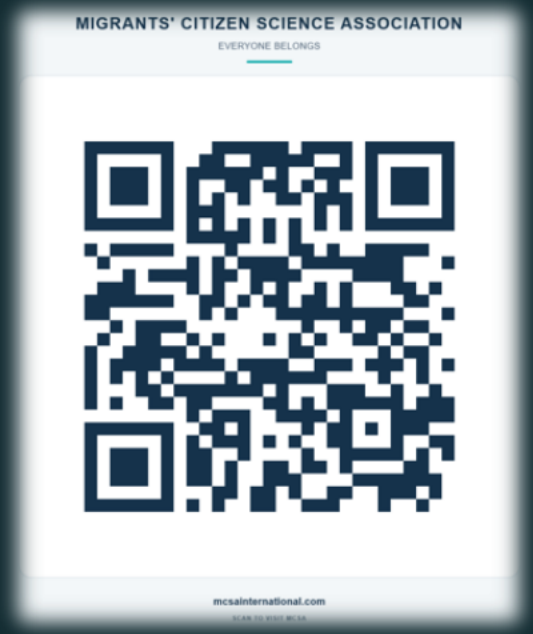
Who gets to shape scientific knowledge?

Citizen science with Philippine communities



Prepared and presented by:

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Chairperson and Founder, MCSA

The MCSA perspective

Whose knowledge do you notice?



Supplied MCSA video. Click the picture to play in Slide Show.

2 min 20 sec

A map of citizen science



What citizen science means

Public participation in research that creates knowledge

A real question

What do we want to learn?

A clear method

What evidence could answer it?

Meaningful roles

What can people influence?

ECSA Ten Principles. Feedback and recognition form part of the design.

How participation can strengthen research

Coverage

Places and times a team may miss

Interpretation

Categories informed by experience

Use

Findings connected to local decisions

What could participation add to your question?

The contribution depends on the design, resources and partnership.

ECSA. Shirk et al. 2012. Benefits require appropriate methods and support.

Philippine examples



MPA-FishMApp

Trained observations of selected fish groups



Mangrove map validation

Ground observations help check the map

Abesamis et al. 2022. Zablan et al. 2024. Supplied illustrations are not photographs of these projects.

Open science and citizen science



Open science

Access to knowledge and research processes

Citizen science

Public participation in making knowledge

Open sharing respects privacy and knowledge rights.

UNESCO 2021. ECSA. Conceptual illustration adapted from the supplied visual reference.

Participation and shared decisions



Contributory

People mainly contribute observations.

Collaborative

People also refine methods or interpretation.

Co-created

Partners help design the study.

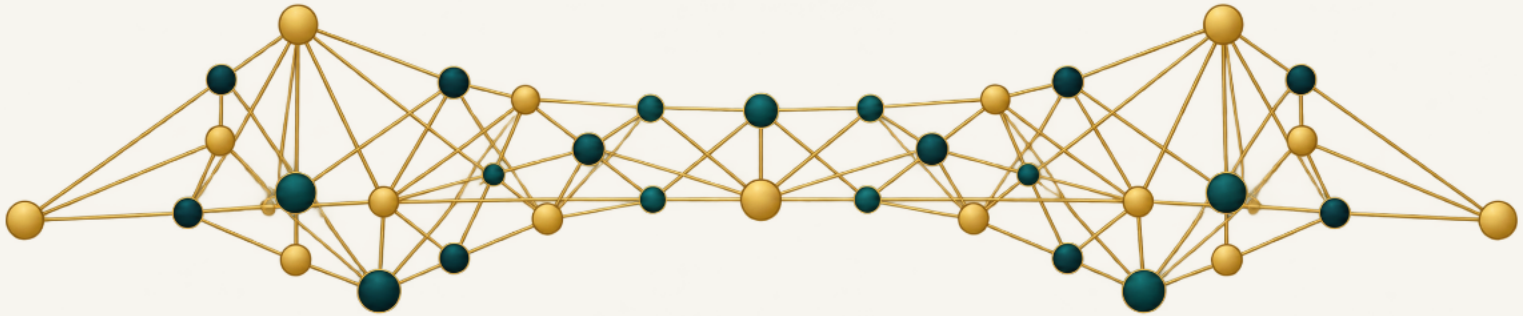
Shirk et al. 2012. Different participation arrangements, chosen for the question. Haklay's framework is in backup slide 25.

