Citizen science participant workbook

Shared research design in a Philippine setting

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Name _____ Council _____ Role _____

Barangay Malinaw is a fictional community where recurring flooding disrupts public routes to the health centre, school and market. A university proposes a six-week pilot using smartphone reports and a public map. Your stakeholder groups will decide a useful question, a feasible evidence plan and shared responsibilities.

Plan the research in this classroom. Do not enter floodwater, make extra hazardous journeys or collect information during an emergency. This exercise gives no approval, funding commitment or emergency warning service.

Work in your assigned stakeholder group. All six groups negotiate one shared design. Meaningful public participation connects a real question, evidence and useful feedback. [1,2]

Minutes	Your task	What to produce
0-3	Stakeholder caucus	Choose a negotiator and scribe. Agree a contribution, concern and condition.
3-6	Opening statements	Six statements, up to 25 seconds each. Listen before debate.
6-14	One shared design	Negotiate the eight worksheet prompts and record remaining gaps.
14-17	Local barrier test	Respond to one barrier. Change a choice and name a responsible partner.
17-21	Shared agreement	Give a 60-second summary, then 15 seconds per group for support, a condition or a concern.
21-27	Reflection	Step out of role: explain a changed decision, an evidence issue and an absent voice.
27-30	Personal next step	Write a real question, partner and decision to explore. Compare with a neighbour.

My question about the task

How the research choices fit together

These are working definitions for this workbook. Disciplines use the terms differently. A participation category or an app does not supply a complete research design. [1-3]

Concept	Meaning	Illustrative route example	Use in your design
Approach	The broad lens and way of working.	A participatory approach gives partners influence over important research choices.	Name how people will work together and which choices they can influence.
Framework	An organising structure of relationships and responsibilities.	A shared agreement connects the question, decisions, evidence, safeguards and use of results.	Check who decides, who is accountable and how concerns receive a response.
Methodology	The reasoning that connects the question with the evidence plan.	Explain why chosen routes, times, contributors and checks can answer the access question.	Justify selection, recording, checking and interpretation; state limitations.
Methods	The practical tools and procedures within that plan.	Examples include a route diary, assisted interview, map or observation form.	Choose feasible tools with comparable fields and an accessible reporting option.
Typology	A way to classify projects using selected characteristics.	Contributory, collaborative and co-created describe participation arrangements.	Describe the actual roles and decisions before applying a category.

Which choices concern tools and which concern the wider design?

A concept I want to clarify

Participation and shared decisions

These are three categories from Shirk and colleagues' wider typology. They describe arrangements, not a compulsory ladder. People may choose different levels of responsibility, and a project may combine arrangements. [2]

Model	Public contribution	Illustrative route example
Contributory	Researchers generally design the study; public participants mainly supply observations.	Residents report access using a prepared protocol.
Collaborative	Public participants may also refine procedures, interpret patterns or communicate findings.	Residents help improve access categories or explain differences between routes.
Co-created	Researchers and community members design the study together; some public participants join most or all stages.	Partners jointly choose the access question, methods and use of findings.

Each model needs meaningful roles, feedback, appropriate methods and an honest account of what participants influence. [1,2]

Which decisions will residents influence in this design?

Who can propose a change, and how will the council respond?

Which role can a participant choose if they want a smaller commitment?

Use your own words. A partner may prefer a limited task; a different partner may want a larger role. [1,2]

Evidence and responsibilities

Use these terms to make the shared agreement clear. Examples illustrate choices to examine; they do not prescribe the answer.

Term	Meaning	Example or decision
Data and metadata	Data are recorded observations or measurements. Metadata describe how a record was produced.	Keep the route rating with its date, time, route code and method. [3]
Protocol	Agreed instructions for a procedure.	Define access categories and a safe observation position. [3]
Sampling and coverage	Which people, places and times supply evidence, and which remain absent.	Phone-only reporting may miss distant routes or people sharing devices. [3,5]
QA and QC	Quality assurance helps prevent errors. Quality control checks the records and process.	Practise categories first; later review unclear records and document corrections. [4]
Uncertainty	What remains unknown or cannot yet be established.	Separate a missing report from an observation of no disruption. [3,4]
Informed participation	An understandable explanation of purpose, tasks, risks and data use, with voluntary participation.	Agree how someone asks questions, raises a concern or stops future participation. [1,7]
Privacy and data access	Necessary collection and clear control over identifiable information.	Decide whether household locations are needed and who may see raw records. [7]
Local knowledge	Understanding developed through sustained experience of places and practices.	Examine why a route accessible by motorcycle may differ for a wheelchair user. [6]
Recognition and feedback	Acknowledging work and returning useful information to contributors.	Agree credit, a review meeting and who responds to questions. [1]

