



Wearables and droneS for CIty socio-environmental Observations and
BEhavioral changE

INCLUSIVE CITIZEN SCIENCE
SOCIOBEE CHECLIST FOR SOCIAL INCLUSION

Maria Lopez Beloso;Mabel Segú;Usue Beloki

UNIVERSIDAD DE DEUSTO



The SOCIO-BEE Project has received funding from the European Union 's Horizon 2020 Framework Programme for Research and Innovation under grant agreement No. 101037648



**Attribution-NonCommercial-ShareAlike 4.0
International**

Sociobee inclusive citizen science checklist © 2023 by María López Belloso; Mabel Segú; Usue Beloki is licensed under CC BY-NC-SA 4.0. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/4.0/>

This checklist was drafted as part of WP6 activities

For more information please contact the authors

María López Belloso

Mabel Segú Odriozola

Usue Beloki Marañon



INCLUSIVE CITIZEN SCIENCE

SOCIOBEE CHECLIST FOR SOCIAL INCLUSION

What is the content of this checklist?

This checklist is a useful tool for all those projects, institutions or individuals who are participating in citizen science processes and want to ensure that no one is left behind and that all processes are inclusive and respect gender equality.

The SOCIO-BEE project doesn't just talk about inclusion; it has an integrated strategy to infuse these values into every aspect of its work. An essential strength of this initiative is its scalability, offering multiple entry points and engagement levels.

While the ideal scenario is maximum participation, the project recognizes that different citizen scientists may assume different roles within the research process. What's crucial is avoiding relegating vulnerable individuals to subordinate roles, preserving their dignity and contributions.

Key Factors Impacting inclusion

The SOCIO-BEE project has pinpointed several critical factors that demand special attention regarding inclusion:

1. **Diverse Participation:** The project actively encourages the involvement of individuals, groups, and associations from all walks of life, weaving together a rich tapestry of perspectives.
2. **Representation and Data:** Emphasis is placed on accurate representation, data disaggregation, and traceability while maintaining confidentiality and data control.
3. **Accessibility:** The physical, virtual, and relational tools used in the project should aim to be accessible to all, irrespective of physical abilities or technological access.
4. **Safe Environments:** The creation of safe spaces, whether physical or digital, is pivotal for fostering the well-being of all participants

What is its purpose?

There is still resistance to the incorporation of inclusive approaches in citizen science. For this reason, the development of a tool that can help people, actors and projects in any discipline and area of knowledge to incorporate the criterion of inclusiveness into citizen science is particularly important and challenging. For this reason, when designing the tool, we have followed a process of interaction with different agents that has allowed us to perfect the tool and its usability.

How can be used?

Above all, the tool allows reflection on the inclusion that the project is achieving, as well as the exclusionary effects that it may have, with a view to minimizing the latter and ensuring that the project achieves the maximum possible incorporation of diverse citizens.

The optimal way to use the tool is the collaborative reflection of the different instances of the project that precedes the response to each of the items of a Likert scale that specify the factors of inclusion in citizen science, grouped into four blocks: representativeness, data collection/analysis, accessibility and safe spaces.

To encourage this reflection, the tool incorporates, as stated above:

- The justification of the importance of each inclusion factor.
- Explanatory rubrics of the components of each scoring threshold on the scale.
- Information on the keys and topics to reflect and deliberate on in each of the project phases.
- Resources to deepen each inclusion factor

The tool asks the respondent for a numerical self-rating on the Likert scale for each of the items, and a qualitative response for each self-rated item below 4, describing opportunities for improvement.

The levels based on the location on the scale are as follows:

- 1-2,5: **LOW**
- 2,6-3,9: **MEDIUM**
- 4-5: **HIGH**

It can be affirmed that the tool is demanding, as a high level of inclusivity is achieved with a self-assessment of 4 out of 5

SOCIO BEE INCLUSION AND NON-DISCRIMINATION CHECKLIST

1) Representativeness of the hive (Community)

1) Are we excluding any group of people belonging to the community?

Not at all 1 2 3 4 5 Completely

Rubrics	
1	No reflection on exclusion has been made or the team is aware of the exclusion made by not incorporating in the project (either by themselves or by representation) some people or groups that are part of the community in which the project takes place or upon whom the project has an impact.
2	The groups that are part of the community participate in the implementation of the project, but for various reasons are not represented in the decision-making bodies. This exclusion has not been ethically justified.
3	The project appreciates and celebrates diversity and promotes a positive narrative of diversity. Although not all individuals and groups are represented in all the roles of the project, there are leaders from these groups in the project's decision-making bodies.
4	An inclusive approach throughout the project has been incorporated. A representation of all persons and groups in the community exists among the project participants and decision-making bodies. The project has identified the interests, needs, concerns and preferences of the people and groups that are part of the community. These elements are described in the project memory.
5	In addition, resources (technological, educational...) have been planned and implemented so that people and groups that are part of the community can actively participate in the project, both as beneficiaries and as active participants and decision-makers. Decisions result from the advice and recommendations offered by these people and groups. Pilot groups have been carried out to ensure that the project promotes inclusion.

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Why is this important?

It is a question of reflecting on whether we are leaving out any group and/or person that is a potential participant in the project or is a potential beneficiary thereof. We have to be aware that non-inclusion is unfair and generates inequality and exclusion. Therefore, the efforts and actions that

equal participation in a project may require is a matter of equity. The representation of groups in the project team will ensure that their interests and rights are always considered.

Participation implies both presence in the different roles of the project and consideration of the needs, benefits, preferences, concerns... of different people and groups related to the project.

According to the different Citizen science phases:

Before starting: Identify the people and groups who are part of the community in which the project is being developed or upon whom the project has some impact. Reflect on their right to participate in its actions and benefits.

Reflect on the exclusion that we might foster with our project. Identify dynamics of vulnerability/exclusion that might be reinforced or fostered by the citizen science project (focus on theme, community and typology of citizen science to be implemented)

When creating the team/first steps: Reflect on the opportunities that may be missed by not adopting an inclusive approach in the choice of the citizen science approach; when formulating the research question or problem identification; and in the definition of the objectives.

In the definition of the project team: Reflect on the representation of diverse groups. If not all groups are represented, think about what the reasons may be. Ensure that they have been invited to participate. In case of non-acceptance, reflect on what the reasons may have been and consider implementing the actions that could favour their incorporation.

Reflect on which may be the interests, concerns, preferences, needs of the groups that are part of the project community.

Development phase: Reflect on what requirements (informational, material, technological, dedication...) established for the collection of information or for participation could favour the exclusion of some groups from the project. Identify the ways to avoid that exclusion.

Live phase: Be vigilant vis-à-vis the disengagement of any group from the project; identify which group it is and what the reasons may be. Reflect on whether there is something that can be done to reengage them. Identify the resources that would need to be put in place to overcome the reasons for their disengagement.

Analysis and reporting: Verify that the questions analysed are of interest to all groups in the community where the project is implemented. Make sure that the representatives of the different groups can propose elements, variables... to be analysed. Think about what should be done if the results of the project tend to be exclusionary.

2) Axes of exclusion relevant to the project have been identified

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	No reflection has been made on the axes of inequality.
2	The possible axes of inequality have been analysed and those that may affect the equity of the project have been identified. Criteria established for the definition of the different roles of participants may include exclusionary axes. As a result, the most vulnerable people tend to play the lowest roles.
3	Strategies, actions and resources that should be implemented to ensure effective non-discriminatory participation have been identified, as a consequence of reflection on axes of inequality. They have been partially implemented.
4	Strategies, actions and resources identified to avoid exclusion resulting from the axes of inequality in the project have been implemented. Moreover, special care is taken to ensure that these actions do not result in the labelling of individuals.
5	Strategies, actions and resources identified to avoid exclusion resulting from the axes of inequality in the project have been implemented without labelling people. There is a commitment to take corrective actions when an unintended impact resulting from an axis of inequality is identified.

Why is this important?

At its core, social exclusion is an unjust social inequality resulting from the mismanagement of diversity. Good diversity management requires identification of which specific conditions of the people in the target community and of the participants may require attention and/or specific actions so that inclusion of those groups is guaranteed.

According to the different Citizen science phases:

Before starting: Reflect on the identification of the research question and the choice of the citizen science approach. Identify the axes of discrimination that are most likely to affect the equity of project outcomes and the ones that are most likely to affect participation in the project.