The language of research design

Approach	Broad lens	Co-created citizen science
Methodology	Reasoned evidence plan	Sampling, comparison and analysis
Methods	Practical tools	Route diaries and observations
Framework	Roles and rules	Shared decisions and responsibilities
Typology	Classification	Contributory, collaborative, co-created

Working definitions for this workshop, illustrated through one Barangay Malinaw study.

Whose knowledge enters the evidence



Credibility

Whose observations count?

Access

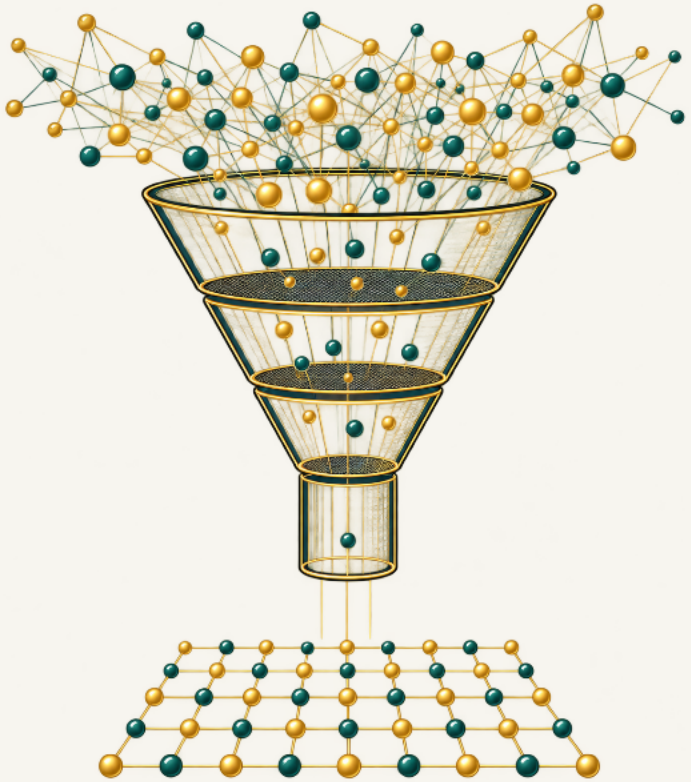
Who can take part?

Coverage

Who remains missing?

Strasser et al. 2019. Kimura 2016. Paleco et al. 2021. Diversity still needs a defensible sampling plan.

