Department of Environmental Protection's [Community Science Air Monitoring](#) webpage

More about air quality

- The [AirNow](#) website

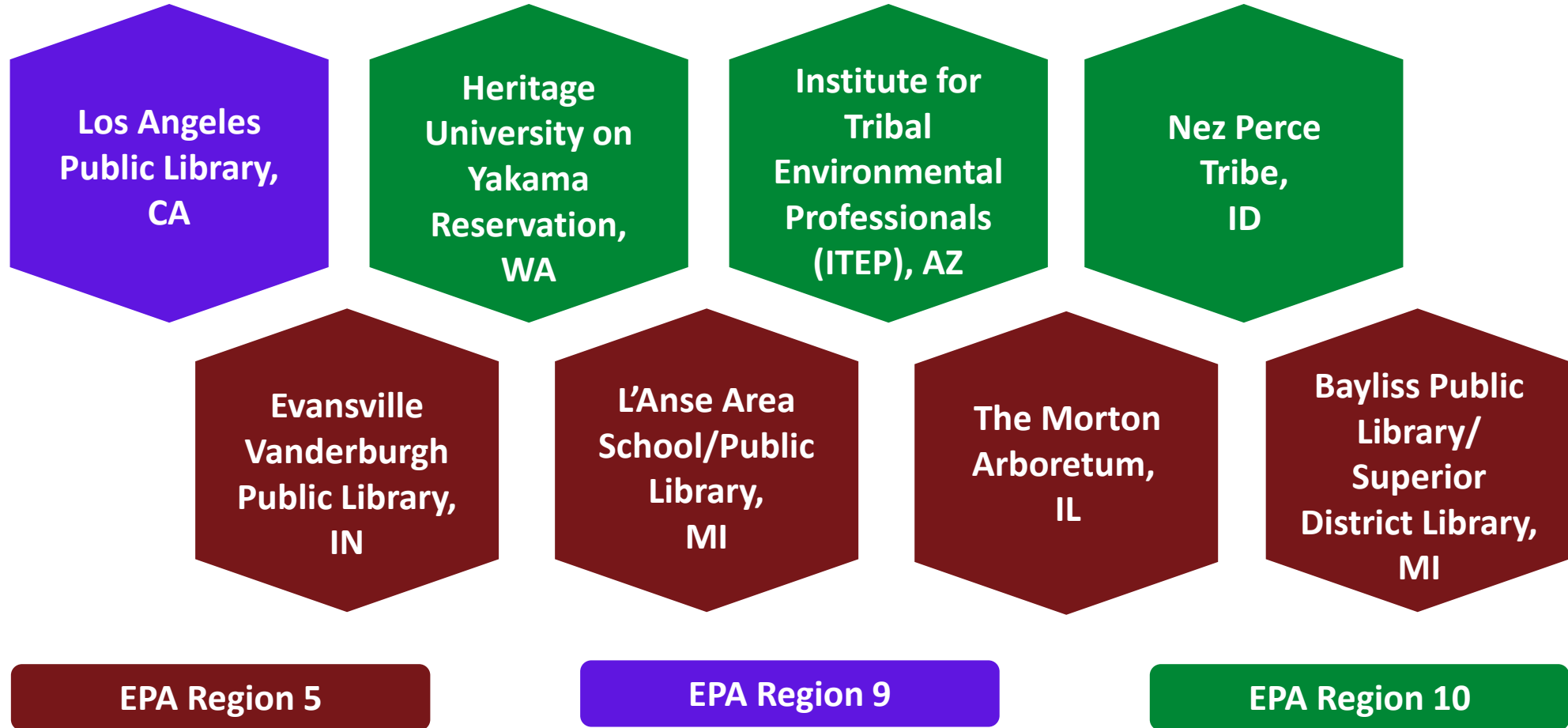
Resource list

- An extensive resource list is presented in the [Resource Guide for Air Sensor Loan Programs](#)



Thank you to our partners!