When creating the team/first steps: Identify whether there are axes of inequality that are excluding people from participating in the project. Identify the appropriate representation of victims of inequality in terms of access to the different roles.

Development phase: Identify what requirements (informational, material, technological, dedication, etc.) established for the collection of information may favour the exclusion of some people from the project due to their social conditions. Reflect on how these can be remedied.

Live phase: Think about whether there are some people who are disengaging from the project in some way. Identify who are and reflect on what the reasons may be.

Analysis and reporting: Consider the axes of discrimination in the interpretation and dissemination of results.

3) Would people outside groups and associations have a way of participating in the process?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	Targeted calls for participation are made only at the beginning of the project.
2	Targeted calls, brochures, advertisements, social networks or presence at events organised for other purposes encourage participation, but only at the beginning of the project.
3	Open own-initiative participation is allowed (on-site or on-line) but only at the beginning of the project.
4	Two of the former are maintained throughout the project and allow for incorporation at different stages of the process and in different roles.
5	Incorporation at different stages of the process is allowed and different types of participation and involvement are fostered. When the project is completed, participants are provided with opportunities to participate in other citizen science projects of the group.

Why is this important?

The objective is to identify inclusive, flexible and everyday forms of recruiting people in the project that allow participation as a private citizen. It is also important to allow different types of participation, with greater or lesser involvement

In order to avoid the risk of the same actors and groups being represented in all citizen processes while others are not convened, an effort should be made to incorporate new forms of participation and recruitment (Dardier, 2021; Woods et al., 2021). It is likely that people, especially the most vulnerable populations, have or may have the desire to participate, but it is also likely that they do not know how to do so (Holroyd-Leduc et al, 2016).

Various forms of interaction allow for the participation of different types of audiences, depending on their interests and capacities. This ensures multiple entry points and varied participation methods with varying degrees of interest, willingness and commitment. However, the existence of different levels should not be an excuse to keep the most vulnerable or less well-resourced people at the lowest levels, without the possibility of changing their role. It is important that individualized participation is allowed and fostered during all phases of the project.

According to the different Citizen science phases:

Before starting: Identify who the main target of the project is; who the project wants to reach and who the project wants to engage.

When creating the team/first steps: Reflect on the stakeholders and on the individual participants to be included in the project. Identify who is missing. Decide whether an open call is going to be made. Identify the channels that will be opened to recruit participants and foster participation. Identify whether there is a point at which it is very difficult to engage effectively in the project. Think about whether this happens in all the roles.

Development phase: Identify possible community events, and resources... that are opportunities to recruit project participants. Identify ways to join the project once it has started and think about what would be needed. Think about drawing up a protocol for new incorporations.

Live phase: Think about what can be done if someone wants to join the project team in the live phase and think about what would be needed. If a protocol was drawn up, implement it.

Analysis and reporting: Reflect on the contribution that an individual participant could make to the analysis and reporting of the project results. Reflect on how the results are communicated to individual participants. Identify the benefits derived from their participation.

4) Is there a balance between men and women?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	There is an over-representation of males in the working team and in the project membership.
2	Some female participate but in a residual way and without any responsibility in the process.
3	There is a considerable and representative number of females in the team, but they occupy residual and non-responsible roles.
4	The project is aware of the need to include male and females and to share the responsibilities in the work team equally.
5	The project takes the necessary measures to ensure non-discrimination and equal participation of men & women from different groups (belonging to axes of inequality)

Why is this important?

An 'inclusive citizen science' practice encourages engagement from all members of society, whatever their social status, sociocultural origin, gender, religious affiliation, literacy level, or age. As stated by Paleco et al. (Paleco et al. (2021), for citizen science to be inclusive, it must involve people from these diverse groups. However, this inclusion is not always easy. Thus, Pandiya et al (2018) point out that these citizen science processes often do not reflect and include all demographic profiles. This ethno-demographic disproportion is also repeated in analyses of citizen science projects in the field of biodiversity (Theobald et al. 2015; Burgess et al. 2017) or ornithology (Edwards et al. ,2018), while in a study conducted by OPAL, people with disabilities were the least represented (2019).

There must be a balance in the participation of men and women to ensure that the results of citizen science projects are representative and reflect the reality of the contexts in which they operate. It is also necessary to be aware of existing gender discrimination and the need to implement measures to ensure that no person is discriminated against based on gender.

It is important that equal participation is ensured and promoted during all phases of the project.

Before starting: Reflect on the demographic reality in which citizen science is going to operate. How does it affect women and men, and is there any element that determines the discrimination of any group on the basis of gender?

When creating the team/first steps: Is there equal participation of people in your community? Do they have the same access? Do they have equal rights? Who is missing? Does the project aim to respond to the needs of women and men? Who is the main target of the action?

Development phase: Who is the subject and object of the data collection (situated knowledge)? Do we have disaggregated data? Can everyone have equal access to the data? Are there any technological barriers that make it difficult for any group to access the data (digital divide)? Have we developed affordable support materials? Before implementing the action, have we piloted and tested the action protocols to check that no one is left out?

Live phase: Is everyone equally involved in the promotion and dissemination of the project, who exercises responsibility, and is anyone excluded?

Analysis and reporting: Who analyses and reports the data? Is our data disengaged? Do we return the results of our project to the people affected by the action? Who evaluates the data collected and its representativeness?

5) Has the role of these women in the project been considered?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	No attention is paid to gender-balanced participation
2	The project seeks mere numerical parity in the team without addressing the division of roles and responsibilities.
3	The project is aware of unequal gender roles but does not implement actions to reverse this inequality.
4	The project identifies measures to ensure an equitable distribution of gender roles in the project.
5	The project implements measures to ensure an equitable distribution of gender roles in the project.

Why is this important?

The non-participation of some sectors of society in citizen science has repercussions and clear injustices arise from this non-participation. It is therefore essential to consider who is and who is not represented in citizen science to begin to address inequalities (Pateman, R, Dyke, A and West, S. 2021. The Diversity of Participants in Environmental Citizen Science. *Citizen Science: Theory and Practice*, 6(1): 9, pp. 1-16. DOI: <https://doi.org/10.5334/cstp.369>) There are different studies with different results on which sectors of the population participate most in citizen science, but there is no consensus in the literature on who participates most, where, and in what type of projects. What is clear is that for the results to be representative, citizen science needs to include diversity and gender equality in the design of projects, sample design and participation in data collection.

According to the different Citizen science phases:

Before starting: Reflect on how unequal participation could impact the result of your research and how citizen science is going to operate. Who defined the priorities, was it a participatory and supportive process, did it arise from a community need?

When creating the team/first steps -What role do men/women play in the project? Do women occupy stereotypically female (secretary, research assistant...) and traditionally little recognised roles? Who leads the processes? Who will and who will not benefit from the results of citizen science? What opportunities can be missed by not taking into account the relevance of sex and gender?

Development phase: Who is the subject and object of the data collection (situated knowledge)? Do we have disaggregated data? Can everyone have equal access to the data? Are there any technological barriers that make it difficult for any group to access the data (digital divide)? Have we developed affordable support materials? Before implementing the action, have we piloted and tested the action protocols to check that no one is left out?

Live phase: Is everyone equally involved in the promotion and dissemination of the project, who exercises responsibility, is anyone excluded?

Analysis and reporting: Who analyses and reports the data? Is our data disengaged? Do we return the results of our project to the people affected by the action? Who evaluates the data collected and its representativeness?

6) Is inclusive language used?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	No attention is paid to language
2	The project uses generic terminology and adheres to the grammatical rules of each language.
3	The project is aware of the importance of language and as far as possible includes the feminine and masculine of terms rather than generalising.
4	The project provides a guide to language and pronoun usage that allows for free self-identification of subjects in joint interaction and inclusive communication.
5	The project ensures the use of language and pronouns that allow free self-identification of subjects in joint interaction and inclusive communication.

Why is this important?