For real research involving Indigenous peoples or knowledge, establish the applicable community, NCIP and institutional processes, including FPIC where required. Community permission differs from individual participation consent. [8] Open science can combine accessible findings with protection of sensitive information or knowledge. [9]

A definition or responsibility to clarify

Shared project agreement questions 1 to 4

Council _____ Date _____ Project question or title _____

Record one shared proposal. Make conditions and changes visible. [1,2]

1 Shared question and intended use

What do you want to learn? Which local planning decision could the findings inform?

2 Shared decisions and accountability

Who shares decisions about the question, protocol and public findings? How can a partner challenge a choice?

3 Participants and coverage

Which routes, times and perspectives will the pilot include? Who might remain absent? How will you record that limitation?

4 Evidence and recording method

What few fields will people record? Which reporting options will you offer? How will you distinguish observation, recollection and missing information?

Shared project agreement questions 5 to 8

Council _____ Continue the same agreement here.

5 Quality checks

What will contributors practise before collection? Who checks a sample, flags uncertainty and documents corrections?

6 Participation support and resources

What time, language, access and cost support does the plan need? Who owns each task? What resources remain unsecured?

7 Consent safety and data access

What is voluntary? What stays restricted? Who can access records? What consultation and review must precede a real pilot?

8 Feedback action and remaining concerns

When will residents review findings? Which office receives them and responds? Record conditions or an unresolved concern with an owner.

Additional barrier raised by the room or discovered during negotiation

Agreed response, relevant design change and responsible partner

Reflection and further reading

Which decision changed because another stakeholder contributed knowledge?

What barrier emerged beyond the examples given? What still needs checking?

My next conversation: a question, a real partner and one decision to explore sharing

Sources and resources

Numbers in the workbook refer to these sources. Working definitions and fictional examples help connect the ideas.

[1] ECSA (2015) Ten Principles of Citizen Science
https://ecsa.citizen-science.net/10-principles/

[2] Shirk et al. (2012) Public Participation in Scientific Research
https://doi.org/10.5751/ES-04705-170229

[3] Tweddle et al. (2012) Guide to Citizen Science
https://nora.nerc.ac.uk/id/eprint/20678/

[4] Freitag et al. (2016) Strategies for credible citizen science data
https://doi.org/10.5334/cstp.6

[5] Paleco et al. (2021) Inclusiveness and Diversity in Citizen Science
https://doi.org/10.1007/978-3-030-58278-4_14

[6] Tengo et al. (2014) Connecting Diverse Knowledge Systems
https://doi.org/10.1007/s13280-014-0501-3

[7] National Privacy Commission Data Privacy Act implementing rules
https://privacy.gov.ph/implementing-rules-regulations-data-privacy-act-2012/

[8] NCIP (2012) Indigenous knowledge research guidelines
https://www.wipo.int/wipolex/en/legislation/details/16036

[9] UNESCO (2021) Recommendation on Open Science
https://www.unesco.org/en/legal-affairs/recommendation-open-science

Role 1 Residents and service access

You represent a fictional residents' association concerned with health care, education and essential services. Members have different ages, mobility needs and care responsibilities.

Knowledge you bring

You know routes and access needs that a visiting team may miss. A route shown as open may still be unsuitable for an older person, a wheelchair user or someone accompanying children.

What you can contribute

Help refine the question and reporting categories, invite wider participation and review how the findings describe access.

A concern to raise

Some residents share a phone, need assistance with a form or hesitate to criticise a service publicly. Raise the design problem without identifying anyone.

A decision you want to influence

Seek a voice in the question, reporting categories and public interpretation. Ask for a confidential concerns route and practical participant benefit.

A trade-off you can consider

A small pilot may be acceptable if it states its coverage gaps honestly and agrees how to improve inclusion.

The role is fictional and represents a particular perspective. Actual community partners must speak for themselves. Use the common agreement to record each group's position. [1,2]

Our contribution and most important condition

A concern from our experience missing from this card

Our opening in up to 25 seconds

Role 2 Livelihoods vendors and transport

You represent a fictional association of vendors, small livelihood operators and transport workers with different routes and working hours.