Click the hexagons to learn more about each of our partners

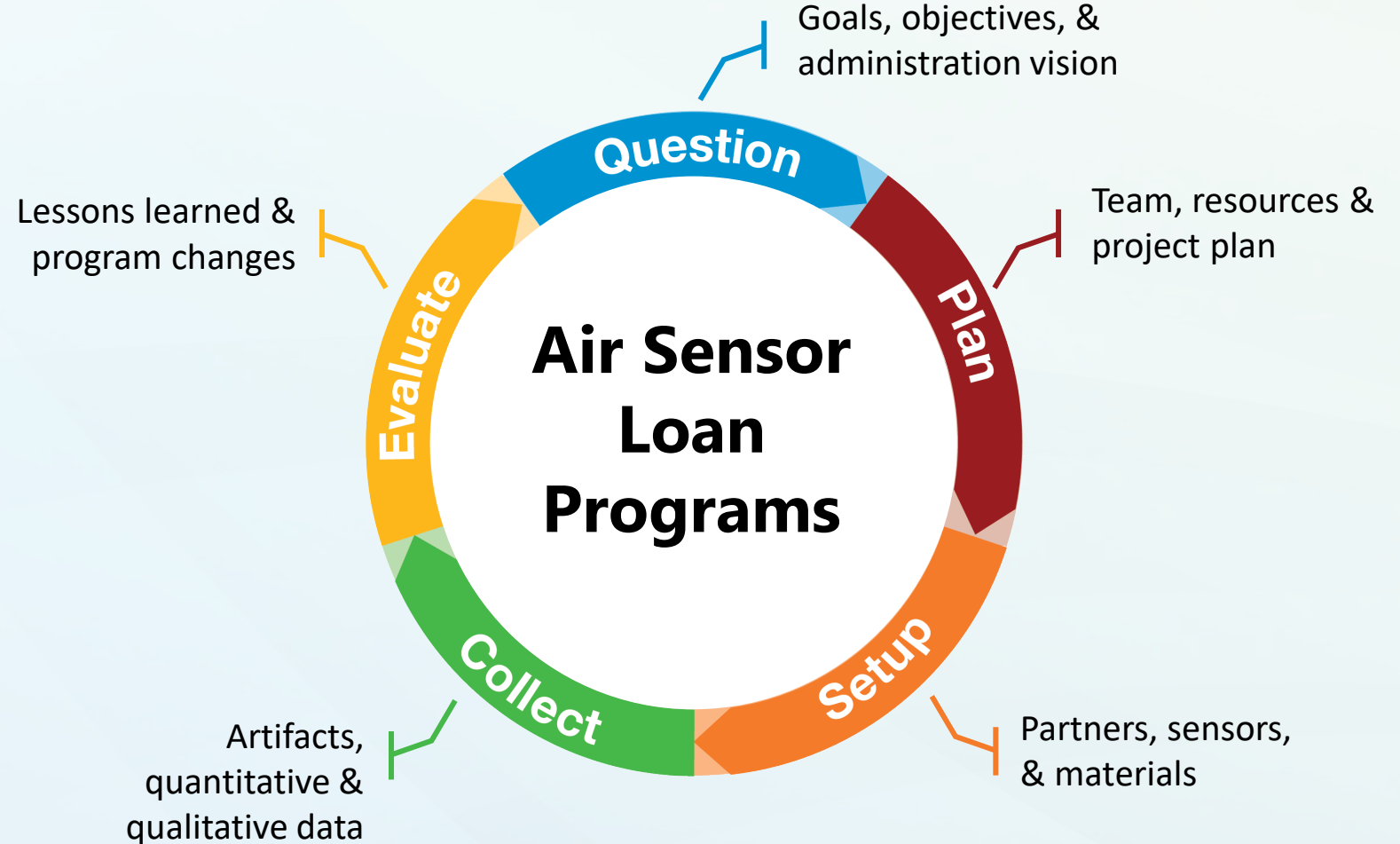




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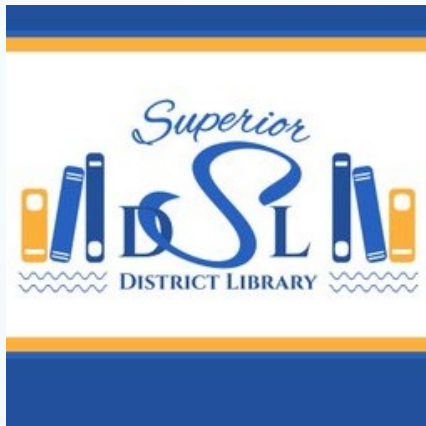
<https://www.epa.gov/air-sensor-toolbox>



Best Practices for Starting an Air Sensor Loan Program

Appendix A: Region 5 Pilot Programs

Air Sensor Loan Programs for Remote/Rural Locations and Living Museum



L'Anse Area School/Public Library



Rachel Smoak *Student Intern*

Andrea Clements

Rachelle Duvall

U.S. EPA Office of Research & Development
Center for Environmental Measurement
and Modeling

June 2022

2020 EPA Regional-State-Tribal Innovation Project

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EPA Region 5 partnered with libraries and a living museum



Bayliss Public Library, the main library in the **Superior District** library system, participated with 3 other district libraries as a pilot. They serve the Eastern Upper Peninsula region of Michigan. The libraries serve largely rural and remote communities.

Evansville Vanderburgh Public Library has eight locations throughout Vanderburgh County, which has a population of approximately 180,000. It is one of the largest public library systems in Indiana that serves both urban and remote locations.

L'Anse Area School/Public Library is a library in Michigan's Upper Peninsula serving residents in a rural, remote community on the shores of Lake Superior. The program has partnered with Keweenaw Bay Indian Community.

Located in Lisle, Illinois, **The Morton Arboretum** is a living museum which provides educational opportunities for teachers, families and community members to learn about the importance of trees. They the greater Chicago region.

Bayliss Public Library identified partner libraries



Curious about the

Air Quality

in Pickford?

Who: Students grades 6-12

What: Measure air quality using air sensors (training and snacks provided)

When: 3:30-4:30 PM September 23, 30, and October 7 (Thursdays)

Where:
Pickford Community Library

Why: Be a part of a country-wide program to test our air quality!

Sign up at
www.pickfordlibrary.org or
contact the library to sign up:
(906) 647-1288
ehyde@uproc.lib.mi.us

The photograph shows a grey backpack, a smartphone displaying an app, a white air sensor, and a blue box labeled 'CASTING BEAM 2'. The sign at the bottom features the U.S. Environmental Protection Agency logo.

This project engaged Bayliss Public Library and the Superior District library. They quickly brought in additional libraries in their district. The team included:

- Bayliss Public Library
- DeTour Public Library
- Les Cheneaux Community Library
- Pickford Community Library
- Superior District Library

Libraries were able to use Friends of the Library funds to purchase additional air sensors.

After delays due to COVID, the program launched at some libraries in fall 2021 and around Earth Month 2022, with special emphases on children's and teen's programming.