Language is one of the key determinants of cultural and social attitudes. Language is indeed powerful, and dynamic, and defines the way we see reality. The language we use to communicate is the basis for our connection to others, to our environment, and our own identity. Inclusive language is crucial for creating an environment that respects and values the diversity of individuals, including gender diversity, people with disabilities, the elderly, and children. Identifying ourselves in our terms, with the pronouns we choose and being recognised with inclusive words is part of the democratisation of language and pride in who we are (UN 2022). Therefore, using inclusive language is an extremely important way to promote gender equality, non-discrimination, avoid ageism, xenophobia, and combat biases. Language has a powerful influence on our perceptions and attitudes. By using inclusive language, we challenge preconceived notions and avoid reinforcing negative stereotypes or biases that can marginalize or exclude certain groups of people. However, inclusive language is not limited to people who consider themselves part of the binary of male and female. Inclusive language promotes respect and dignity for all individuals, regardless of their abilities, age, or stage of life. It recognizes that every person deserves to be treated with fairness and without discrimination. By using inclusive language, we acknowledge the inherent worth and value of every individual, fostering a more inclusive and compassionate society.

For certain people in the LGBTQ+ community, such as transgender people who do not identify with the sex they were assigned at birth, or people with non-binary identities who do not wish to identify as either male or female, language is key to their self-identification and inclusion in society. This is where the aforementioned pronouns come into play. These people may choose to express their identity through the grammatical gender feminine or masculine, while others are not comfortable with these constructions and may choose other ways of expressing themselves.

Using language that is accessible and respectful ensures that everyone can fully engage and be involved in conversations, activities, and decision-making processes.

Depending on the different phases:

Before starting: Does the language used include rather than exclude people? Does the language used acknowledge, accept and celebrate differences? Is the language used welcoming to everyone?

When creating the team/first steps: Does the project use a language that favours and promotes the integration of different groups? Is there a policy of using pronouns that promotes self-identification?

Development phase: When addressing or referring to someone, the project has clear guidelines for using forms of address (courtesy title), personal pronoun and adjectives that match their gender. The draft avoids the use of expressions with a negative connotation that stems from a stereotypical conception of gender characteristics.

Live phase: There are clear guidelines to avoid expressions that perpetuate stereotypes about socially assigned gender roles.

Analysis and reporting: The project makes gender visible when the communicative situation demands it, using techniques such as splitting, the use of typographic strategies or the explicit indication of all the groups affected.

7) If the project has any impact on the groups involved, is this impact equal and are people aware of what this impact might be?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	No analysis has been made of the foreseeable impact of the project on the different groups involved or on the community in which the project takes place.
2	An analysis has been conducted of the foreseeable impact of the project on the different groups involved and on the community in which the project takes place. All the different groups and people are aware of what this impact may be. However, no form of verification has been envisaged to confirm that this impact is taking place, or if it has been done, the results are not being shared.
3	Milestones are foreseen during the process to verify the impact of results on the community and on the groups involved in the project. The progress on project results is reported from the outset and at various points during the project, and shared with the participants.
4	In addition, unequal impact eventually drawn from the provisional results is corrected by measures taken on purpose. Participants feel that their actions are having an impact.
5	It can be said that the benefits of the project impact equally all groups of the community or/and involved in the project in similar fashion. Contribution of the participants' actions to the achievement of the results is recognised and transmitted.

Why is this important?

Inclusive participation requires that the impact of the project is equal and that participants are able to perceive the real impact of their actions in the project.

According to the different Citizen science phases:

Before starting: Reflect on the foreseen impact of the project and on its equity. Think about how privilege for less vulnerable groups can be avoided.

When creating the team/first steps: Identify leaders or representatives of vulnerable groups who could supervise the equity of the project outcomes.

Development phase: Identify milestones to verify the impact of results in the different group. Anticipate an analysis of the relationship between the actions taken by participants and the results obtained by the project. Consider planning pilot projects with the groups to assess the foreseen impact during the implementation of the project.

Live phase: Identify representatives of the different groups who could supervise the collecting of data in order to avoid any possible discriminatory treatment. Think about what will be done if data of a specific group is missing. Ensure that participants are aware of the actions being taken and the results being achieved. Verify that the contribution of their actions to the results is communicated to the participants.

Analysis and reporting: Reflect on what would be done if the results were detrimental to a group or community. Identify representatives of the different groups who could supervise the analysis and reporting in order to avoid any possible discriminatory interpretation and to ensure possible positive interpretations. Ensure that both the actions taken and the results achieved are reported.

8) Has the project reflected on how the results will be disseminated in order to be inclusive?

Not at all 1 2 3 4 5 Completely

This implies both having inclusive access to the results of the project and being recognised as a contributory participant to the results

If your answer is below four, please specify this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	There has been no planning with regard to the dissemination of the results and/or participation in the project is not certified.
2	Although participation in the project is certified when required, most of the people participating in the project are excluded from access to the results.
3	Most of the people and groups participating in the project are aware of and have access both to final and intermediate results. Participation in the project is certified. Every organization, association and body participating in the project is named in the project results and publications.
4	Every person and group participating in the project is aware of and has access both to the final and to intermediate results. The results are disseminated to the whole community by different channels: blogs, online articles, videos... Participation in the project is certified. Every organization, association and body participating in the project is named in the project results and publications.
5	Every person and group participating in the project is aware of and has access both to final and intermediate results. The results are disseminated to the whole community by different channels and in a comprehensible and accessible way, both technically and economically. Participation in the project is certified. Every organization, association and body participating in the project is named in the project results and publications. All citizen scientists are named in the project results and publications.

Why is this important?

Inclusive dissemination of citizen science results is not only ethically sound but also enhances the overall impact and sustainability of the project. It ensures that the benefits of the research reach a broader audience and that diverse perspectives are respected and valued throughout the communication process. Inclusion aligns with ethical principles in research and science communication. Ensuring that results are shared in a manner that respects the dignity and diverse perspectives of all participants promotes fairness and ethical conduct. It empowers citizen scientists by recognizing and valuing their contributions and fosters a sense of ownership and pride among participants, reinforcing the idea that their efforts are integral to the project's success. Inclusive communication methods consider various formats, languages, and accessibility needs to ensure that

the results are accessible to a wide audience. This may include providing information in multiple languages, using plain language summaries, and offering alternative formats for those with visual or hearing impairments. Especially because Citizen science often involves local communities. Inclusive dissemination engages these communities by making the results relevant and accessible. It encourages ongoing dialogue and collaboration, fostering a sense of shared responsibility for both the process and outcomes.

According to the different Citizen science phases:

Before starting: Reflect on the justice of the acknowledgement of the authorship. Reflect on the accessibility of data and results.

When creating the team/first steps: Decide whether the participants will receive the data results directly. Reflect on whether these data will be understandable for the participants. Reflect on the authorship and decide what is going to be recognised in terms of participation.

Development phase: Identify the moments in which the data and results of the project will be shared and the means that will be used for sharing.

Live phase: Think about what would be done if the data or results were not reliable or comparable with data coming from official sources. Think about whether they should be shared.

Analysis and reporting: Identify the means that will be used for disseminating. Reflect on whether they are inclusive and identify what needs to be done to increase accessibility. Contemplate ways to recognize contributions in a fair way. Ensure that the whole community has access to the data and results.

2) Data collection/Data Analysis

9) Is data disaggregated by participants taking into account axes of inequality?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	The project does not disaggregate data or pay attention to diverse representation
2	The project only disaggregates data on those issues where the target groups are different.
3	Disaggregation does not take into account the intersectionality of the data.
4	The project wants to reach the targets across all sectors of the population, making inequalities within countries and between individuals visible,
5	The project can measure and identify complex and interrelated phenomena.

Why is this important?

Disaggregating data—dividing data into samples to share nuances and outcomes of different groups

“While disaggregated data is important, it is not a ‘box-ticking’ and standard exercise, but instead a critical and context-specific element of the profiling methodology.” [\(IIPS 2022\)](#)

‘Disaggregation’ alone is not enough to ensure diverse representation. Thus, disaggregated analysis is key and requires strategic inclusion of relevant groups at the early stages. This requires critical reflection on the reasons for and methods of disaggregation.

Recognizing the critical role different groups can play regarding citizen science means that their meaningful engagement should be considered essential. Nevertheless, this requires a radical shift in mindsets, acknowledging that diverse groups are not mere ‘beneficiaries’ but instead ‘data users’ and agents of the process, alongside other key stakeholders who participate in defining objectives, methodologies and implementation plans.

As far as possible, data should be disaggregated, where relevant, by: - Income** - Sex** - Age** - Race - Ethnicity - Migration status - Disability - Geographical location** ...or other characteristics, in accordance with the Fundamental Principles of Official Statistics (General Assembly resolution 68/261).