Knowledge you bring

You notice access changes on market days, early mornings and evenings. An essential journey or delivery may be affected differently from a university visit.

What you can contribute

Help select routes and reporting times and make a short record usable after normal journeys, from a safe place.

A concern to raise

Long forms, lost work time and mobile data costs can discourage participation. Frequently travelled routes may generate more reports simply because people observe them more often.

A decision you want to influence

Shape the schedule and route selection. Ask how the study records opportunities to observe, missing reports and participation costs.

A trade-off you can consider

Consider a brief trial with comparable categories and assisted or paper reporting. Identify resources without promising money that has not been secured.

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Our contribution and most important condition

A concern from our experience missing from this card

Our opening in up to 25 seconds

Role 3 Barangay and LGU disaster risk reduction

You represent fictional barangay and municipal local government staff concerned with disaster risk reduction and access planning.

Knowledge you bring

You know public-route records, maintenance responsibilities and which office could consider a planning recommendation.

What you can contribute

Clarify route names, connect relevant records and propose a review with residents, researchers and the receiving office.

A concern to raise

You cannot promise a drainage project or immediate funding. Unverified reports must not circulate as official safety advice or an emergency warning.

A decision you want to influence

Help define a feasible decision and a usable output. Name the receiving office and a response date. Review must allow critical findings to be reported.

A trade-off you can consider

Support a clear public summary after factual and privacy checks, with limitations visible. Avoid indefinite review delays.

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Our contribution and most important condition

A concern from our experience missing from this card

Our opening in up to 25 seconds

Role 4 University research

You represent a research team responsible for a defensible question, an appropriate evidence plan and an honest account of uncertainty.

Knowledge you bring

You can connect participant and route selection to collection, checks and analysis. More reports do not automatically produce a representative sample.

What you can contribute

Develop a short protocol, organise practice, review a suitable sample and document missing observations and corrections.

A concern to raise

A smartphone form with automatic coordinates may collect excessive detail or exclude people. Accessible options still need consistent definitions.

A decision you want to influence

Agree core recording fields, a verification process and conclusions the evidence can support. Invite partners to challenge categories and interpretations.

A trade-off you can consider

Accept paper, voice or assisted reporting if core categories remain comparable and transcription responsibilities are clear. Narrow scope if necessary; do not promise publication or an accuracy percentage.

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Our contribution and most important condition

A concern from our experience missing from this card

Our opening in up to 25 seconds

Role 5 University extension and student support

You represent extension staff and a student support team concerned with training, manageable work and continuity after the semester.

Knowledge you bring

You understand student timetables, supervision, staff workloads and the practical work behind reporting and feedback.

What you can contribute

Help organise accessible practice, plain-language instructions and a contact system. Students can support agreed tasks under supervision.

A concern to raise

An assessment period reduces student availability during the pilot. Daily follow-up may fail without a different schedule, smaller scope or another capable owner.

A decision you want to influence

Name who handles questions, transcription, equipment, checks and the return of findings. Include support costs and a handover plan.

A trade-off you can consider

Consider fewer routes or less frequent reporting if the question and limitations change accordingly. Do not commit an unapproved permanent team.

The role is fictional and represents a particular perspective. Actual community partners must speak for themselves. Use the common agreement to record each group's position. [1,2]

Our contribution and most important condition

A concern from our experience missing from this card

Our opening in up to 25 seconds

Role 6 Civil society participation and data support

You represent a fictional civil society organisation supporting participation and accountable data use. You are not a confirmed funder or a substitute for residents' organisations.

Knowledge you bring

Language, technology, meeting schedules, confidence and trust affect who joins. Public summaries and identifiable records need different access decisions.

What you can contribute

Advise on invitations, accessible materials, confidential feedback and a clear record of decisions.

A concern to raise

A digital platform could use resources needed for language support, assisted reporting or returning findings. Sensitive records should not become public by default.

A decision you want to influence

Ask what information is necessary, who controls access, how long records are needed and how concerns and corrections will be handled.

A trade-off you can consider

Consider a simple paper-first pilot and modest public summary if participants understand the process and the team protects identifiable information.

The role is fictional and represents a particular perspective. Actual community partners must speak for themselves. Use the common agreement to record each group's position. [1,2]

Our contribution and most important condition

A concern from our experience missing from this card

Our opening in up to 25 seconds