The full program launched in spring/summer 2022. Librarians will lead activities and sensors will be available for library users to check out.

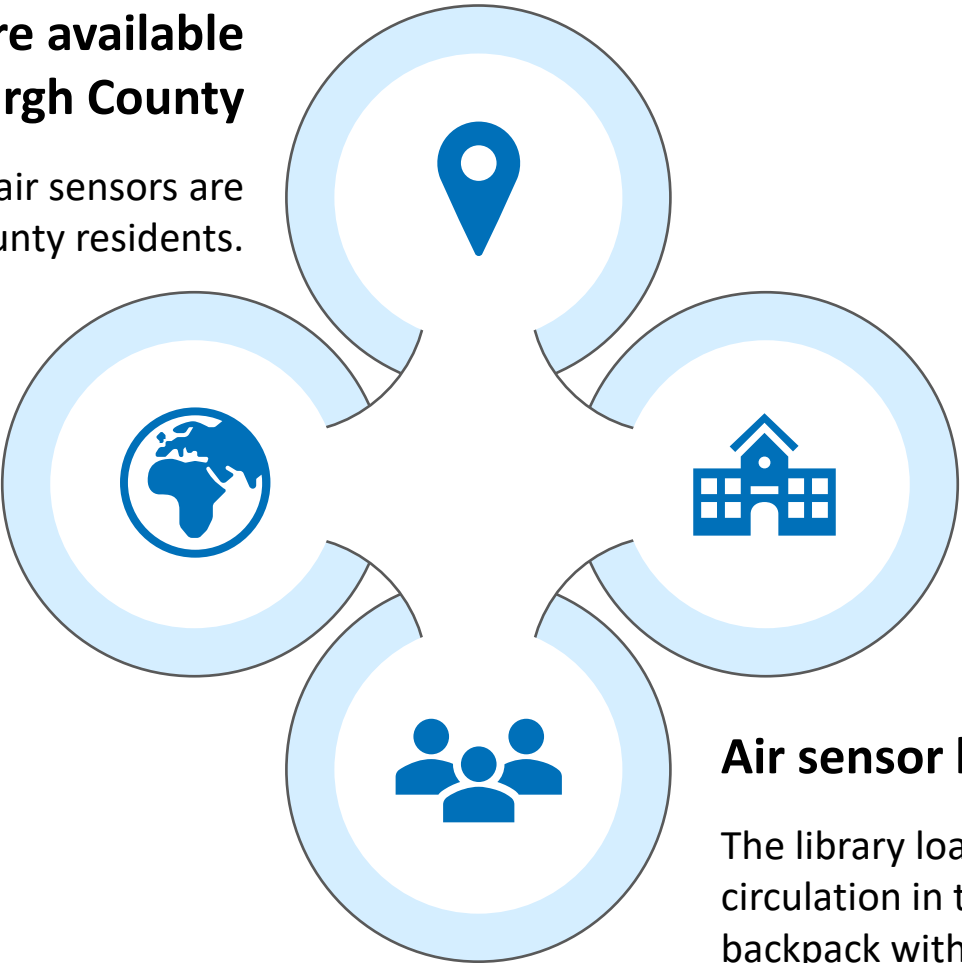
Evansville Vanderburgh Public Library worked in multiple library locations

Air sensor kits are available throughout Vanderburgh County

This means that the air sensors are available to all county residents.

Launched Earth Day 2022

The library hosted programs at the local zoo and nature center. All sensors available for checkout were immediately loaned during the programs.



Air sensor loans to organizations

The library started long-term loans of PurpleAir sensors to organizations in the community: a nature center, river front museum, and a school. The goal is to supplement air monitoring in their community.

Air sensor loans to library users

The library loans AirBeam2 sensor kits through regular circulation in their Library of Things. Each kit includes a backpack with a sensor, phone, instructions, and information about additional resources.

L'Anse Area School/Public Library is working with partners in the community



The school's superintendent with the air sensor loan kit.

This small community library is housed in the middle/high school. The goal was to lend air sensors to residents and use them in education at the school.

COVID delayed the project launch due to decreased staff availability since the staff were substituting in the school.

EPA connected them with an air quality expert in the Keweenaw Bay Indian Community and the local community college to get additional assistance.

Although they are still working out some technical issues, L'Anse Area School/Public Library expects to launch their program in 2022.

The Morton Arboretum developed an educator program

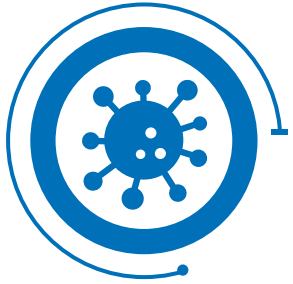


The Morton Arboretum incorporated their air sensor loans into an existing program that trains educators and lends kits to teachers for classroom use.

They took EPA's vegetative barrier lesson plan and created additional curriculum incorporating soil science.

They offered a teacher [workshop](#) in March 2022 and filled the program to capacity with ~40 educators.

Challenges for the program and how they were overcome



Challenge: COVID restrictions delayed program launch

Solution: Loaning institutions had plans in place to launch air sensor loans as soon as restrictions were lifted. They prioritized outdoor programming and events to minimize COVID risks.



Challenge: Loaning institutions were stretched thin and had limited expertise, especially small libraries

Solution: EPA worked with institutions to identify others in the community who could assist them.



Challenge: Reaching more people in rural and remote communities

Solution: EPA worked with state environmental agency and library districts to offer expanded educational opportunities.