According to the different Citizen science phases:

Before starting:

- We have identified what data we need for our project and which groups are involved, and we can disaggregate the data for the different groups.

When creating the team/first steps:

- Team members are aware of the relevance of data disaggregation for the representativeness of the sample.
- The participants become key actors in the process and respond to the reality of the sample we want to obtain.

Development phase:

- We identify the necessary data and the variables to be considered.
- The data is collected and stored in such a way that the participants are agents and are empowered in the process.

Live phase:

- In the dissemination of the project, we visualise the disaggregation of the data and its impact on the results.

Analysis and reporting:

- The analysis of the data is carried out by taking into account the different variables and dimensions of the data.
- The reporting of the data responds to the realities of the different groups and the multidimensional analysis carried out.

10) Have the questions and response categories been simplified as much as possible?¹

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	It has not been taken into account
2	It has been taken into account but is complex to adapt
3	It has been taken into account simplifying response categories
4	It has been taken into account simplifying response categories and using clear, simple language
5	The response categories have been simplified and clear and simple language is used to ensure that people with different educational levels and cognitive abilities can participate.

Why is this important?

Simplifying response categories in research is important to promote inclusivity and ensure that everyone can participate on an equal footing. By simplifying response categories, potential barriers to participation for people with different levels of education, language comprehension, or cognitive abilities are reduced. It also avoids the exclusion of minority or marginalized groups who may feel excluded or discriminated against if the response categories are too complex or do not include options that represent their perspective or experience. For example, if a questionnaire includes a Likert scale with 10 options, some people may feel overwhelmed or confused by the number of options, which can affect the quality of their responses or even cause them to abandon the questionnaire. Instead, if the scale is simplified to only three or five options, participation is facilitated and more precise and meaningful responses are obtained. In addition, simplifying response categories can improve data comparability and facilitate analysis. When response categories are too complex or varied, it can be difficult effectively to compare and analyze data, which can make it difficult to identify important patterns or trends.

According to the different Citizen science phases:

¹ Department of Economic and Social Affairs. (2016). Toolkit on disability for Africa. United Nations.

Recuperado el 26 de Enero de 2018, de

<https://www.un.org/development/desa/technicalcooperaton:2016:11:18:toolkit-on-disability-for-africa>

Astorga Gatjens, L. (2007). A Basic Manual for Inclusive Development. Recuperado el 10 de Octubre de

2017, de http://www.hiproweb.org/uploads:tx_hidrtdocs:BasicManualID.pdf

Before starting:

- Consider the purpose of the investigation and identify the key questions that need to be answered.
- Develop a clear and concise set of questions that are directly relevant to the investigation's purpose.
- Ensure that the response categories are simple and easy to understand.

When creating the team/first steps:

- Review the questions and response categories with the team to ensure that they are easy to understand.
- Consider feedback from team members and revise the questions and response categories as needed.

Development phase:

- Continuously review the questions and response categories during the development phase to ensure that they remain simple and relevant.
- Consider conducting pilot tests to validate the questions and response categories with a small sample of respondents.

Live phase:

- Clearly explain the questions and response categories to the respondents before they begin answering.
- Monitor the respondents' feedback and revise the questions and response categories if necessary.

Analysis and reporting:

- Review the questions and response categories again during the analysis phase to ensure that they have been correctly interpreted.
- Consider revising the questions and response categories if any issues or challenges arise during the analysis phase.

3) *Accessibility of the tools*

11) Does the community have access to technology or there is a digital gap relevant for the project ?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	This aspect has not been taken into account
2	It has been taken into account but nothing has been done because it is complicated.
3	It has been taken into account and some form of inclusion of certain technologically disadvantaged groups has been sought.
4	It has been taken into account and some form of inclusion of most technologically disadvantaged groups has been sought.
5	It has been taken into account and strategies have been designed to be able to have representation of groups at a clear technological disadvantage.

Why is this important?

Creating more inclusive and less biased technology starts with a human rights-based design and regulatory processes. This means focusing on the voices of marginalised and vulnerable women, and including social and behavioural scientists and human rights practitioners in the design of new digital toolkits. It also means explicitly addressing the tensions that arise when different rights are exercised online, such as the use of freedom of expression versus the right to security. And it means making ethical frameworks enforceable by incorporating them into international human rights norms and standards.

The causes can range from the high price of the devices to the lack of knowledge about their use or the lack of infrastructure for their access. In this regard, we review the types of digital divide:

- **Access divide.** It refers to the possibilities that people have to access this resource. This is where socio-economic differences between people and between countries come into play, since digitisation requires very costly investments and infrastructure for less developed regions and for rural areas.
- **Use divide.** It refers to the lack of digital skills, which impedes the handling of technology. In this regard, and to give an example, the ITU points out that there are 40 countries in which more than half of their inhabitants do not know how to attach a file to an email.

Quality of use gap. Sometimes they have the digital skills to find their way around the technology, but not the knowledge to make good use of and get the most out of it. For example, with regard to access to quality information.

According to the different Citizen science phases:

Before starting phase: In this phase, the digital gap can be avoided by ensuring that the appropriate digital tools are available to carry out the research. This may include adopting video conferencing platforms, project management tools, and data analysis tools.

Team/First steps phase: During this phase, it is important to ensure that all team members have access to the necessary digital tools to collaborate and communicate effectively. This may include adopting online collaboration software.

Development phase: During the development phase, the digital gap can be avoided by ensuring that team members have access to the necessary development tools and can collaborate online. This may include using code repositories such as GitHub and cloud-based project management tools.

Live phase: During the live phase, it is important to ensure that users have access to the necessary digital tools to interact with the project effectively. This may include adopting online communication platforms and issuing tracking tools to resolve any technical issues that may arise.

Analysis and reporting: During the analysis and reporting phase, the digital gap can be avoided by ensuring that the appropriate tools are available to analyse and present the research results. This may include using data analysis tools such as Tableau or Google Analytics, and online presentation tools such as Prezi or Google Slides.

12) Is inclusive language used?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	The tool does not include any type of icon, software or element that allow access to people with disabilities
2	The text uses some inclusive items that are foreseen, but not from an intersectional approach
3	The text includes a conscious effort to use more accessible communication, although some barriers may still be found.
4	The text regularly uses inclusive language, replacing text with icons and images and providing resources for people with disabilities
5	The text uses inclusive language systematically, and a conscious effort is made to avoid any type of access limitation.

Why is this important?

When we talk about inclusive language, we often refer to the grammatical rules and uses of different languages, the use of which can help different people in the community to feel more integrated and involved in the message. However, there is another dimension to the inclusiveness of communication that has to do with the accessibility of tools and resources. Thus, it is important to ensure that all people, including people with disabilities, can access them. While the intention to make a demographic group such as persons with disabilities visible is more than valid, there is frequently a cognitive dissonance according to which both conversations (gender equality and rights of persons with disabilities) cannot exist in the same space. We therefore refer here to empowering its users, to give them a way to be functional in a context of different capacities, not of a different identity.

For this inclusion to be possible, it is necessary to take into account intersectional approaches that include the different axes of vulnerability that can converge in the people of our community. Thus, for example, it is necessary to reflect on whether we have functions in our project and tools that allow people with hearing or visual disabilities, the elderly, minors or people with intellectual disabilities to access the content or use the device.

According to the different Citizen science phases:

Before starting phase: In this phase, it is important to establish guidelines for using inclusive language in the research. This may involve defining key terms and concepts related to diversity, equity, and inclusion, and identifying any potentially exclusionary language. Provide the development team and content creators with clear guidelines and training materials in relation to the importance of inclusive language and its implementation within the platform. Offer examples

and best practices to help them understand how to use language that is respectful, inclusive, and avoids stereotypes or biases.

Team/First steps phase: It is important to ensure that all team members are aware of the importance of using inclusive language in the research. This may include providing training or resources on inclusive language use and establishing guidelines for communication and collaboration that prioritize inclusive language.

Development phase: During this phase, it is important to review all written and verbal communication to ensure that it is inclusive. This may involve using tools like grammar checkers and sensitivity readers to identify and address any potentially exclusionary language. Ensure that the user interface design is accessible and inclusive. Consider font sizes, color contrasts, and readability to accommodate individuals with visual impairments or reading difficulties. Additionally, use clear and simple language in the UI instructions and labels to promote understanding and ease of use for users of varying abilities.

