NorReg Citizen Science workshop 1

Citizen science and its place in regenerative travel

Scoping and determining participatory Citizen Science projects

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Introduction

What is Citizen Science?

Citizen are no longer passive consumers, subjects or recipients of scientific endeavors

New technologies have opened pathways for gathering information on a large scale from the general public

Connecting non-experts, who are curious about the world, with research projects is an extremely powerful instrument

Citizens can shape research agendas and objectives with real community priorities, in collaboration with professional scientists or alone

Citizen science can be a powerful tool for many scientific disciplines

Citizen Science connects academia to curiosity and quest for understanding

The is a natural affinity between citizen science and tourism

- "We define citizen science travel as those activities and tasks you engage with while travelling which fall under the umbrella of citizen science."

https://integotravel.com/citizen-science-travel-guide/

- The natural intersection of citizen science and tourism is obvious: If travelers are already participating in these activities, why not encourage deeper understanding and awareness about the natural world while also advancing scientific research?

https://sustainablebrands.com/read/product-service-design-innovation/citizen-science-engages-travelers-contributes-to-conservation-efforts

Citizen science in tourism can provide benefits for all

- ✦ First, **citizen science helps drive practices of knowledge creation that are not locked away from the public**

- ✦ Second, **citizen science increases society's support, attitudes and behaviours towards research and conservation.**

- ✦ Third, **citizen science helps improve the visibility and acceptability of conservation science research findings**

- ✦ Fourth, **citizen science improves society's scientific literacy**

- ✦ Fifth, **citizen science contributes to research and governmental policy changes, as well as community change.**

Citizen Science shares many qualities with the foundations of regenerative tourism

- Place based

- Participatory

- Co-created

- Giving back

Citizen science can also contribute in a significant way to the discourse on metrics and evaluating thriving and flourishing communities and nature

Scistarter – joining international efforts

https://scistarter.org

https://blog.scistarter.org/2021/12/the-top-21-citizen-science-projects-of-2021/

A good source for exploring available international projects

https://www.youtube.com/watch?v=XLk03c6ypEc

Let's discuss the pilot CS project of summer '22

Breakout session 1:

Types of citizen science projects

Ownership and structure of Citizen Science projects varies according to the involvment of the public

Contractual projects, where communities ask professional researchers to conduct a specific scientific investigation and report on the results;

Contributory projects, which are generally designed by scientists and for which members of the public primarily contribute data;

Collaborative projects, which are generally designed by scientists and for which members of the public contribute data but also help to refine project design, analyse data, and/or disseminate findings;

Co-Created projects, which are designed by scientists and members of the public working together and for which at least some of the public participants are actively involved in most or all aspects of the research process; and

Collegial contributions, where non-credentialed individuals conduct research independently with varying degrees of expected recognition by institutionalised science and/or professionals.

There are many Focus areas within Citizen Science – not only environmental

- See: https://integotravel.com/citizen-science-travel-guide/

Community of knowledge	State, science and citizen	Justice and democracy	Conservation	Sustainable cities and communities
A collaboration between amateur volunteers and professional scientists or experts. The volunteers are willing and able to learn about the project and join in the collaboration to support the expert in the topic being researched. For example, birdwatchers frequently help with conducting bird census.	A collaboration between citizens, the state and science to research a particular topic. For example, some government space agencies may request help with satellite counting or other astronomy-related projects.	When citizen scientists advocate for public participation in science or other science-related matters. Since the public has a stake in what scientists do, we have the right to take part in scientific decisions. An example of this would be the volunteers that got involved after the Fukushima disaster to track radiation levels.	Conservation citizen science relates to both terrestrial and aquatic ecosystems, including our oceans. Citizen scientists can help measure species population, reef health, environmental impacts, etc.	A collaboration between community members, scientists, partner organisations or even local municipalities. Generally, citizen scientists are engaged in collecting essential data relating to important components such as water and air quality, urban forests, infrastructure, etc.

Types of Citizen Science – Examples

- A research project at the Southern Cross University and the University of Newcastle in Australia collects photographs of the undersurface of whale tails as the whales plunge downwards, often taken by passengers on whale-watching tours (https://www.scu.edu.au/marine-ecology-research-centre/whales-and- dolphins/whale-and-dolphin-research/east-coast-whale-watch-catalogue/).

- The same applies to various research projects requiring tourists and other visitors to place their cameras or smartphones on special posts called "Fluker posts" (named after their inventor), take photos and send them to a central repository where they may be used to study for instance the progression of a habitat restoration site or the recovery of a coral reef following a cyclone (https://www.flukerpost.com).

