

CSIPM VISION STATEMENT ON DATA FOR FOOD SECURITY AND NUTRITION

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This Vision Document has been drafted by the CSIPM Data working group, with the participation of individuals and organizations from different regions and constituencies who work around the digitalization of the food systems or cope with its impacts and who experience both the benefits and the risks of digital technologies. This document is a work in progress. We encourage additional insights to this vision.

Preamble

We, the Civil Society and Indigenous Peoples' Mechanism (CSIPM), acknowledge that achieving food sovereignty, fulfilling the human right to food and nutrition for all, upholding the rights of peasants and Indigenous Peoples, and protecting our environment and biodiversity require critical attention to technologies, old and new, that are shaping our food systems. At the same time, technology must advance without trapping the process of appropriation of the heritage by future generations while adapting to their environment.

Because of the current vulnerability of the world, due to the combined effects of climate change, wars and other conflicts, all decisions related to food systems should not be taken without the consultation, involvement and participation of all stakeholders, including social movements and Indigenous Peoples. Civil society organizations, social movements, scholars, and governments must come together to carefully analyze the issues surrounding the collection and use of data, as data that can't be considered apart from the digitalization all along our food systems, and the implications for our communities long term.

According to the CFS, "Data refers to any set of codified symbols representing units of information regarding specific aspects of the world that can be captured or generated, recorded, stored, and transmitted in analogue or digital form."

With corporations and economically powerful countries in control of the infrastructures that enable data tools, our hopes and dreams for food sovereignty, the production of food in harmony with Nature, and our very existence as peasants, fishers, pastoralists, rural workers, and Indigenous Peoples are at stake. Digital technologies and processes affect landscapes, communities, and production systems globally, but also reshape our very perception of the food systems through the inclusion or exclusion of "data than counts" and therefore what food futures are imaginable.

Within the CFS data definition, there is space for data to enable food sovereignty by facilitating exchange on farming techniques and agroecological climate adaptation, increasing the viability of smallholder food producers, or revealing the true cost of the industrial agricultural system. Data can emerge from and uplift qualitative, experiential, collective, and land-based knowledge systems. But the dominant perception is that data is narrowly interpreted as quantitative "Big Data", and can serve to lock-in an unjust food system, deepening corporate consolidation. Through data embraced by policymakers as objective information, and data feeding modeling, automated decision making, and other processes, dangerous false climate solutions can entrench the control of a handful of companies, those that have access to information on every aspect of food, from production to consumption. At the same time, data infrastructures cause ecosystem damage because

digitalization processes need energy, minerals, rare earths, water and land for their private facilities. Data is not “light” and the “clouds” to store it are heavy buildings that gobble up energy.

The Committee on World Food Security (CFS) is a foremost inclusive intergovernmental body for negotiating global policy convergence on food security. The CSIPM, made up of smallholder farmers, pastoralists, Indigenous Peoples, and others, facilitates the participation of social movements and civil society in the CFS. The Data Workstream of the CFS, expected to culminate with its endorsement by member states during the 2023 Plenary, was first proposed by the Bill and Melinda Gates Foundation, with support from the United States government.

The CSIPM has argued that this workstream should be expanded from its proposed technical focus to address the wider digitalization of the whole food systems, technology governance, accountability, conflicts of interest and corporate power. But the Gates Foundation, as well as a few member states, have continued to assert the importance of a narrow workstream with no mention of data governance. This approach depoliticizes the debate and enables corporate controlled digitalization, as it excludes other knowledge systems. This document provides an alternative vision.

This vision statement is a snapshot of the current state of this discussion. This is an emerging conversation, and there is a greater need for social movements that bring their political understandings and lived experiences. We intend this document to be a roadmap for more in-depth discussions, collaborations, and research; a collective work in progress. This Statement serves as an invitation for governments to open up a dialogue. So long as data collection, transmission, storage, interpretation, and use for Food Security and Nutrition remains a proprietary effort led by multinational corporations, it will remain a dangerously biased knowledge source with deeply unequal benefits.

I. Summary of the work of the CSIPM in the Data Workstream

The CSIPM Data Working Group has diligently participated in the Data Work Stream since its inception. In [comments](#) from March 2021 and [contributions](#) to the Zero Draft in April 2023, the CSIPM has insisted that the workstream take a holistic approach addressing political intersections of data, digitalization, and power. We have worked intensely and produced our own translations to make this discussion as accessible as possible, given the tight deadlines and immense inequality in access to knowledge about food systems digitalization.