Live phase: During the live phase, it is important to ensure that any communication or messaging related to the research is inclusive. This may involve incorporating feedback from diverse stakeholders to ensure that the research is accessible and relevant to all audiences. Allow users to personalize their experience by choosing preferred pronouns, titles, or linguistic variations that align with their gender identity, cultural background, or preferences. Providing these options demonstrates a commitment to inclusivity and respects the diverse identities and needs of users.

Analysis and reporting: Review all written and verbal communication to ensure that it is inclusive. This may involve using tools like gender-neutral language checkers and sensitivity readers to identify and address any potentially exclusionary language.

13) Are facilitators/support foreseen?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	No human support is foreseen for the participation of people with functional, sensory, cognitive, communicative diversity...
2	Support for individual participation through personal assistants, family members, representatives... is allowed, but the project does not provide it.
3	Group facilitators are appointed to encourage participation and collaboration.
4	Both group facilitators and individualized human support are appointed to encourage participation and collaboration. The adequacy of the support is assessed during project implementation
5	Both group facilitators and individualized human support are appointed to encourage participation and collaboration. The adequacy of the support is assessed during project implementation. In addition, participants are trained in communicative and functional accessibility.

Why is this important?

The use of support measures should not be ruled out, including participation through third parties (e.g. personal assistants, facilitators, trusted persons...) that can contribute to ensuring the full inclusion and participation of the person with communication, sensory, functional... difficulties. Community sense of belonging and celebration of diversity increases when participants are supported together.

According to the different Citizen science phases:

Before starting: Reflect on who we will be excluding if we do not take into account people who may have cognitive, linguistic, sensory or functional diversities. Reflect on the type of support needed to overcome obstacles to their participation in the project.

When creating the team/first steps Facilitators are named to promote participation and establish, balance and maintain a collaboration relationship between leaders and the participants. Decide whether individual representatives will be allowed to participate in the project.

Development phase: Identify ways to recruit both individual and group participant representatives. Identify the degree of diversity and conditions expected of participants. Plan how to overcome those challenges.

Live phase: Reflect on what could be done if the project is excluding some participants due to their difficulties in carrying out the activities. Assess whether the support is being provided in the necessary sense. Consider training participants in different communication skills.

Analysis and reporting: Identify the limitations of the projects derived from not having implemented the group facilitators, the individual assistants or representatives. In the report/publication, describe the means used for fostering participation.

14) Are the technologies being used accessible to all people?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	Accessibility of the technologies used is not considered.
2	The accessibility of the technologies is mentioned, but no effort is made to ensure they are available to all people.
3	A conscious effort is made to consider the accessibility of the technologies used, but no measures are implemented to ensure they are available to all people
4	Changes are made to ensure the technologies used are accessible to all people, but accessibility is not guaranteed in all stages of use
5	Measures are taken to ensure the technologies used are accessible to all people in all stages of use, including their design, development, implementation, and daily use

Why is this important?

The term "accessible technology" refers to technologies designed and developed in such a way that they are accessible to and usable by all people, regardless of their physical, cognitive or sensory abilities. This means that accessible technologies are designed to take into account the needs of all people, including those with disabilities or limitations in their ability to interact with digital devices.

According to the different Citizen science phases:

Before starting:

In the pre-research phase, it is crucial to address the digital divide and ensure accessibility to technology. If some team members or participants do not have access to necessary technological resources, there is a risk of excluding certain groups of people and limiting diversity and representativeness of the sample. Lack of technology access can hinder active and equitable participation in the research.

When creating the team/first steps:

During team creation and initial steps of the research, it is essential to consider the digital divide and ensure that all team members have access to necessary tools and technological resources. This includes providing devices, reliable internet connection, and training in technology usage. Lack of technological accessibility can impede collaboration, communication, and efficient data collection.

Development phase:

In the research development phase, the digital divide can impact the implementation of methods and data collection. If participants lack access to required technology, there may be difficulties in conducting online surveys, participating in virtual platforms, or using specific digital tools. This can affect the quality and representativeness of collected data, as well as the inclusion of diverse groups in the research.

Live phase:

During the live phase of the research, technology accessibility is crucial to ensure effective participation of participants. If individuals cannot access the virtual platforms used for interaction and collaboration, they will be excluded from real-time discussions, decision-making, and activities. This can limit the diversity of perspectives and the validity of the obtained results.

Analysis and reporting:

In the analysis and reporting phase, the digital divide can hinder access and understanding of reports and findings by different stakeholders. If results are primarily presented in digital formats or through online platforms, individuals with limited access or technological skills may not benefit from the generated information. This can further widen the inequality in dissemination and utilization of research results.

15) Is all the information provided perceptible?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	The information provided is not perceptible for people with functional diversity
2	The information provided is barely perceptible for people with functional diversity
3	The information provided is perceptible for some people, but not for all people with functional diversity.
4	The information provided is perceptible for most people with functional diversity
5	The information provided is highly perceptible for all people with functional diversity

Why is it important?

Perceptible information refers to information that is presented in a way that is accessible and easily understandable for individuals with different types of disabilities, such as visual, auditory, motor, or cognitive disabilities. This may include presenting information in different formats, such as text, audio, video, or images, so that users can choose the format that best suits their needs. It may also include using accessible design techniques, such as appropriate font sizes and color contrast, to enhance readability for individuals with visual impairments, or using captions, sign language interpretation, or transcripts for individuals with hearing impairments. In summary, perceptible information is designed in a way that is accessible to all, regardless of their abilities or disabilities.

According to the different Citizen science phases:

Before starting:

- Identify any potential accessibility barriers and make necessary accommodations.
- Use accessible language and avoid using jargon or technical terms.
- Provide information in multiple formats such as audio, video, and text to accommodate different learning styles and accessibility needs.

When creating the team/first steps

- Ensure that all team members receive training on accessibility and disability inclusion.
- Consider including team members with disabilities to provide valuable insights and perspectives.
- Use communication methods that are accessible to all team members, such as video conferencing with closed captioning or sign language interpretation.

Development phase:

- Design surveys and interview scripts with accessibility in mind, including clear instructions and explanations of any terminology or concepts.
- Test materials with people with disabilities to ensure accessibility and identify any issues that need to be addressed.
- Provide accommodations such as assistive technology or additional time for participants with disabilities.

Live phase:

- Choose data collection methods that are accessible, such as online surveys with screen reader compatibility or telephone interviews.
- Provide accessibility information to participants, including instructions on how to request accommodations.
- Train interviewers and survey administrators on disability etiquette and accessibility best practices.

Analysis and reporting:

- Use accessible formats for presenting data, such as audio or tactile graphics.
- Include captions or audio descriptions for visual aids such as graphs or charts.
- Ensure that any written reports or presentations are accessible, including using accessible document formats and providing alternative formats upon request

16) Does the tool take into account the size and spacing of letters, icons, and images to ensure its use when there is functional diversity?

Not at all 1 2 3 4 5 Completely

Rubrics	
1	It has not been taken into account
2	It has been taken into account but it has not been possible to implement it.
3	The tool takes into account the size of the letters
4	The tool takes into account the size and spacing of letters, icons, images but only for some people with functional diversity
5	The tool takes into account the size and spacing of letters, icons, images to ensure its use when there is functional diversity

Why is this important?

Accessible formats are formats in which information is presented in a way that is easier to understand and perceive for people with disabilities.

According to the different Citizen science phases:

Before starting:

- Research accessibility standards and guidelines to ensure that the survey design meets those standards.
- Consider accessibility needs of potential survey participants and design the survey to accommodate those needs.
- Test the survey with people with disabilities to identify any accessibility issues and make necessary accommodations.

When creating the team/first steps:

- Ensure that all team members receive training on accessibility and disability inclusion.
- Include team members with disabilities to provide valuable insights and perspectives.
- Use accessible communication methods to share survey design ideas and gather feedback.

Development phase:

- Use clear and concise language in survey questions and instructions.
- Provide alternative formats for the survey, such as audio, Braille, or large print, for individuals with visual impairments.

- Use appropriate colour contrast and font sizes to improve legibility for individuals with visual impairments.