Challenge: Smaller staff team in libraries made it difficult for EPA to conduct long training sessions on consecutive days

Solution: EPA offered shorter training on multiple days and opened it to anybody identified by the partners.

Ongoing and future directions for the air sensor loan programs



A family checking out the air sensor kit at Bayliss Public Library.

Bayliss Public Library and the libraries in the **Superior District** library system continue to launch the loan program and support educational programming.

Evansville Vanderburgh Public Library will keep operating their loan program and monitor circulation to identify if success merits purchasing more sensors. The long-term sensors loaned to organizations (3-12 months) will be continue to be accessed.

L'Anse Area School/Public Library is launching their program in 2022 and promoting air sensors education in the school and community.

The Morton Arboretum continues to lend educator kits and provide training, potentially in conjunction with a vegetation barrier project.

EPA Region 5 is supporting the expansion of library loan programs to include additional environmental resources.

Products developed by, through, or for this program:

Lesson plan

EPA developed **The Power of Plants**, an interactive lesson about the relationship between plants and air pollution. The content is focused on how vegetative barriers can improve air quality and how plants can be impacted by air pollution. It includes an instructor and participant guide, participant worksheet with answer key, introductory slide deck, extension activity on urban gardens, and next generation science standards (NGSS) alignment.

Updated AirBeam2 Quick Start Guide

EPA updated the [AirBeam2 Quick Start Guide](#) to help users learn how to set up and use the AirBeam2 sensor. The resource includes a written guide and corresponding presentation slides.

AirBeam2 Instructional Video

EPA produced the [AirBeam2 Instructional Video](#) to walk through using an AirBeam2 sensor. Note that the video was made for AirCasting Application Version 1.5, which is not the current version.

Handouts and promotional materials

EPA and the project partners developed several handouts and promotional materials for library air sensor loan programs. If you are interested in these materials, contact batka.sheila@epa.gov.

The Morton Arboretum Training Curriculum

The Morton Arboretum developed an educator [training curriculum](#) about vegetation, soil science, and air quality that is available online.

Click on the logos or links to learn more about Region 5 partners:



- [Bayliss Public Library](#)
- [DeTour Public Library](#)
- [Les Cheneaux Community Library](#)
- [Pickford Community Library](#)
- [Superior District Library](#)

L'Anse Area School/Public Library



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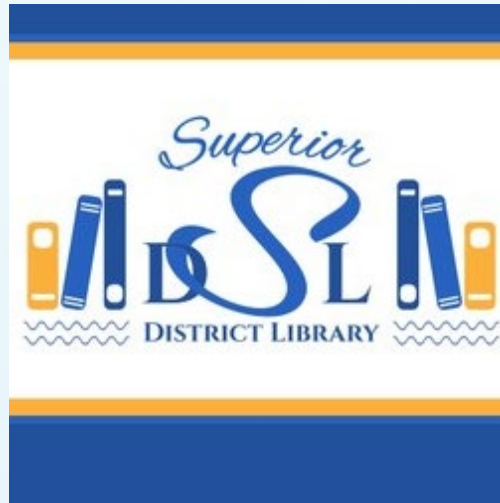
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U.S. EPA Region 5

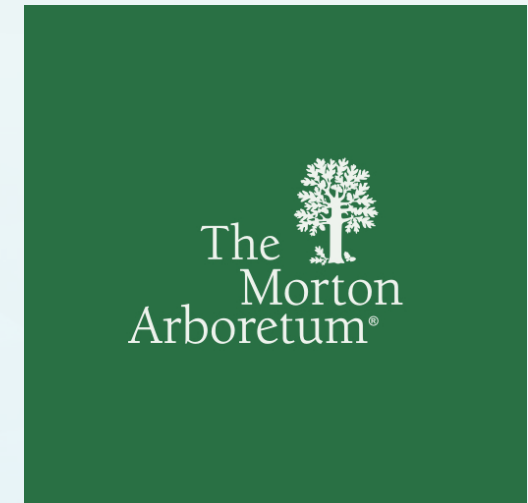
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Air Sensor Loan Programs for Remote/Rural Locations and Living Museum



L'Anse Area School/Public Library





<https://www.epa.gov/air-sensor-toolbox/air-sensor-loan-programs>



Best Practices for Starting an Air Sensor Loan Program

Appendix B: Region 9 Pilot Program

Los Angeles Public Library Air Sensor Loan Program




How to Monitor & Collect Air Quality Data

Why Do Scientists Monitor Air Quality?

Humans, animals, and plants all need clean air to live and thrive. Monitoring air quality in your neighborhood identifies areas where pollution is a problem and helps researchers find solutions.

What's in the Kit?

- ▶ 1 AirBeam2 air quality sensor
- ▶ 1 USB-C charging cord
- ▶ 1 belt clip
- ▶ 1 carabiner clip
- ▶ 1 screw (on the sensor)
- ▶ 1 instructions packet



Rachel Smoak *Student Intern*

Andrea Clements

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Center for Environmental Measurement
and Modeling

June 2022

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EPA Region 9 partnered with the Los Angeles Public Library (LAPL)

About LAPL

LAPL is a large, urban public library with 72 branch libraries serving nearly 4 million Los Angeles residents.

21 branch libraries participated in the library air sensor loan program.

EPA Project Funding

2018 Regional-State-Innovation Project (RSIP) grant

2019 Regional-State-Tribal Innovation Project (RSTIP) grant

Program goal

LAPL identified a general lack of scientific literacy as a problem in the communities they serve, and air pollution as a specific relevant environmental issue in Los Angeles.