Our first observations, developed under a rapid timeline for an emerging topic, were that serious risks existed in the conceptual assumptions behind the workstream. Most glaringly, data analysis and artificial intelligence should not be considered objective since they are designed by human software designers and programmers in accordance with commercial interests. Second, the CSIPM called for the CFS to define data rather than assuming it is a homogenous category, recognizing that different types of data and data governance will have vastly different effects on food security. We asserted the need to specify who designs, controls, owns, accesses, and makes use of data. Beyond individual data privacy concerns, we recognized that the extraction of communities’ aggregated data has *collective* sovereignty implications, and has the potential to hollow out the local knowledge and autonomy of food producers at the societal level. As the CFS Workstream continued, the

texts repeatedly ignored the risk of digitalization that takes place all along the whole food systems to intensify global inequalities, though many countries have acknowledged the necessity of data justice and fair governance.

Throughout the CFS Workstream, the Data Working Group has grown into a key space for global civil society to discuss the evolving effects of digital technologies on food and agriculture. We are guided by the necessity for transparent and inclusive decision-making processes around the increasing role of data. This vision document is a summary of our conversations so far as we work to develop a framework that goes beyond technical discussions and towards just, people-centered data recollection and analysis practices.

II. Data inequality and risks

Data is collected and analyzed about people (demographics, nutritional and health status, and consumer behavior); on production and distribution systems; and on 'things' including land, seeds, livestock, plant and animal genetics, and weather. Governments, corporations, institutions, researchers, farmers and other food producers gather data through "infrastructures" of apps, sensors, drones, and more, and analyze it with machine learning, algorithms, and artificial intelligence - and sometimes simply with the human mind. This data is neither objective nor neutral. It can be manipulated in ways that benefit particular actors whether for economic or political reasons.

The infrastructures through which it is collected are also crucial in determining how it will be collected, how it will be used, and who will benefit from it. The results of this data collection and analysis are also varied as the recent history of agricultural innovations shows: development of genetically modified plants and animals, consumer behavior manipulation, utmost financialization of land and water, surveillance of nearly every aspect of our lives that enables greater control of our food systems.

So far, the discourse on "data for FSN" has been pushed by large agrochemical, ag-tech, ag equipment, and tech companies, along with affiliated organizations. The ongoing workstream of the CFS was initiated by the Gates Foundation, even while Microsoft encroaches on farmers with extractive digital tools, AI platforms, and appeals to governments to support these private efforts through the guise of multistakeholderism.

We are deeply concerned that the type of data collection that the CFS and governments are pursuing is led by powerful actors who own the technology and are expanding data collection and analysis as a new commodity.

The vision behind their efforts is disconnected from the realities of the so-called "beneficiaries" of "data for FSN." Statistics are helpful for informing policy analysis, but alone are deeply insufficient to capture or address experiences of all forms of malnutrition that derive from historical socioeconomic inequality, crisis, wars and occupation, displacement, and environmental destruction. As on-the-ground food insecurity persists, sometimes worsens, and evolves, data collection can only capture one side of complex realities. "Data" may encompass a wide range of codified knowledge, however promoters of digitalization typically prioritize quantitative, generalized, reductionist knowledge. When data is assumed to be a homogenous, universally positive category, contextualized local knowledge is devalued.

So long as data collection, transmission, storage, interpretation, and use for FSN remain a proprietary effort led by multinational corporations, “data” will remain a dangerously biased knowledge source with deeply unequal benefits.

Data-based processes are embedded in structural inequality. Corporate collection of data for FSN is embedded within a broader shift towards food system digitalization that has far-reaching effects on farming techniques, ecosystems, land access, supply chains, consumption patterns, diets, cultures and more. This digitalization is not happening equally across geographies, creating unequal grounds for discussion and leaving behind communities who do not have access to the very technologies that are rapidly becoming a requirement for participation in markets and decision-making¹. Resources should be devoted to balancing the inequalities in information, access to services, connectivity, and the use of digital infrastructures, rather than advancing yet another generation of technologies that are inaccessible, energy and capital intensive, and risk increasing consolidated corporate capture of food systems.

Data has environmental costs. Data systems always come with resource trade-offs that could otherwise be used directly for food systems, such as data storage centers guzzling water in drought regions, energy infrastructures disturbing biodiversity, and all computing hardware requiring mined minerals—often extracted from the global South. Data storage and transmission currently takes up to 2.7% of global greenhouse gas emissions,² and is expected to take up 14% by 2040.³ Data centers’ overconsumption of energy has caused some countries to put moratoriums on data center construction because they take too much energy away from households and other basic functions.⁴ Even when relying on renewable energy sources, which have their own social-environmental consequences, data centers can take up expansive amounts of land from food production.⁵ In our discussions on data we have to keep in mind these physical impacts of data collection, storage, and processing infrastructures.