Data quality before and after collection



Before

Shared definitions, practice and a pilot

During

Consistent records and visible gaps

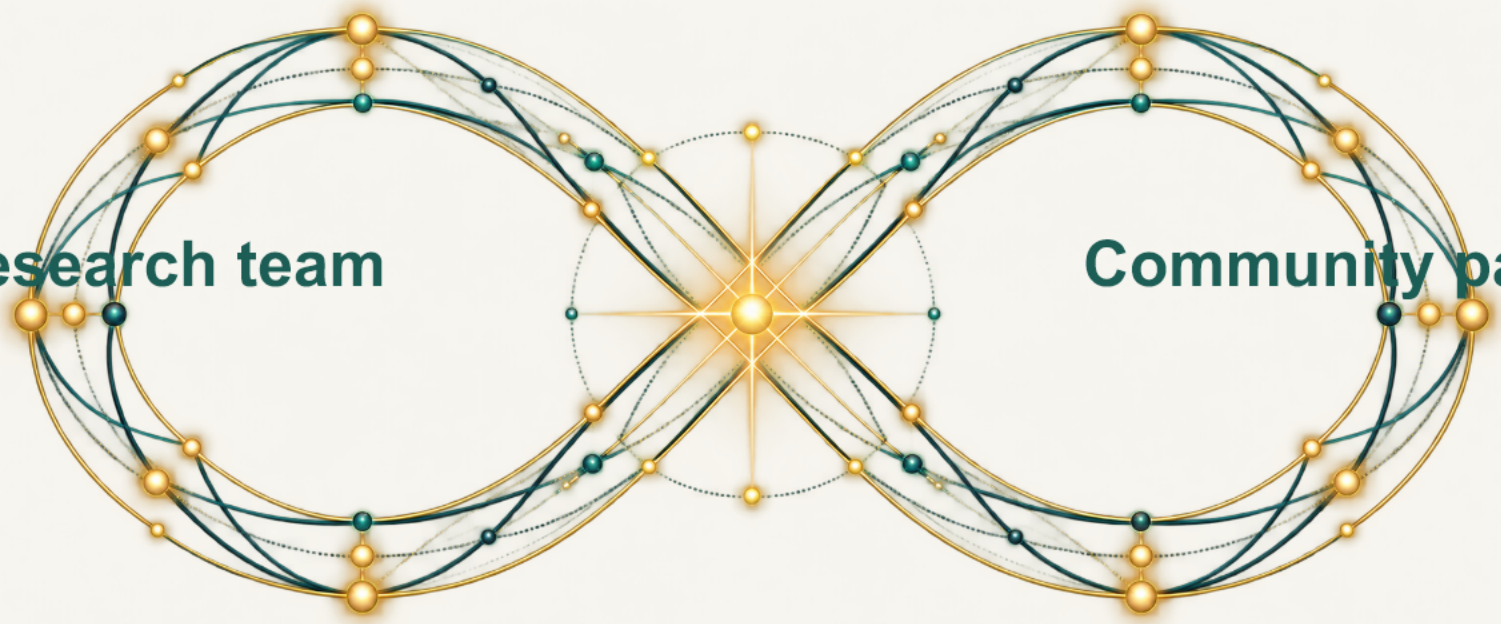
After

Verification and documented corrections

Flag unusual records for review. Report uncertainty.

Freitag et al. 2016. ECSA. The funnel is a teaching metaphor, not a promise that every dataset becomes valid.

Consent privacy and shared benefit



Purpose **Permissions** **Protected information** **Feedback**

UNESCO. NPC privacy rules. Determine applicable community and NCIP requirements before a real project.

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Research barriers and practical responses

Data quality	Protocol and appropriate checks
Institutional recognition	Agreed roles and realistic workload
Language and access	Reporting options tested with participants
Trust and privacy	Shared decisions and proportionate safeguards
Costs and safety	Supported tasks within a feasible scope

What other barrier could arise in your setting?

Examples, not an exhaustive list. Capture one local barrier for the activity.

A fictional barangay research question



Which public routes become difficult to use, when, and for whom?

One shared pilot.
A useful local decision.

Fictional classroom study. Participants design it indoors and do not approach floodwater.

Research teaching and extension

Research

Evidence for a defined question

Teaching

Supervised learning with clear methods

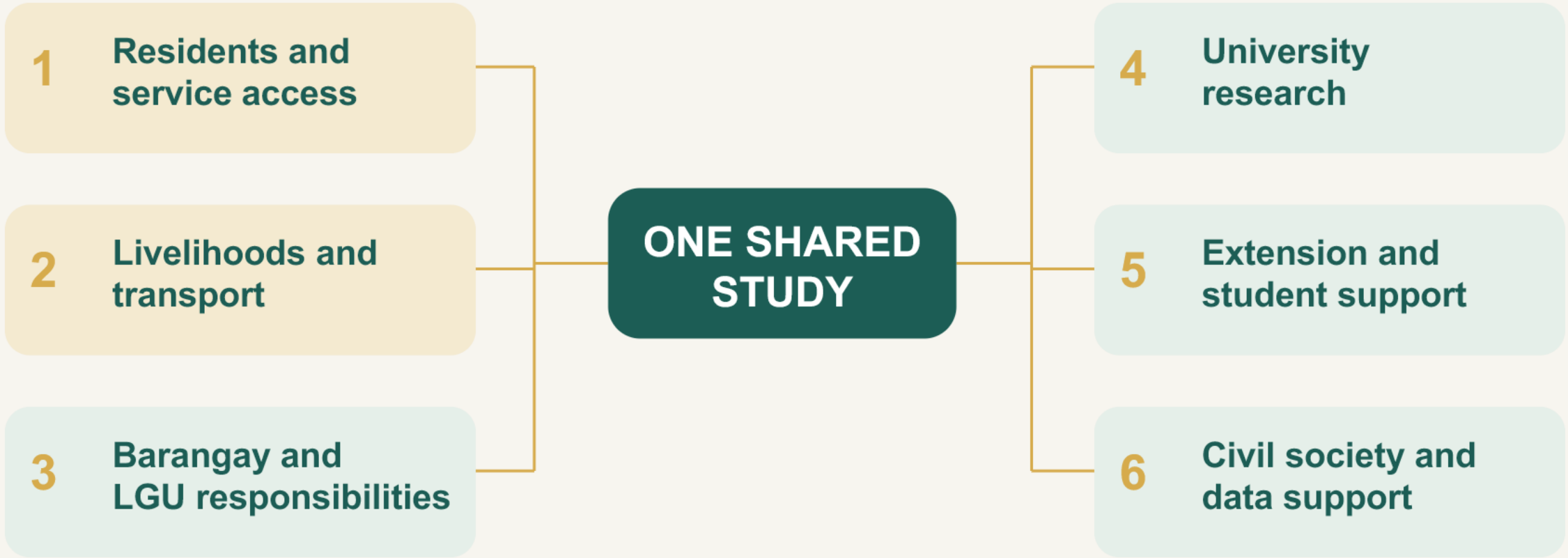
Extension

Reciprocal engagement and usable findings

Time, credit and resources need local agreement.