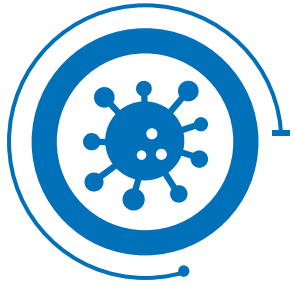
Program implementation

LAPL integrated air sensor loans as part of their Neighborhood Science (NeiSci) DIY science kits program and incorporated the [Air Quality Flag Program](#) in some branches.

DIY kit contents

The kit includes an AirBeam2 sensor, necessary sensor accessories, and an instruction guide to help community members measure fine particulate matter (PM_{2.5}).

Challenges for the program and how they were overcome



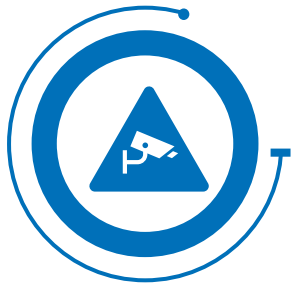
Challenge: COVID restrictions delayed program launch

Solution: Loans were implemented without librarian-led community workshops, which will start when COVID restrictions are fully lifted



Challenge: LAPL needed educational materials to provide air quality information and hands-on activities using the air sensors for patrons

Solution: EPA developed lesson plans relevant to LA's pollution concerns-and trained librarians on how to conduct the lessons



Challenge: New data privacy concerns prohibited the loan of Android phones, which are the only operating system compatible with the AirBeam2 sensors

Solution: The need for an Android device was made clear to patrons, and the Android phones were reserved for future educator sensor kits



Challenge: While librarians were comfortable training patrons on sensor use, they needed additional technical knowledge to teach other librarians about air quality and air sensor background information

Solution: EPA provided virtual training on how to use the sensors and other resources to help librarians facilitate the loan program on their own and connected them to technical experts in their area

Ongoing and future directions for the LAPL air sensor loan program

Additional sensors

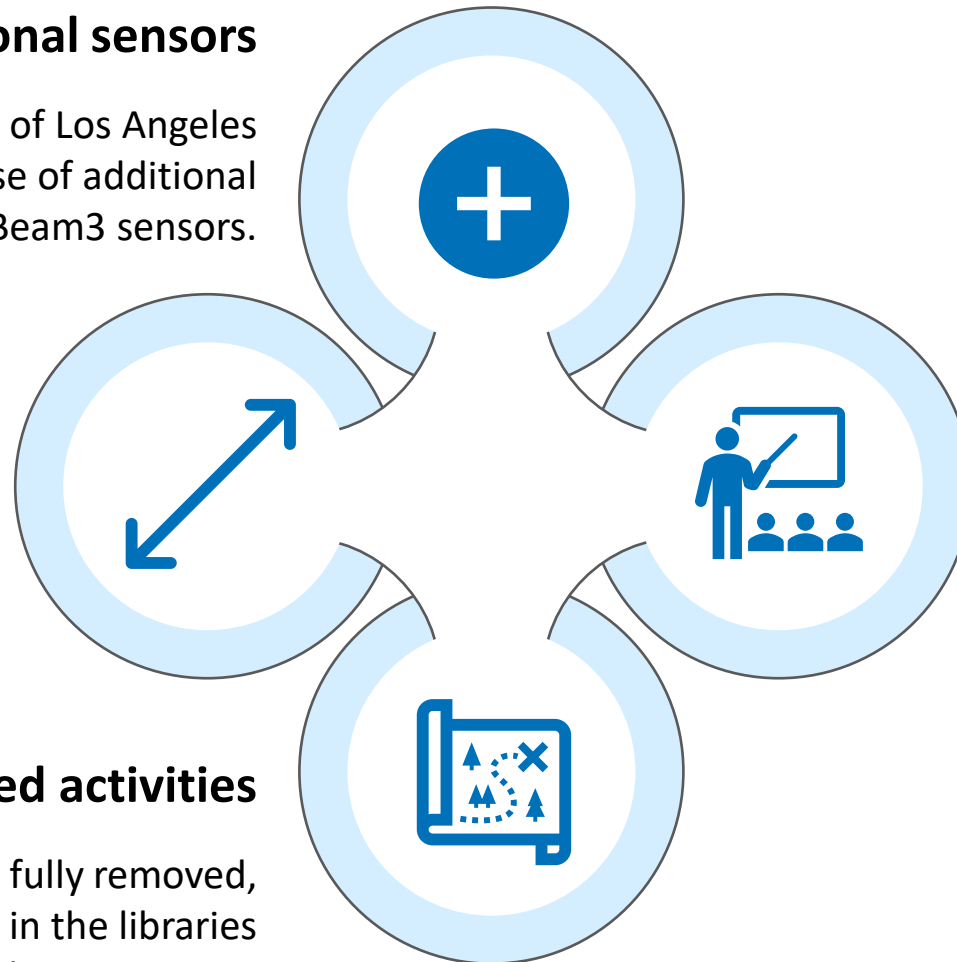
The Library Foundation of Los Angeles agreed to fund the purchase of additional (iOS compatible) AirBeam3 sensors.

NeiSci expansion

LAPL intends to expand their NeiSci (and sensor loan) programs to other LAPL branches.

Librarian-led activities

As COVID restrictions are fully removed, librarians plan to lead activities in the libraries or in local schools using the air sensors.