Live phase:

- Choose data collection methods that are accessible, such as online surveys with screen reader compatibility or telephone interviews.
- Provide accessibility information to participants, including instructions on how to request accommodations.
- Train survey administrators on disability etiquette and accessibility best practices.

Analysis and reporting:

- Analyze survey data with accessibility in mind, considering any potential biases or issues related to accessibility.
- Use accessible formats for presenting survey results, such as audio or tactile graphics.
- Provide captions or audio descriptions for visual aids such as graphs or charts

17) Can the activities be carried out or the tools and devices used without additional effort being required?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	No analysis has been made of the efforts required of participants or of the impact that participation in the project has on participants' lives.
2	Participation in the project implies some effort from the participants and it is recognised by the project, but not compensated.
3	The efforts required from the participants are identified (fatigue, time, money...) and some symbolic compensation is made (economic, in products, in services, in knowledge, in public recognition...), but foreseen efforts are neither reduced nor fully compensated.
4	There is a plan to reduce added efforts of the participants, ensuring that activities take place as part of their routines and in the environments that are part of their daily lives. Some kind of compensation -not symbolic- (economic, in products, in services, in knowledge, in public recognition...) is made.
5	Added efforts of the participants have been reduced (both in planning and during the live phase). Full compensation for participants has been planned and expenses incurred by participants have been compensated. It is ensured that the provision of compensation does not cause any pressure to participate in the project.

Why is this important?

Activities should take place as part of the routines and in the environments that are part of the daily lives of the participants, trying to disrupt daily life as little as possible and ensuring that participation in the process does not involve additional efforts that may lead to abandonment and consequent exclusion in practice (Barrie, 2019). Efforts made and time invested must be compensated, either monetarily or in equivalent products or services (Responsible Research, 2018).

According to the different Citizen science phases:

Before starting: Reflect on the effort that activities require and reflect on the justice of compensating those efforts. Decide to what extent compensation for them is going to be incorporated in the project.

When creating the team/first steps: Identify which key informants can provide information about the difficulties that participants might have in the development of the activities.

Development phase: Reflect on the conditions of the axes of discrimination of the different groups and identify which difficulties they might have to develop the activities or to use the tools and the

devices of the project (time, expenses, knowledge...). Identify what actions should be performed to facilitate this and what changes should be made to adapt the activities and the tools

Live phase: Identify which changes should be made if some unexpected difficulties appear in the development of the activities or in use of the tools. Are the changes possible? Ensure that any documentation, tutorials, or support materials associated with the online tool or app also use inclusive language. Provide clear instructions and explanations that are accessible to users of different abilities, backgrounds, and levels of familiarity with the platform.

Analysis and reporting: Identify the limitations of the results derived from the difficulties in the development of the activities or in the use of the tools. Identify how the effort will be compensated and how the contribution of the participants will be recognised.

18) Size and spacing: Are they suitable for approach and access, handling and use, regardless of the user's body proportions, posture or level of mobility?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	Size and spacing are not suitable for approach and access, handling and use, regardless of the user's body proportions, posture or level of mobility.
2	Size and spacing are somewhat unsuitable for approach and access, handling and use, regardless of the user's body proportions, posture or level of mobility.
3	The team is not sure if size and spacing are suitable or unsuitable for approach and access, handling and use, regardless of the user's body proportions, posture or level of mobility.
4	Size and spacing are suitable for approach and access, handling and use, regardless of the user's body proportions, posture or level of mobility.
5	Size and spacing are completely suitable for approach and access, handling and use, regardless of the user's body proportions, posture or level of mobility.

Why is this important?

“Approach” establishes a relationship of trust with participants. This implies that the researcher must be aware of possible cultural, linguistic, and communication barriers that may exist and take measures to overcome them. For example, this could include hiring interpreters or conducting cultural awareness sessions before starting the research.

"Access" refers to the ability of vulnerable groups to participate fully in the research. This implies that the researcher must be aware of practical and logistical barriers that may exist and take measures to overcome them. For example, this could include providing free transportation for participants, adapting the schedules of research sessions to be accessible to participants, or providing financial assistance to cover costs associated with participation.

According to the different Citizen science phases:

Before starting:

- Research accessibility standards and guidelines to ensure that the survey design meets those standards.

- Consider the physical needs of potential survey participants and design the survey to accommodate those needs.
- Test the survey with people with diverse body proportions, postures, and mobility levels to identify any issues and make necessary accommodations.

When creating the team/first steps:

- Ensure that all team members receive training on accessibility and disability inclusion.
- Include team members with diverse body types and mobility levels to provide valuable insights and perspectives.
- Use accessible communication methods to share survey design ideas and gather feedback.

Development phase:

- Use appropriate font sizes and line spacing to improve legibility for individuals with visual impairments.
- Provide sufficient space for individuals to access and complete the survey, regardless of their mobility level or posture.
- Consider the weight and size of physical survey materials for ease of handling.

Live phase:

- Choose data collection methods that are accessible, such as online surveys with adjustable font sizes, or telephone interviews.
- Ensure that physical survey locations are accessible and provide accommodations such as adjustable seating or tables.
- Train survey administrators on disability etiquette and accessibility best practices.

Analysis and reporting:

- Analyze survey data with accessibility in mind, considering any potential biases or issues related to body proportions, posture, or mobility.
- Use accessible formats for presenting survey results, such as large print or electronic formats.
- Consider providing accommodations such as adjustable seating or tables for individuals accessing physical reports.

4) Safety of the spaces

19) Is inclusive language used?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	No attention has been paid to language biases and their impact on team members.
2	The project is aware that exclusionary or discriminatory language can contribute to feelings of isolation, vulnerability, and even hostility, which can compromise safety
3	The project tries to foster trust and respect to contribute to a safer environment where individuals feel comfortable expressing themselves, sharing their perspectives, and reporting safety concerns without fear of judgment or discrimination.
4	The project encourages reporting of safety issues.
5	The project creates inclusive policies and protocols. Inclusive language ensures that safety policies and procedures are equitable, accessible, and effective for everyone.

Why is this important?

Inclusive language is essential when discussing secure spaces in citizen science for several reasons, as it contributes to a more welcoming and equitable environment. Inclusive language ensures that individuals from diverse backgrounds, including those of different genders, ethnicities, abilities, and identities, feel welcome and encouraged to participate in citizen science projects. This broadens the pool of contributors and promotes a richer, more representative dataset. It helps avoid perpetuating stereotypes or unintentional biases that may exist in societal norms. By using language that is respectful and considerate of various identities, citizen science projects can prevent reinforcing harmful stereotypes and biases. Moreover, Inclusive language promotes cultural sensitivity, acknowledging and respecting the diversity of cultures and backgrounds represented in citizen science initiatives. This is particularly important when working with communities that may have distinct cultural perspectives and ways of expressing themselves. Secure spaces often involve discussions around sensitive topics or personal experiences. Inclusive language is crucial for respecting the privacy and consent of all participants, ensuring that individuals feel comfortable sharing their perspectives without fear of judgment or exclusion.

According to the different Citizen science phases:

Before starting:

1. Create interdisciplinary research teams where the figure of a social worker can guarantee that the research complies with the established requirements to ensure that inclusive research is carried out.
 - Develop guidelines or a code of conduct that explicitly states the importance of using inclusive language in all aspects of the research, including safety spaces.
 - Ensure that all team members are trained in using inclusive language and understand why it is important. *Avoiding exclusion and marginalization: inclusive language helps prevent the exclusion or marginalization of individuals or groups based on their identities or characteristics*

When creating the team/first steps:

- Make sure to include diversity in the team and have members with different backgrounds and experiences to ensure a more inclusive environment.
- Set the tone early on by explicitly addressing the importance of inclusive language during team meetings and training sessions.

Development phase:

- Use gender-neutral terms and avoid assumptions about gender, sexual orientation, race, ethnicity, and other aspects of identity.
- Ensure that any communication, including emails and presentations, use inclusive language.

Live phase:

- Establish ground rules for communication and ensure that all participants understand the importance of using inclusive language.
- Monitor communication in safety spaces and provide feedback when necessary to promote more inclusive language.

