

The GeoEthics in Vulnerability Principles

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Introduction:

Today's world of geospatial technology and data is evolving quickly. However, the lives of those living with vulnerability¹ may not be improving yet are shaped by these new technologies. The communities who stand to benefit most from improving technologies, including mapping, are instead increasingly left out of key conversations, opportunities, and developments that center around their lives and their data.

This report seeks to outline some ways in which we should consider ethics while mapping with and for such communities. They may include locations such as *informal urban settlements and slums, refugee camps and settlements, rural and remote areas, those subject to climate change stressors*, and more. Mapping may be using [OpenStreetMap](#), Participatory GIS, remote sensing or machine learning, and a variety of other tools, techniques, and data networks. The purpose might be for any number of social, economic, entrepreneurial, political, academic, or other reasons.

Humanitarian and development actors and organizations, as well as technology companies, may seek to benefit these communities in various ways which include mapping. But no matter the purpose, it has become clear that community members are not often engaged in the process of mapping or decision making. This document suggests ethical guidelines which can form a starting point for planning any mapping project, particularly digital mapping, with and for vulnerable communities.

How is ethical mapping with vulnerable populations the same or different from responsible data, or other kinds of ethical frameworks? In this article, after sharing a preview of the draft guidelines, I will summarize kinds of frameworks which are relevant to the determination of ethical mapping with vulnerable populations.² We will then look at where ethical geo-data may need its own framing, and propose both a draft framework for ethical mapping with vulnerable populations, and areas for further discussion.

1 Definitions of vulnerability: IFRC: "diminished capacity of an individual or group to anticipate, cope with, resist and recover from the impact of a natural or man-made hazard." UNU: "At the micro-level it most often refers to the vulnerability to poverty, i.e. the probability that a household or individual will fall into or remain in poverty...At the macro-level, vulnerability is studied in the context that certain hazards may adversely affect a country or region's economy. These may be natural, like an earthquake or man-made such as a financial crisis."

2 Center for Democracy and Technology, *Responsible Data Frameworks: In Their Own Words*, June 2018. <https://cdt.org/insights/responsible-data-frameworks-in-their-own-words/>

Draft Principles for Ethical Mapping

The following are the suggested guidelines in summary. Further discussion can be found toward the end of the document.

1. Make a good faith effort to engage the community³ to be mapped, and to obtain consent for mapping.
 - a. Engage with the community in the mapping process and map outputs. Work with a meaningful participatory process.
2. Protect individual privacy in case of personally identifiable information or addressing.
 - a. Ensure that no PII is included in open data sets; use anonymization
3. Conduct a risk-benefit analysis (are there any risks?) as well as cost-benefit (what burden does the mapping place on the community, and what are the benefits to them?).
4. Provide maps and data back to the community. Do not merely “extract” geodata.
5. Purpose limitation: Only collect what is necessary for purpose; do not place undue burden on the population collecting outside of what fits the project.
 - a. Alternatively, if the community wishes to expand and broaden the project, allow for such changes to help them use the maps themselves more productively.
 - b. Consider purpose only in conjunction with engaged planning with community
6. Non-duplication: Do not duplicate data efforts. Work toward coordination and data-sharing among groups mapping and data gathering in the same area.
7. Create local opportunity, local capacity, and sustainability. This includes economic opportunity and where possible, educational opportunities to learn mapping technology meaningfully.
8. Consider the distribution of burdens and benefits to various sectors of society and whether some populations are being “left out” of the opportunities or benefits of the mapping.
9. Create open map data by default. This means, make it FAIR (findable, accessible, interoperable, and reusable), unless determined otherwise, for instance in instances of indigenous map data creation. In the latter case, be willing to justify the closing of the map data for ethical reasons.

³ “Community” is challenging to define. Where do boundaries lie? Who needs to give consent? Who might be least able to do so freely? Here, we do not propose to define but suggest that the questions be considered prior to the project.