Facilitator/educator kit

LAPL received interest from educators about incorporating air sensors into their classrooms and programs. To support this, LAPL is creating a kit for longer-term loans that will include Android phones, AirBeam2 sensors, and the 3 fully-developed lesson plans created by EPA as part of the LAPL air sensor loan program.

Products developed by, through, or for this program:

Training slides

EPA produced two presentations for the LAPL air sensor training workshop. They are both publicly available online for anyone to use. The two presentations are:

- [**Air Quality 101: A Background on Air Pollution**](#) – an introduction to important background information about air quality with links to EPA websites where further information is available.
- [**Advanced Topics in Using Sensors to Measure Air Quality**](#) – introduces more advanced information about how to use air sensors to measure air quality and interpret the data.

Lesson plans

Three hands-on, interactive lesson plans were developed for use in the LAPL loan program and more broadly. Each includes an instructor guide, participant guide and worksheet, introductory slide deck, and additional instructional resources. The three are:

- [**What is in the Outdoor Air? Exploring Particulate Matter \(PM\) Sources and Air Quality Outdoors**](#)
- [**Hidden Particulate Matter Indoors! Explore Your Environment**](#)
- [**My Pollution Bubble! Exploring My Personal Particulate Matter \(PM\) Exposure**](#)

Air sensor loan program materials

EPA developed materials to help patrons use air sensors, answer questions about air sensors and air quality, and provide additional resources about topics in the lesson plans. The materials included:

- [**AirBeam2 Quick Start Guide and Presentation**](#)
- **Frequently Asked Questions (FAQs) for Air Sensor Loan Programs**
- **Resource Guide for Air Sensor Loan Programs**

The LAPL/Region 9 loan program provided much of the framework for the Region 5 and Region 10 air sensor loan programs. The training and materials developed for this program were re-used and enhanced in the others.



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Los Angeles Public Library Air Sensor Loan Program

<https://lapl.org/neisci/kits/air-quality>



How to Monitor & Collect Air Quality Data

Why Do Scientists Monitor Air Quality?

Humans, animals, and plants all need clean air to live and thrive. Monitoring air quality in your neighborhood identifies areas where pollution is a problem and helps researchers find solutions.

What's in the Kit?

- ▶ 1 AirBeam2 air quality sensor
- ▶ 1 USB-C charging cord
- ▶ 1 belt clip
- ▶ 1 carabiner clip
- ▶ 1 screw (on the sensor)
- ▶ 1 instructions packet



<https://www.epa.gov/air-sensor-toolbox/air-sensor-loan-programs>



Best Practices for Starting an Air Sensor Loan Program

Appendix C: Region 10 Pilot Programs

Demonstration of a Tribal Air Sensor Loan Program



2020 EPA Regional-State-Tribal Innovation Project

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and Modeling

June 2022

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EPA Region 10 partnered with three tribal communities



Heritage University is a private university located on the Yakama Indian Reservation in Washington. It is designated as a Hispanic-Serving Institution and a Native American Serving Non-Tribal Institution. It serves approximately 1,000 students and the surrounding community.



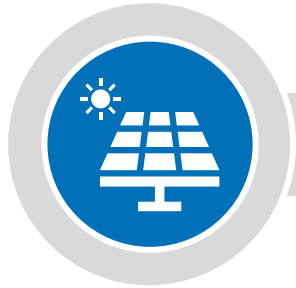
The Institute for Tribal Environmental Professionals (ITEP) was established in 1992 at Northern Arizona University to strengthen tribal capacity and sovereignty in environmental and natural resource management.



The Nez Perce Tribe is a federally recognized tribal nation with more than 3,500 citizens. The Nez Perce Reservation is in north-central Idaho, an area with frequent impacts from wildfire smoke.

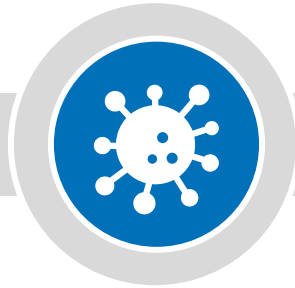
Heritage University empowered students to reach the community

Original plan



The original plan was for students to design and implement a solar-powered PurpleAir demonstration project at a community center which would also offer sensor loans through the University library.

COVID delays



Due to COVID shutdowns, students took sensors home and deployed them in their local communities.

Continued engagement



Students continued working outside the quarter when they were registered for the associated class and were supported as interns through ITEP. They presented their work at the 2021 National Tribal Forum on Air Quality with support from Region 10 staff.

Ongoing education



Educational materials developed for Region 10 air sensor loan programs were adapted and used as a lab in an introductory environmental science course by other ITEP interns. The students presented this work at the 2022 National Tribal Forum on Air Quality.

ITEP loaned sensors to tribal consortia, a tribe, and the Northwest Indian College and supported other Region 10 partners

1

ITEP made initial sensor loans to the Aluet International Association and Craig Tribal Association, both located in Alaska.

2

ITEP also worked with University of Alaska – Fairbanks on a wildfire smoke monitoring sensor project, and sent sensors to the Port Gamble S’Klallam Tribe and the Northwest Indian College

3

ITEP sponsored interns working with the Heritage University and the Nez Perce Tribe air sensor loan programs.