Possible benefits, not guaranteed publications, funding, institutional credit or policy adoption.

Stakeholder groups and negotiation rules



Each group represents one stakeholder. Resident groups open first. All six groups negotiate one plan.

Stakeholder caucus and opening statements

3 min

Stakeholder caucus

Our contribution
Our concern
Our needed condition

25 sec each

Six opening statements

Within a three-minute round.
Resident groups speak first.

Negotiating one shared design

8 min

One shared research design

- Question and use
- Shared decisions
- Coverage and recruitment
- Methods and records
- Quality checks and limits
- Participation support
- Permissions and data access
- Feedback and response

Delegates negotiate. Advisers send notes. The council scribe records the shared worksheet.

The local barrier test

3 min

The barrier raised by this room

A feasible response

What can change?

A design choice

What will we revise?

A responsible partner

Who follows it through?

The shared research agreement

4 min

A one-minute shared proposal

Support

The design is workable for our role.

Condition

We need a named change or resource.

Unresolved concern

The issue stays on the record.

Each group responds in up to 15 seconds. The scribe records conditions and remaining limits.

What the negotiation revealed

Which decision changed because another group spoke?

The local barrier

What changed in the plan?

Evidence quality

What did you preserve or check?

Missing voices

Who still needs consultation?

A first step for your own research

A question from your own field

A partner

Who should shape it?

A shared decision

What could they influence?

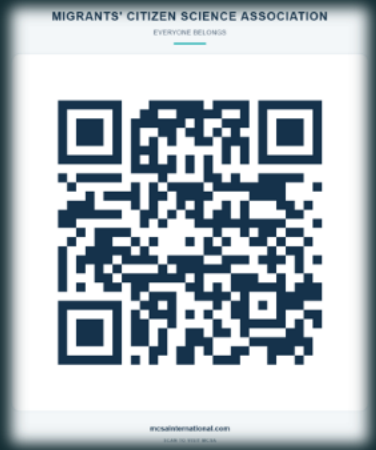
A first conversation

What will you ask before designing?

Questions and a practical invitation

Who will help shape your next study?

Your questions and possible partnerships



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Haklay's four levels of engagement

1 Crowdsourcing	Contribution through observations or sensing
2 Distributed intelligence	Participants contribute interpretation
3 Participatory science	Public involvement in defining problems
4 Extreme citizen science	Collaborative science across stages

Haklay 2013. This is a different typology from Shirk's project models, not a measure of participants' intelligence.

Different typologies answer different questions

Participation arrangements

Contractual
Contributory
Collaborative
Co-created
Collegial

Project characteristics and aims

Action
Conservation
Investigation
Virtual
Education

Shirk et al. 2012. Wiggins and Crowston 2011. Each classification uses a different axis.

History credibility and evidence blind spots

History

Public participation predates today's label.

Credibility

Kimura examines gendered dismissal.

Sampling

WEIRD is a specific behavioural-research critique.

Whose evidence receives attention in your field?

Strasser et al. 2019. Kimura 2016. Henrich et al. 2010. Avoid universal percentages or a single-cause history.

Accessible tools and knowledge partnerships

Accessible tools

Test icons, language and offline options.

Knowledge dialogue

Keep different knowledge systems visible.

Governance

Agree authority, consent and benefit.

A tool can support access. Partners still negotiate the research.

Stevens et al. 2014. Tengö et al. 2014. Applicable NCIP and community processes need project-specific review.

Questions a department may reasonably ask

Can we trust the evidence?	Show the protocol, validation and limits.
Who has time to support it?	Name tasks, owners and resources.
How will contributions count?	Agree recognition and institutional arrangements.
What could the results change?	Name the user, feedback process and realistic decision.

Research quality and support require a defensible design. Publication and policy adoption remain conditional.

Foundational and Philippine sources

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