Analysis and reporting:

- Review all documents and reports for inclusive language and make necessary changes.
- Use data disaggregated by socially relevant categories, such as gender, race, ethnicity, and sexual orientation, when reporting findings to ensure that the language is inclusive and reflective of the diverse experiences of participants

20) Has an effort been made to create welcoming, respectful and safe environments, both face to face and virtual?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	It has not been taken into account
2	It has been taken into account but it has not been possible to implement it.
3	There are few measures in place to ensure that spaces can be secure both in person and remotely
4	There are some measures in place to ensure that spaces can be secure both in person and remotely
5	The required measures have been taken in order to ensure secure remote and face-to-face spaces and a space of interaction free from harassment can be ensured for all individuals, regardless of their sex, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, or religion.

Why is this important?

A safe and secure environment is one in which the population has the freedom to pursue daily activities without fear of politically motivated, persistent, or large-scale violence.

According to the different Citizen science phases:

Before starting:

- Include a statement in the research proposal and informed consent form that highlights the importance of creating a welcoming, respectful, and safe environment.
- Clearly communicate the expectations for conduct and behavior to all participants and team members.
- Ensure that all research materials, including recruitment ads and surveys, are free of language or images that could be offensive or discriminatory.
- Consider potential barriers to participation and make accommodations as necessary, such as providing interpreters or alternative formats for materials.

When creating the team/first steps:

- Establish clear and inclusive communication channels among team members.
- Establish protocols to be able to report any inappropriate practices as well as any type of abusive or harassing behaviour.

- Provide team members with training on creating a welcoming, respectful, and safe environment, including how to handle any potential conflicts or incidents.
- Encourage team members to share their own experiences and perspectives to promote a diverse and inclusive environment.

Development phase:

- Conduct regular check-ins with team members and participants to ensure that everyone feels comfortable and safe.
- Create and enforce a code of conduct for team members and participants.
- Make accommodations for accessibility needs, such as closed captioning or sign language interpretation for virtual meetings.
- Implement content filtering and moderation mechanisms to prevent the use of offensive or discriminatory language within user-generated content. Encourage users to report any inappropriate content they encounter. Actively monitor and address reported instances to maintain a safe and inclusive online environment.

Live phase:

- Ensure that the physical environment is safe and accessible for all participants.
- Monitor behavior and intervene if anyone engages in inappropriate conduct.
- Be prepared to make accommodations for unexpected situations, such as providing a quiet space for someone who becomes overwhelmed.

Analysis and reporting:

- Protect the privacy and confidentiality of participants and ensure that their data is used only for the purposes outlined in the informed consent form.
- Avoid using language or images in reports that could be offensive or discriminatory.
- Consider the potential impact of the research on marginalized communities and take steps to mitigate any negative effects
- Set ground rules: establish ground rules for the meeting that promote inclusivity and respect, such as not interrupting others, using respectful language, and avoiding assumptions or generalizations.
- Encourage participation: encourage participation from all participants and provide opportunities for those who might not feel comfortable speaking up in larger groups to share their ideas, such as using breakout rooms or anonymous feedback tools.
- Use visual aids: use visual aids, such as captions, to support participants who may have hearing impairments or who speak languages other than the primary language used in the meeting.
- Address disrespectful behavior: address any disrespectful or discriminatory behavior that may occur during the meeting, such as using offensive language or making derogatory comments. Create a safe space for participants to voice their concerns and ensure that consequences are established for repeat offenders.
- Provide a feedback mechanism: provide a feedback mechanism for participants to share their thoughts and ideas on how to make the meeting space more inclusive and respectful

21) All actors involved have been made aware that any inappropriate practices as well as any type of abusive or harassing behaviour will be reported?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	Sending information on the whistleblowing policy has not been taken into account.
2	Information has been taken into account
3	Information has been taken into account and will be sent to participants.
4	The whistleblowing policy will be clearly stated.
5	The whistleblowing policy will be clearly stated and the importance of reporting inappropriate behaviour will be emphasised.

Why is this important?

Abusive or harassing behavior refers to actions that are intended to harm, intimidate, or discriminate against another person or group of people. This can include physical, verbal, or emotional abuse, as well as actions that create a hostile or intimidating environment, such as unwanted advances or sexual harassment.

According to the different Citizen science phases:

Before starting:

- Ensure that all team members are aware of the code of conduct, which should explicitly state that inappropriate practices, abusive or harassing behavior will not be tolerated.
- Clearly communicate to all team members that any violations of the code of conduct will be reported and appropriate action will be taken.

When creating the team/first steps:

- During team formation, discuss the code of conduct and ensure that all team members understand and agree to abide by it.
- Emphasize that the code of conduct is a critical component of the investigation process and that non-compliance could have consequences.

Development phase:

- Remind team members of the code of conduct at the start of each development phase meeting or milestone.
- Provide clear guidance on how to report inappropriate practices, abusive or harassing behavior.

Live phase:

- Reinforce the code of conduct at the start of each live phase meeting or event.
- Ensure that any violations of the code of conduct are reported and addressed immediately.

Analysis and reporting:

- Before reporting on the investigation, review the code of conduct with all team members to ensure that it has been followed throughout the investigation.
- Include a section in the final report that discusses the code of conduct and how it was enforced throughout the investigation process.

22) In online participation, is there a need for a moderator to encourage respectful participation and to be able to filter, modify and delete comments, or ban disruptive users?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	The project does not envisage a moderator figure in the online meetings, relying on the self-management of the community.
2	The project encourages respectful participation, setting the tone for online discussions by promoting respectful and inclusive communication among participants
3	The designated moderator manages disruptive users and if necessary filters, modifies, and deletes comments
4	The designated moderator provides guidance and support/mediation in conflicts
5	The designated moderator monitors safety concerns, controls sharing of sensitive personal information, threats, or harmful content. They act swiftly to address these issues, ensuring the safety and privacy of participants. Their vigilance helps maintain a secure online environment and mitigates potential risks.

Why is this important?

In online participation, having a moderator is often necessary to encourage respectful participation and maintain a safe and constructive environment. Moderators play a crucial role in ensuring that discussions remain productive, respectful, and free from disruptive behavior.

A moderator sets the tone for online discussions by promoting respectful and inclusive communication among participants. They can establish clear guidelines and expectations for behavior, encouraging users to engage in constructive dialogue while discouraging personal attacks, hate speech, or any form of harassment. By actively promoting respect, moderators help create a welcoming and safe space for participants.

Moderators are responsible for reviewing and monitoring user-generated content, including comments, to ensure compliance with community guidelines and standards. They have the authority to filter, modify, or delete comments that violate the rules or are inappropriate, offensive, or harmful. This helps maintain the integrity and quality of discussions, safeguarding participants from abusive or harmful content.

A moderator has the authority to handle disruptive users who repeatedly violate guidelines or engage in behavior that negatively impacts the community. They can warn, mute, or, if necessary, ban users who consistently disrupt discussions or engage in abusive behavior. By taking appropriate action against disruptive users, moderators maintain a safe and conducive environment. In instances

where conflicts arise between participants, a moderator can step in to mediate and resolve the situation. They can facilitate respectful dialogue, encourage active listening, and help participants find common ground or understanding. Mediation by a neutral party like a moderator can defuse tensions, foster mutual respect, and prevent discussions from escalating into unproductive or harmful exchanges. Moderators serve as a source of guidance and support for participants. They can answer questions, address concerns, and provide clarifications regarding the community guidelines or platform usage. By actively engaging with users and providing assistance, moderators foster a sense of community and encourage positive interactions. Moderators also play a crucial role in monitoring discussions for potential safety concerns, such as the sharing of sensitive personal information, threats, or harmful content. They act swiftly to address these issues, ensuring the safety and privacy of participants. Their vigilance helps maintain a secure online environment and mitigates potential risks.

According to the different Citizen science phases:

Before starting:

- **Define project guidelines and code of conduct:** Develop clear project guidelines and a code of conduct that outline expected behavior and communication standards for participants. Include provisions for respectful engagement, the prohibition of hate speech or harassment, and consequences for violating the guidelines. These guidelines will serve as a foundation for the moderator's role.
- **Identify the need for a moderator:** Assess the scale, complexity, and potential risks associated with the project to determine whether having a moderator is necessary. Consider factors such as the size of the participant community, the level of interaction, and the likelihood of contentious discussions or disruptive behavior. Based on this assessment, determine whether a dedicated moderator or a team of moderators is required.