Responsible Data Frameworks

The Belmont Report

Research conducted by academics using human subjects is usually very highly regulated. The “Belmont Report,”⁴ written in 1979, gave rise to a new set of guidelines around how people can ethically participate in research about themselves.

As new technologies have allowed the collection of more and more data about individuals, outside of an academic context, many different frameworks and guides for “responsible data”⁵ have been developed. Most organizations which use data have some kind of agreement around data collection and use. But, the Belmont report framework still captures most of the key issues. These are the primary aspects of this report:

- **Respect for Persons:** *“Respect for persons incorporates at least two ethical convictions: first, that individuals should be treated as autonomous agents, and second, that persons with diminished autonomy are entitled to protection. The principle of respect for persons thus divides into two separate moral requirements: the requirement to acknowledge autonomy and the requirement to protect those with diminished autonomy.”*⁶

This generally requires that research subjects provide informed consent. In turn, informed consent has three elements: information, comprehension, and voluntariness. Other values such as privacy and autonomy may also be captured by this principle.

- **Beneficence:**

“Two general rules have been formulated as complementary expressions of beneficent actions in this sense: (1) do not harm and (2) maximize possible benefits and minimize possible harms.”

Researchers are to demonstrate beneficence by balancing the benefits of research and data use against any potential harm. Researchers and project reviewers are tasked with engaging in a multi-step cost-benefit analysis, weighing the risks of a wide variety of potential harms, including psychological harm, physical harm, legal harm, social harm, and economic harm.

- **Justice:** “Who ought to receive the benefits of research and bear its burdens? This is a question of justice, in the sense of ‘fairness in distribution’ or ‘what is deserved.’”

Researchers are to respect justice by ensuring that the value of research is accrued across society. Justice manifests itself in considerations of procedures and outcomes in selecting research subjects and ensuring fair distribution of the project’s burdens and benefits.

4 See <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html>

5 <https://responsibledata.io/>

6 Belmont Report, p. 4

In an effort to deal with more recent trends in technology with regard to the data landscape, the “Menlo report”⁷ came out in 2012 specifically referring to research in ICTs. This essentially added one bullet to the Belmont report principles, termed “Respect for Law and Public Interest”, covering themes of legality⁸, accountability, and transparency. This began to address the networked and global nature of data.

OECD Privacy Guidelines⁹:

Written in 1980 (with updates in 2013), the OECD developed these Guidelines on the Protection of Privacy and Transborder Flows of Personal Data. Several areas of focus are often found in subsequent data privacy policies, such as collection limitation, data quality, and purpose specification.

Collection Limitation Principle: There should be limits to the collection of personal data and any such data should be obtained by lawful and fair means and, where appropriate, with the knowledge or consent of the data subject.

Data Quality Principle: Personal data should be relevant to the purposes for which they are to be used, and, to the extent necessary for those purposes, should be accurate, complete and kept up-to-date.

Purpose Specification Principle: The purposes for which personal data are collected should be specified not later than at the time of data collection and the subsequent use limited to the fulfilment of those purposes or such others as are not incompatible with those purposes and as are specified on each occasion of change of purpose.

Use Limitation Principle: Personal data should not be disclosed, made available or otherwise used for purposes other than those specified in accordance with Paragraph 9 except:

Personal data should be protected by reasonable security safeguards against such risks as loss or unauthorised access, destruction, use, modification or disclosure of data.

7 D. Dittrich and E. Kenneally, "The Menlo Report: Ethical Principles Guiding Information and Communication Technology Research", Tech. rep., U.S. Department of Homeland Security, Aug 2012. https://www.caida.org/publications/papers/2012/menlo_report_actual_formatted/

8 “More specifically, ICT research may implicate rights and obligations related to: identity theft; unsolicited bulk electronic mail; privacy in electronic and wire communications; notification of security breaches; copyright and other intellectual property infringement; data security and destruction; child pornography; spyware and phishing; fraudulent deception; financial privacy; economic espionage; constitutional privacy; health information security and privacy; industry standards and best practices; and contractual privacy and acceptable use policies.” Menlo report page 16

9 <http://www.oecd.org/digital/ieconomy/privacy-guidelines.htm>

Openness Principle: There should be a general policy of openness about developments, practices and policies with respect to personal data. Means should be readily available of establishing the existence and nature of personal data, and the main purposes of their use, as well as the identity and usual residence of the data controller.