- Bowra Wildlife Sanctuary, previously known as Bowra Station, a large former cattle station in outback Australia long known as a birding "hotspot" and now owned by the Australian Wildlife Conservancy, principally exists as a conservation area but is also involved in visitor management and visitor education in that individuals, study groups or small tourism groups can pay either for day visit or overnight camping to explore the varied habitats and observe birds and other wildlife. Each evening the camp hosts, staff and visitors gather to construct a list of birds seen that day, the estimated numbers and what part of the property they were seen in.

- North Sailing in Húsavík, Iceland, recently launched a citizen science tour for visitors, Whales, Sails, and Science, where visitors participate in Ocean Missions data gathering on the exposure and ingestion of microplastics in the ocean, related to zooplankton abundance and whale presence
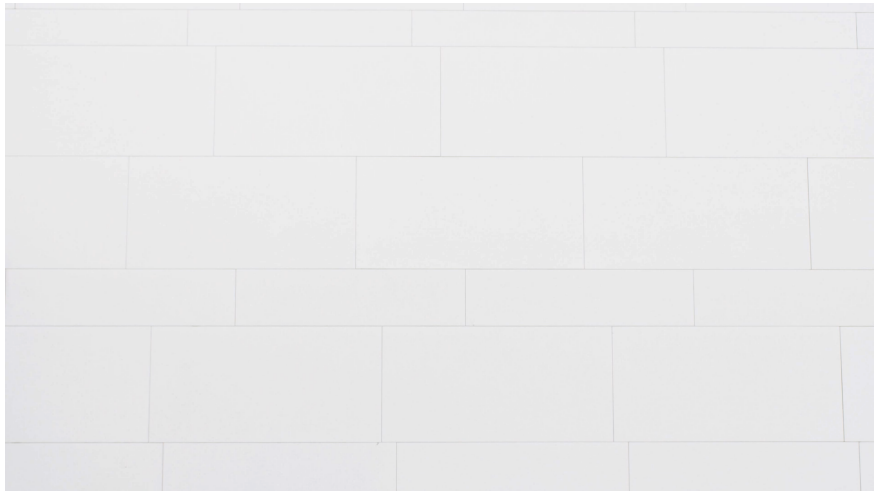
Breakout session 2:

Raising questions about your community and environment

Scoping and defining CS projects

The ECSA has defined attributes for Citizen Science projects

To be true citizen science, according to the European Citizen Science Association a project should have the following attributes (summarised from https://ecsa.citizen-science.net/):

- involve citizens in scientific endeavour that generates new knowledge or understanding.

- have a genuine science outcome.

- provide benefits to both science and society.

- citizen scientists participating in any of various stages of the scientific process, including development of research questions, design of methods, gathering and analysing of data, and communication of results.

- citizen scientists receiving feedback from the project.

- limitations and biases being considered and controlled for.

- where possible and suitable, project data being made publicly available.

- citizen scientists being suitably acknowledged.

- a range of benefits and outcomes being acknowledged and considered in project evaluation.

- the leaders of citizen science projects taking into consideration legal and ethical considerations of the project.

https://johat.org/wp-content/uploads/2022/05/2-green.pdf

Participation to co-creation?

Co-creation implies that not just the generation of research data, but of research questions, and research design, can be carried out in a collaborative manner between interested non-professional researchers and their professional counterparts. As such, this is one of the most challenging – and potentially rewarding – of CS models to deliver on.

Scoping and designing a CS project

Scoping

Scoping the problem is the first step in developing a Citizen Science project. This step sets the foundations of all future planning and entails:

Developing

Developing a research case to be explored by the project

Defining

Defining why it is important and what are the project's priorities

Starting

Starting to identify the key stakeholders and participants that you would like to engage with

Placing

Placing the project in the larger picture of citizen science and crowdsourcing projects, learning basic terminology used and exploring frameworks of existing projects

Planning

Planning the project in terms of tasks, workflows and resources

Scoping relevant, place based projects

Breakout session 3:

Reading list – for reference and inspiration

We compiled a short list, just for your browsing:

Citizen Science references.xlsx

Next steps

- Regional meetings

Meet within the region to discuss:

- Are there any ongoing projects (e.g. environmental monitoring, social and community studies) within your region you could start collaborating within?
- Can you as a group define study questions you would like to study in collaboaration with local academia?
- How would you go about approaching this within your region?
- Would you like to connect to ongoing international citizen science efforts?

- Workshop in Malmö:
  - Regional introductions and discussions of suggested local projects
  - Suggestion for future steps