When creating the team/first steps:

- **Recruit and train moderators:** Identify individuals who are suitable to take on the moderator role. Look for candidates who have experience in community management, conflict resolution, and communication skills. Provide comprehensive training to moderators on the project's objectives, guidelines, and their responsibilities. This training should include specific guidance on handling disruptive behavior, filtering and moderating comments, and enforcing consequences, if necessary.
- **Establish moderation protocols:** work with the moderators to develop clear protocols and procedures for their role. Define how they will monitor discussions, identify potential issues, and take appropriate action. Determine the criteria for filtering, modifying, or deleting comments, as well as the process for warning or banning disruptive users. These protocols should align with the project's guidelines and ensure consistency in moderation practices.
- **Implement moderation tools and features:** integrate appropriate tools and features into the online platform or forum used for the citizen science project to facilitate moderation. This may include features for flagging or reporting inappropriate content, user moderation queues, or filters for specific keywords. These tools enable moderators efficiently to review and manage participant contributions.

Development phase:

- Communicate the role of the moderator: clearly communicate to participants the presence and purpose of the moderator in the project. Explain the role they play in fostering respectful participation and maintaining a safe environment. Provide channels for participants to reach out to moderators for questions, concerns, or reporting inappropriate behavior.

Live phase:

- Identify necessary qualifications and expertise: look for moderators with relevant expertise in data analysis, scientific research, or the specific subject area of the citizen science project. They should have a good understanding of the project goals, methodologies, and reporting requirements effectively to support the analysis process.
- Continuous monitoring and evaluation: regularly monitor the effectiveness of the moderation process and solicit feedback from participants. Assess the impact of the moderator's actions on maintaining respectful participation and ensuring a safe environment. Make adjustments and improvements based on the feedback received to refine the moderation approach.
-

Analysis and reporting:

- Monitor and ensure data quality: the moderator should be responsible for monitoring and ensuring the quality of the data being analyzed. This includes checking for data accuracy, identifying any anomalies or errors, and addressing any issues that may impact the reliability of the analysis. The moderator can work closely with participants to clarify data entries or resolve any discrepancies that arise.
- Address conflicts or concerns: in cases where conflicts or concerns arise during the analysis or reporting stage, the moderator can mediate and facilitate resolution. They can help navigate disagreements, clarify misunderstandings, and ensure that discussions remain respectful and focused on the scientific objectives of the project.
- Maintain confidentiality and data security: the moderator should ensure the confidentiality and security of the data being analyzed. They should adhere to any legal or ethical requirements regarding data privacy and confidentiality. This includes handling data with care, securely storing it, and ensuring that only authorized individuals have access to sensitive information

23) In virtual participation, can people's privacy and confidentiality be guaranteed and is it possible to ensure that these requirements are not misused?

Not at all 1 2 3 4 5 Completely

If your answer is below four, please specify how this could be improved. If you do not have enough information, please see the information below.

Rubrics	
1	We are unsure how to address this aspect, and no measures have been taken.
2	We know what measures should be taken to ensure the creation of a safe virtual space, but we have not included them in the project.
3	We know the measures that guarantee confidentiality of individuals and prevent misuse of data in virtual participation, and some aspects have been taken into account, but there is room for improvement.
4	We know the measures that guarantee confidentiality of individuals and prevent misuse of data in virtual participation, and the majority of aspects have been taken into account.
5	The project can guarantee the privacy and confidentiality of individuals and prevent any form of misuse of data in virtual participation.

Why is this important?

Being able to guarantee a safe remote space allows participants to feel secure when sharing their personal data and actively contributing to a scientific project. By ensuring that their data will not be used inappropriately or disclosed without their consent, trust is promoted, and fear of discrimination or reprisals is eliminated. Inclusivity is favored by ensuring privacy, as individuals from diverse backgrounds, identities, and circumstances feel more comfortable and willing to participate. Those who may be vulnerable or face risks when exposing their identity, such as ethnic minorities, marginalised groups, or people in vulnerable situations, can participate without fear of being identified or stigmatised.

There are protocols for reporting situations of vulnerability and risk in virtual participation. Establishing a secure communication channel, provides participants with a confidential and secure means to report situations of vulnerability or risk. In addition, it is important to inform participants about the reporting protocols before participation begins, to provide participants with clear and detailed information on the steps to follow when reporting situations of vulnerability or risk. This may include instructions on how to access the reporting channel, what information to provide, and what to expect after submitting a report.

Ensure that all received reports are treated confidentially and taken seriously. Designate a responsible team to review and respond to reports in a timely and appropriate manner. When necessary, investigate and take appropriate measures based on the nature of the report, which may include suspending a participant's account, modifying security measures, or collaborating with relevant authorities.

Always, keep participants informed about the progress and actions taken in response to the reports filed. It is necessary to provide feedback on the actions taken and, when applicable, implement corrective measures to prevent future situations of vulnerability or risk.

According to the different Citizen science phases:

Before starting:

- **Establish clear privacy and confidentiality policies:** Define and clearly communicate the privacy and confidentiality policies that will be followed in the project. These policies should include how personal data will be collected, stored, and protected.
- Establish protocols to report situations of vulnerability and risk in virtual participation.
- **Careful selection of virtual platforms or tools:** Research and select secure platforms or tools that meet data security standards. Verify the platform's reputation in terms of security and privacy before using it.
- **Risk assessment:** Conduct a risk assessment to identify potential vulnerabilities in the project design and establish corresponding mitigation measures. This helps anticipate potential security issues and address them proactively.

When creating the team/first steps:

- **Team training and awareness:** Provide training on good online security practices and educate the team about the importance of protecting the privacy and confidentiality of participants. Foster awareness of potential security risks and how to prevent them.
- Designate a responsible team (moderator) to review and respond to reports

Development phase:

- **Secure design of the technological infrastructure:** ensure that the technological infrastructure used for the project meets security and privacy requirements. Implement security measures such as data encryption, secure authentication, and protection against known vulnerabilities.
- **Education and training:** provide training to team members and participants on best practices for online security. Promote awareness of potential risks and how to protect personal data during project participation.

Live phase:

- **Informed consent and data anonymization:** Obtain informed consent from participants before collecting any personal data and ensure that data is anonymized whenever possible. Use unique identifiers instead of direct personal information to protect participants' privacy.
- **Monitoring and security management:** implement technical security measures and monitoring processes to detect and address any suspicious activity or vulnerability in real-time. This may include monitoring unauthorized access, detecting malware, and responding to security incidents.

Analysis and reporting:

- **Data protection during analysis:** Ensure that data is handled securely during analysis and report generation. Limit access to data only to authorized team members only and use masking or aggregation techniques to protect participants' privacy.
- **Responsible presentation and dissemination:** when presenting and disseminating project results, be careful how data and findings are shared. Respect ethical and legal disclosure norms and do not disclose personal or identifiable information without explicit consent.

Representativeness of the hive (Community)	1	2	3	4	5
Are we excluding any group of people belonging to the community?					
Axes of exclusion relevant to the project have been identified					
Would people outside groups and associations have a way of participating in the process?					
Is there a balance between men and women?					
Has the role of these women in the project been considered?					
Is inclusive language used?					
If the project has any impact on the groups involved, is this impact equal and are people aware of what this impact might be?					
Has the project reflected on how the results will be disseminated in order to be inclusive?					
Data collection/Data Analysis	1	2	3	4	5
Is data disaggregated by participants taking into account axes of inequality?					
Have the questions and response categories been simplified as much as possible?					
Accessibility of the tools	1	2	3	4	5
Does the community have access to technology or there is a digital gap relevant for the project ?					
Is inclusive language used?					
Are facilitators/support foreseen?					
Are the technologies being used accessible to all people?					
Is all the information provided perceptible?					
Does the tool take into account the size and spacing of letters, icons, and images to ensure its use when there is functional diversity?					
Can the activities be carried out or the tools and devices used without additional effort being required?					
Size and spacing: Are they suitable for approach and access, handling and use, regardless of the user's body proportions, posture or level of mobility?					
Safety of the spaces	1	2	3	4	5
Is inclusive language used?					
Has an effort been made to create welcoming, respectful and safe environments, both face to face and virtual?					
All actors involved have been made aware that any inappropriate practices as well as any type of abusive or harassing behaviour will be reported?					
In online participation, is there a need for a moderator to encourage respectful participation and to be able to filter, modify and delete comments, or ban disruptive users?					
In virtual participation, can people's privacy and confidentiality be guaranteed and is it possible to ensure that these requirements are not misused?					