Individual Participation Principle: An individual should have the right:

- a) to obtain from a data controller, or otherwise, confirmation of whether or not the data controller has data relating to him;
- b) to have communicated to him, data relating to him within a reasonable time; at a charge, if any, that is not excessive; in a reasonable manner; and in a form that is readily intelligible to him;
- c) to be given reasons if a request made under subparagraphs(a) and (b) is denied, and to be able to challenge such denial; and
- d) to challenge data relating to him and, if the challenge is successful to have the data erased, rectified, completed or amended.

Accountability Principle: A data controller should be accountable for complying with measures which give effect to the principles stated above.

The Oxfam Framework

The responsible data framework from Oxfam covers many topics relevant for geoethics and vulnerability:

- Right to be Counted and Heard: This principle largely embraces the principle of “justice” and emphasizes the need for nonprofit organizations to take into account special considerations for vulnerable and marginalized populations. This is also promoted through efforts to ensure that data is accurate, up-to-date, and relevant, which also captures the OECD “data quality” principle.
- Right to Dignity and Respect: The components of this right in the Oxfam policy addresses repeated concerns in the Belmont Report that measures be put in place to minimize disproportionate burdens on individuals. This also captures some of the values behind collection and use limitations that exist in privacy frameworks including the OECD guidelines. This right further invokes elements found in the nascent notion of “Respect for Law and Public Interest” in the Menlo Report that requires further attention be paid to local laws and overarching public policy, which frequently manifests itself in notions of respecting the context of interactions, individual expectations, and societal norms.

- Right to Make An Informed Decision: This right attempts to provide guidance on some of the longstanding and growing challenges around consent (and accurately explaining the purpose for which information could be used) that exist in data protection debates, as well as in the Belmont Report's call to respect personal autonomy.
- Right to Privacy: The Oxfam policy discusses a right to privacy that focuses on keeping information confidential and technically secure, as well as minimizing the collection of data to reduce risks. It also introduces concepts such as anonymization of data, which is generally outside of the scope of data protection regulation.
- Right to Not Be Put at Risk: This right is a more detailed statement of the “do no harm” maxim, which is expressed in the Belmont Report's beneficence principle. This also requires organizations to engage in risk mitigation efforts, which calls for both training and understanding what beneficiaries and categories of their information are especially sensitive. Understanding sensitivity requires organizations to have a broad-based view of what could constitute harm to an individual, which is encompassed by physical, psychological, and political harms in the Oxfam policy.¹⁰

Mapping-Specific Ethical Data:

The Responsible Data policies can apply to geo-ethics as well with vulnerable populations. But the perspective misses situations where a large entity, such as an international NGO or academic institution, is not the only or primary user of the information, or where the information and maps are developed jointly with people in communities. In such cases, more attention to the **collective benefit** and collective consent must be paid.

The RD framing tends to make certain assumptions up front which do not pertain to the geodata environment which includes **open and networked geodata**. These assumptions include that the data “controller” or collector, and the entity using the data, are not the same as the people whose data is being collected. There is a firm line between “data collector” and “subject” which we not only are not seeing consistently, but, which I suggest should be questioned in every project. Is there a possibility to work in a participatory manner with the community subject to vulnerability? In so doing, we can also align with the ethics of the Belmont Report - respect for the individuals being mapped, potential for shared benefits with them, and a more just allocation of the benefits to include those uses they may have for the map.