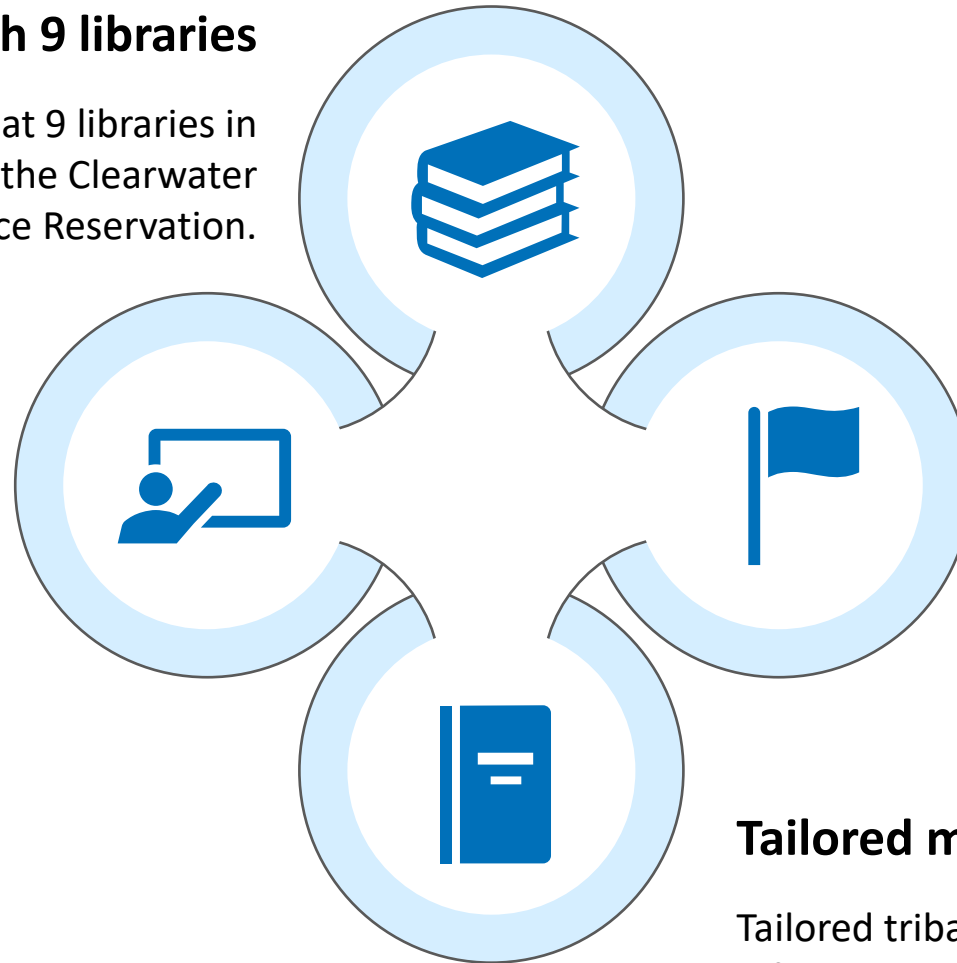
Nez Perce chose to work through local libraries

Worked with 9 libraries

PurpleAir sensors were installed at 9 libraries in the Prairie River Library District and the Clearwater Library, all on the Nez Perce Reservation.

Librarian training

Librarians were trained as air sensor and air quality educators for their local communities. The [AirNow Fire and Smoke Map](#) was a key outreach tool.



Additional programs

Librarians also voluntarily incorporated the [Air Quality Flag Program](#), do-it-yourself box fan air filter demonstrations and kits, and a moisture meter loan program for firewood testing.

Tailored materials

Tailored tribal smoke ready guidance with information in Nimipuutimt, the Nez Perce language.

Stories from librarians on the Nez Perce Reservation:



Peck Community Library

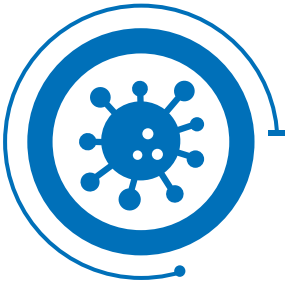
Because the libraries are small, there are not librarians available to change the air quality flag every day. One community resident made sure an updated air quality flag was always available by making their own air quality flag display in their yard and changing the color as air quality changed.



Winchester Community Library

A patron was drawn into the library to ask about the air quality flag being flown outside. The librarian was able to teach the patron about air quality in the area and the effectiveness of DIY box fan filters. The patron drove to the nearest hardware store to get materials to make their own filter and came back to the library to tell the librarians about it.

Challenges for the programs and how they were overcome



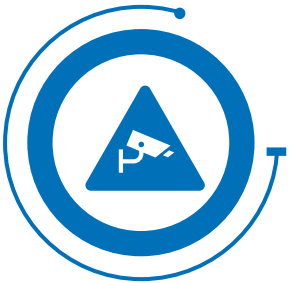
Challenge: COVID restrictions impacted all programs

Solution: Encouraging partners to adapt their programs as they saw need and opportunity allowed programs to thrive despite challenging conditions



Challenge: Need for additional resources that EPA could not provide (e.g., language translations)

Solution: Partners connected with each other and with others who could provide the required assistance



Challenge: Partners were concerned about reporting their location on public air sensor maps

Solution: EPA staff suggested that locations in a nearby public space could be tagged instead of private property or residences



Challenge: Some locations did not have power and internet for sensors

Solution: Heritage University students planned an off-grid adaptation for sensors, and some partners worked with local municipalities to provide power and internet access

Ongoing and future directions for the air sensor loan programs

Heritage University

Heritage's successful EnvironMentors program will use air sensors and lesson plans to engage high schoolers in the local community.