There have been fewer attempts to account for the specifics of this type of geodata in responsible data frameworks. Focusing on geospatial data, [Geovation](#) undertook an inventory of ethical codes of 11 mostly European entities and surmised similarities among them. These are in order of the number of times they were mentioned in the frameworks surveyed. Note that they

¹⁰ From *Responsible Data Frameworks, In their Own Words*, by the Center for Democracy and Technology.

mostly overlap with responsible data codes discussed above, but with more emphasis on purpose compatibility and transparency:

1. Purpose compatibility, purpose limitation and a focus on social value
2. Active transparency
3. Data holders' and data users' accountability and responsibility
4. Engagement of relevant stakeholders
5. Protection of privacy and security
6. Establishment of and compliance with minimum ethical standards
7. Compliance with the law
8. Preservation of the quality of the data
9. Reflecting reality and inclusivity in data
10. Respecting and protecting human dignity

Indigenous Data Ethics

There are also movements to create data guidelines for indigenous communities to benefit and have autonomy over their data, including maps. The [Global Indigenous Data Alliance](#) created the “CARE” principles for instances where indigenous residents may wish to go beyond the “FAIR” principles of open data (findable, accessible, interoperable, reusable). CARE stands for Collective benefit, Authority to control, Responsibility, and Ethics). In some situations, CARE principles may override the open data preference, especially when sensitive data about vulnerable indigenous populations is involved. For more on this, see [Digital Democracy's work](#) supporting mapping with indigenous populations.

PPGIS Ethics

Because mapping with vulnerable populations often includes participatory methodologies, or, if not, perhaps should, these guidelines developed by lead practitioners of PPGIS (Participatory GIS) are very relevant. These are intended for those working with community members directly as mappers and users of maps, or as researchers.¹¹

This set of “who” questions is particularly important for embarking on mapping exercises in vulnerable locations, whether remote or participatory:

• Stage I: planning

Who participates? Who decides on who should participate? Who participates in whose mapping? ... and who is left out? Who identifies the problem? Whose problems? Whose questions? Whose perspective? ... and whose problems, questions and perspectives are left out?

¹¹ <https://pubs.iied.org/pdfs/G02957.pdf>

• **Stage II: the mapping process**

Whose voice counts? Who controls the process? Who decides on what is important? Who decides, and who should decide, on what to visualise and make public? Who has visual and tactile access? Who controls the use of information? And who is marginalised? Whose reality? And who understands? Whose reality is expressed? Whose knowledge, categories, perceptions? Whose truth and logic? Whose sense of space and boundary conception (if any)? Whose (visual) spatial language? Whose map legend? Who is informed what is on the map? (Transparency) Who understands the physical output? And who does not? And whose reality is left out?

• **Stage III: resulting information control, disclosure and disposal**

Who owns the output? Who owns the map(s)? Who owns the resulting data? What is left with those who generated the information and shared their knowledge? Who keeps the physical output and organises its regular updating? Whose analysis and use? Who analyses the spatial information collated? Who has access to the information and why? Who will use it and for what? And who cannot access and use them?

• **Ultimately ... What has changed?**

Who benefits from the changes? At whose costs? Who gains and who loses? Who is empowered and who is disempowered?

Just a few of the key suggestions mentioned in the guide which are particularly applicable to geo-ethics in vulnerability are:

- Do your best to recognise that you are working with socially differentiated communities and that your presence will not be politically neutral;
- Avoid raising false expectations;
- Invest time and resources in building trust;
- Consider using spatial information technologies that can be mastered by local people (or local technology intermediaries) after being provided sufficient training
- Be considerate in taking people's time;
- Put local values, needs and concerns first;
- Stimulate spatial learning and information generation rather than mere data extraction for outsider's analysis and interpretation;
- Be careful to avoid causing tensions or violence in a community.

These critical suggestions and the "Who" questions overlap with and elucidate several of the principles of responsible data discussed above, and may help to get at the crux of challenging issues around cost-benefit and justice, especially in communities where exploitation has been the norm.

However, it is not always possible to dive deeply into a PGIS process, which is by nature typically a small area and time intensive. If not, how do we analyze the relative costs and benefits to the population, and follow this guidance?

Open Data and Ethics

It may be clear from the above that there can be a tension between open data and some of the issues around data ownership and privacy. Yet, I propose that open mapping is indeed the default for all non-personally identifiable data.

Open data also has an ethical dimension; for example “Open data can empower governments, citizens, and civil society and private sector organizations to work toward better outcomes for public services in areas such as health, education, public safety, environmental protection, human rights, and natural disasters.”¹² Maps are a natural fit with this category of data.

The Open Data Charter, connected to the movement for governments to commit to release their non-personally identifiable data to citizens, contains these principles:

1. Open by Default
2. Timely and Comprehensive
3. Accessible and Usable
4. Comparable and Interoperable
5. For Improved Governance and Citizen Engagement
6. For Inclusive Development and Innovation

The “FAIR”¹³ principles of Open Data also highlight main aspects of good open data. FAIR: findable, accessible, interoperable, reusable.

The ethical concept of maintaining open data, which in geodata often means contributing to OpenStreetMap, is that users can access and reuse data for purposes that they determine, whereas closed data is often unable to benefit low-resourced groups.

Challenges specific to mapping in vulnerable places:

Interviews conducted with experienced mappers who work with vulnerable populations yielded several themes. Here were some of the primary issues noted:

¹² <https://opendatacharter.net/principles/>

¹³ <https://www.go-fair.org/fair-principles/>

- Issues of interest/ who benefits; cost-benefit calculations:
 - In whose interest are projects in vulnerable locations conducted? In one example, a journey to a small village to map was conducted, but the only apparent outcome was a research publication by the European visitor.
 - It was noted that often the spending on the gathering of map data far outpaces the economic benefit to the community. “The whole property of the community is probably worth less than the cost of the vehicle purchased to conduct the exercise.”¹⁴
 - Establish fair cost-benefit analysis and consider how the mapping can directly connect to the lives of the people, during planning.
- Open data as free labor/ who benefits:
 - People who use the data may not recognize the amount of work that has gone into the production of the maps. Large companies have a lot of interest in data, because they have the capacity to use it. When and to whom is the map valuable? If you use the maps, you also need to give back in some way.
- Consent challenges:
 - People often don’t really understand a map until you’ve shown them a finished, ideally printed product.
- Data use and impact:
 - It is easy to raise false hope about what the map will bring about. Be clear about the benefits to the community. If there may be no benefit, it’s better to be up front about this and possibly even reconsider the project.
 - Too often, data produced just sits on a shelf. Time may be expended and community resources used toward a product that does not get used.
 - Mapping experts can be too optimistic about the use potential for the map; data experts may wish to collect far more than is necessary, including private information.

14 Interviewee 1

The Ethical Mapping Principles

The following is a discussion of the primary ethical principles that apply particularly to mapping with vulnerable communities, drawing from the above review of responsible data, PGIS, and other frameworks. This set of principles is a draft and subject to further discussion and refinement. In fact, we anticipate debate and welcome dissenting views to develop and strengthen the guidelines.

Respect:

Mapping in vulnerable locations needs to consider respect for individuals and communities. Key components include consent, autonomy, and privacy.

Consent:

Suggested Guidelines:

- Make a good faith effort to engage the community to be mapped, and to obtain consent for mapping.
- Go one step further, and engage with the community in the mapping process and map outputs. Work with meaningful participation.