ITEP

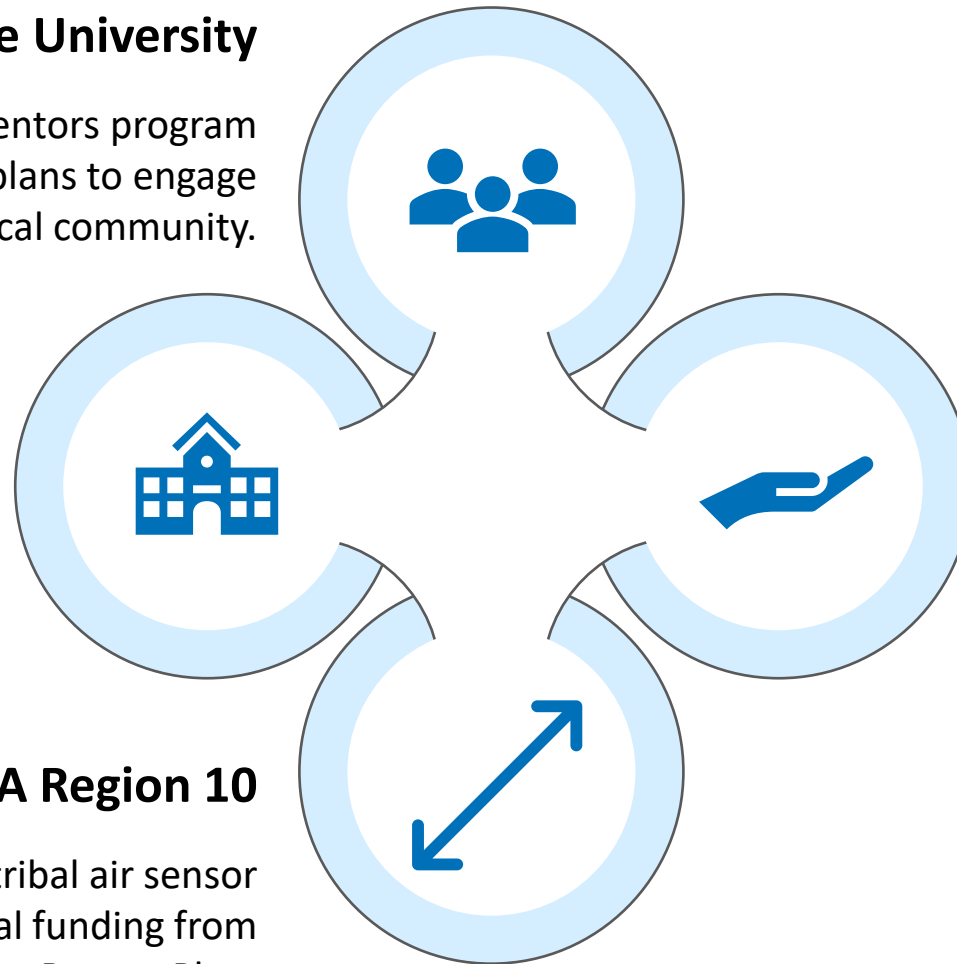
ITEP plans for every tribal-serving school to have an air sensor.

EPA Region 10

Region 10 is expanding the tribal air sensor loan program with additional funding from the American Rescue Plan.

Nez Perce Tribe

Nez Perce is planning to expand their program by incorporating portable fine particulate matter (PM_{2.5}) air sensor loans for more hands-on outreach. They may also loan radon sensors to community members.



Products developed by, through, or for this program:

Lesson plan

EPA developed **Is that Smoke Affecting Me?**, an interactive lesson plan for use in Region 10 programs and more broadly. The lesson is focused on using the AirNow Fire and Smoke Map to understand your air quality and the ways it can be impacted by smoke. It includes an instructor and participant guide, participant worksheet with answer key, introductory slide deck, extension activity, and Next Generation Science Standards (NGSS) alignment.

PurpleAir Quick Start Guide

EPA developed the **PurpleAir Quick Start Guide** to help sensor users learn how to set up and use the PurpleAir sensor. The resource includes a step-by-step guide, presentation slides, and a 2-page version of the guide.

Tribal smoke ready materials

The Nez Perce partners produced smoke ready guidance tailored to the partners. This included materials in Nimipuutimt, the Nez Perce language.

Participant conference presentations

Participants presented on their work with this project at several conferences, notably the 2021 and 2022 National Tribal Forum on Air Quality (NTFAQ). They include:

- [EPA Region 10 Sensor Loan Project in Tribal Communities](#)
- [Sensors, Flags, and Libraries on the Nez Perce Reservation](#)
- [Air Sensor Loan Programs in Tribal Communities](#)

Visit their websites to learn more about Region 10 partners:



**Center for Indigenous Health,
Culture & the Environment**

@ Heritage University

[Heritage University](#)



[Institute for Tribal
Environmental Professionals
\(ITEP\)](#)



[Nez Perce Tribe](#)

Libraries:

- [Prairie River Library District](#)
 - [Craigmont Community Library](#)
 - [Culdesac Community Library](#)
 - [Kamiah Community Library](#)
 - [Kooskia Community Library](#)
 - [Lapwai Community Library](#)
 - [Nezperce Community Library](#)
 - [Peck Community Library](#)
 - [Winchester Community Library](#)
- [Clearwater County Free Library District](#)



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Demonstration of a Tribal Air Sensor Loan Program



**Center for Indigenous Health,
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<https://www.epa.gov/air-sensor-toolbox/air-sensor-loan-programs>