In frameworks of RD and research ethics, consent is of the utmost importance. Informed consent has three elements: information, comprehension, and voluntariness. When it comes to geospatial data, however, especially in vulnerable locations, consent can be challenging to define. First, how do we obtain consent? If locations are being mapped remotely, what is the mechanism for engaging the population? Who provides consent from within a community - who specifically are we asking? It may even be argued that such locations are already known and mapped, due to increasingly high resolution satellite imagery and prior mapping efforts. The real questions will be around engaging communities in groundtruthing and field mapping, filling in the information which cannot be known through imagery, and agreeing about use of and purpose of the maps. *From an ethical standpoint, mapping in such areas should always include participation and consent when possible, even when mapping is primarily remote.* However, consider and make explicit “who” within a vulnerable community is being asked to participate or to consent. Do those individuals have autonomy and knowledge to make such choices? Are they understanding where they may derive benefit from the project?

Further considerations:

- What constitutes consent when discussing concepts which may be completely foreign to people (new technologies, data privacy concepts, and so forth)? During a field mapping project, we may explain the exercise, but how can we be sure they are able to meaningfully comprehend? In mapping, it's common that the project is not understood well until the map appears, after the entire project is nearly complete.
- Networked open data is different (such as OpenStreetMap). Use cases may vary and cannot be predicted in advance. How can we account for unknowns in future use cases?
- One way to maintain the ethical integrity of the project even when unsure of full comprehension necessary for consent may be to work in a participatory manner with community members, including training in map tools, and decision making around planning and outcomes.

Privacy:

Suggested Guidelines:

- Protect individual privacy in case of personally identifiable information or addressing.
- Ensure that no PII is included in open data sets

Further considerations:

- Aerial imagery and satellite imagery is becoming more and more detailed and high resolution. At some point, there will be privacy concerns. How do we address them or prepare vulnerable communities?¹⁵
- Drone imagery can also be a major invasion of privacy. People's lives are lived outdoors in most of the poorest communities, so drones are potentially more invasive than with other locations. Vulnerable communities may also have less opportunity to create or influence regulations about drones than other populations. What is the best practice around balancing a need for good and quick maps, and the potential for exploitation inherent in these situations?

Benefit:

This concept, known as “beneficence” in the Belmont report, centers on ensuring that the mapping efforts benefit the place being mapped, especially if there are costs and risks associated. It encompasses the responsibility to do no harm; which may include psychological harm, physical harm, legal harm, social harm, and economic harm.

¹⁵ See: <https://www.technologyreview.com/2019/06/26/102931/satellites-threaten-privacy/>

In mapping, the cost vs benefit or risk vs benefit equation can help show where we may have gaps in providing real benefits to the participating vulnerable community or group.

Suggested Guidelines:

- Conduct a risk-benefit analysis (are there any risks?) as well as cost-benefit (what burden does the mapping place on the community, and what are the benefits to them?).
- Provide maps and data back to the community. Do not “extract” data.
- Purpose limitation: Only collect what is necessary for purpose; do not place undue burden on the population collecting outside of what fits the project.
 - OR, if the community wishes to expand and broaden the project, allow for such changes to help them use the maps themselves more productively.
- Non-duplication: Do not duplicate data efforts. Work toward coordination and data-sharing among groups mapping and data gathering in the same area.

Considerations:

- **Risks and Harms vs Benefits:**
 - How can we be sure that the benefits of our mapping will outweigh the risks or harms? Indeed, how can we ensure the mapping does actually benefit the vulnerable community? If the direct benefits cannot be clearly expressed and understood by community members, the exercise should be reconsidered. Consider in particular: who benefits most? Which stakeholders stand to benefit either economically or socially?
 - What does the community believe might be happening that will benefit them because of this project? The burden is on researchers or implementers to clarify the cost-benefit equation, which requires local input. However, the local perspective will likely miss some kinds of risks and benefits. There may be a problem of blind spots on both sides.
 - Education: using maps is not part of many vulnerable groups’ education, nor is the use of data for objectives like planning or policy decisions. The project implementer or researcher needs to take this into account and consider the need to explain well both how the mapping could help or hurt. Are there any downsides to consider?
- **Participation and Data Access:** Have people residing in the area been directly involved, perhaps via community mapping? In many cases, mapping is a data extraction process and community members are neither given back their data/maps or shown the results (or much less given a seat at the table making decisions with that map). We need to think critically about how geo-data is being used and shared. Do people have a right to access their map? Even raising these questions is not often currently happening.
- **Coordination and duplication:** There is often no coordination among mapping efforts for development, creating duplication. Duplication and failure to share data results in wasting resources, wasting people’s time, and also ultimately creating disjointed and

conflicting data systems in developing countries. Many times external donors require or incentivize duplicate data and closed data, where they should instead do the opposite. Even governments, in need of the resources that external donors, companies, and aid agencies offer, may be left harmed. Without coordination in geospatial data, disparate and often competing systems can cause confusion and harm.

- Right to Dignity and Respect (Oxfam): Minimization of data collection; only collecting what is necessary.

Justice:

This area of focus covers equity and distribution of the risks and benefits of mapping amongst community members and other stakeholders.

Suggested Guidelines:

1. Create local opportunity, local capacity, and sustainability. This includes economic opportunity and where possible, educational opportunities to learn mapping technology meaningfully.
2. Consider the distribution of burdens and benefits to various sectors of society and whether some populations are being “left out” of the opportunities or benefits of the mapping.
3. Create open map data by default. (Default does not mean avoiding responsibility to carefully seek any harms or alternate (ie, indigenous) data ownership that should apply).

Further Considerations:

- Economics of mapping: Are geospatial industries creating job opportunities proportional to the sector’s wealth in local contexts? How do we protect people from being used as data collectors (or “human sensors”) without clear benefit (or with only unrealized or abstract benefit) to them? Creating open data and OSM data is often a volunteer endeavor, but the humanitarian and development funding sector is still substantial.
- Capacity: There are many examples of transferring skills, but most organizations do not have a commitment to capacity development and inclusion in geospatial work, even when they have other kinds of programs devoted to this. It may be a problem with considering “data” and “maps” and “GIS” as something outside actual programming, not subject to the same mission as the rest. But, increasingly, we’re seeing that if you do not integrate data collection and mapping into your long-term strategy, you’ll fail at sustainability more broadly. Should there be a commitment to train someone locally in mapping technology used in the project, enabling a more just distribution of skills?

- The Right to be Mapped: The Right to be Counted and Heard, part of the Oxfam framework, specifies that nonprofit organizations should have special considerations for vulnerable and marginalized populations. In the same vein, is there also a right to appear on the map, and if so, what are the special considerations to ensure a more equitable geographic coverage? Leaving certain areas “invisible” may imply nonexistence. However, this needs to be balanced in each instance with the need for local involvement and consent, and the right not to be mapped in cases of risk.
- Open maps by default: In the interest of privacy, there can be a failure to consider the ethical implications of closing off data that should be openly accessible, public information. Justice may be a useful concept for striking a balance between the two.
- Data Quality: The idea that data be maintained and also checked for quality can become an ethical issue, when bad data impacts decision making and thereby people’s lives. The OECD specifies that data quality requires data to be up to date, accurate, and complete, to the extent that not doing so may prove harmful.
- Purpose compatibility, purpose limitation and a focus on social value: This principal arises in a number of frameworks reviewed here. Limiting to purpose and mapping what is necessary is a key way to avoid overtaxing the community, and is one way of saying that we don’t map just “to map”; the geospatial data is not an end in itself. However, let us be clear that open map data often has social value beyond single, limited project ends. If data is shared it can preempt repeated surveying and duplication which is a burden as well. Again, involving populations in the process of planning and execution may give rise to locally-determined purposes not initially part of the planning. In mapping, I would therefore urge the consideration of purpose limitation only after engaging a particular community, to better know how that community is hoping to benefit, and indeed to provide benefits that may not be considered part of the initial purpose. For example, even intangible benefits of “being visible” and recognized by participation in mapping should be considered.