Violations of the rights of data subjects. Data collection can lead to a wide range of violation of the human rights of those on whom data is collected. This includes, among many other cases, nonconsensual data collection and sharing; data extraction without the ability for subjects to access, delete, move, and correct their data; surveillance and privacy violations both from governments and the private sector; data being used as a tool during war and occupation to weaponize food⁶. Data that enables land grabbing, erasure of traditional knowledge, deskilling of agricultural workers and food producers, and lock-in to industrial agriculture methods.

¹ See ETC Group, December 9, 2021, “Did you know that the digitalization of agriculture could affect farmer’s rights?”, in <https://www.etcgroup.org/content/did-you-know-digitalization-agriculture-could-affect-farmers-rights>

² <https://www.iea.org/reports/data-centres-and-data-transmission-networks>

³ <https://www.climatechangenews.com/2017/12/11/tsunami-data-consume-one-fifth-global-electricity-2025/>

⁴ <https://iopscience.iop.org/article/10.1088/1748-9326/abfba1>, <https://www.dutchnews.nl/news/2022/02/dutch-call-a-halt-to-new-massive-data-centres-while-rules-are-worked-out/#:~:text=The%20Dutch%20government%20has%20imposed,been%20up%20to%20local%20authorities>, <https://www.techradar.com/news/microsoft-and-amazon-have-had-to-cancel-several-new-data-centers>

⁵ <https://www.dsmpartnership.com/growing-business-here/key-industries/data-centers>

⁶ Data collection and analysis have been used to impose a “calorie limit” on occupied populations to keep them on the verge of hunger

Hyper-nudging⁷ by corporate practices. Governments and private actors are now using technologies to invisibly shape the behaviors of food system actors. This is happening through digital agriculture platforms data collection. These platforms are run by agrochemical and seed companies that push affiliated products, and subscription programs that often require affiliated input purchases.⁸ The use of agricultural data to provide a supposedly objective verification of agricultural sustainability, is another case that supports false climate solutions such as carbon markets. Since carbon credit programs for farmers are most often led by agrochemical companies and Big Ag, these corporations are given the power to decide what sustainability means. Digital grocery or food delivery platforms actively work to profile, track and nudge food and dietary preferences to increase sales and potentially create addictive food behaviors.

De-skilling and workforce replacement. The Internet of Things, that enables farm machinery and through data collection issues “recommendations”, is replacing farm and seasonal workers, supposedly to farm more acres with fewer humans, encouraging farm land consolidation and management by computer. The multi-dimensional skills of farmers and farm workers, passed down through generations and learned with hands-on experience, are being lost. Increasing digitalization of farm machines also makes repairs more difficult, decreasing farmers’ autonomy and sustainability.

III. Our vision

It is the intent of this vision statement to provide guidance and tools to protect human rights, to prevent the land from being abused for its natural resources, to adapt to the consequences of the negative effects of climate change, to avoid conflicts of interest of any kind, including those that could turn into armed conflicts or war, to avoid the demoralization of food systems by practices contrary to the traditions and customs of the populations, to enable areas weakened by shocks/crises to recover from disasters.

Food sovereignty movements have a great deal of experience fighting to recognize, respect, and protect local, peasant and Indigenous knowledge systems—manifested through struggles over land, seeds, water, labor or basic human rights. The knowledge that food movements have can appear or not in the form of “data”: Agroecology offers well-developed models for information collection and analysis, where all that is collected serves to address communally identified problems through participatory processes, and researchers work with local communities to analyze and freely share the results.

Discussions and innovations relating to data must recognize analog forms of information for food security, and respect the vast array of cosmologies, interactions, and relationships

⁷ Nudging is a theory in behavioral economics that proposes adaptive designs of the decision environment (choice architecture) as ways to influence the behavior and decision-making of groups or individuals ([Thaler and Sunstein 2008](#)).

⁸ <https://foe.org/resources/ag-carbon-markets-report/>

produced and stewarded by peasants, small-scale food producers, food-chain workers, Indigenous Peoples, fisherfolk, and other communities. When information is being collected by the state or private sector, and transformed into digitally readable codes, (data) should be used to promote and support food sovereignty and agroecology in ways that are determined by communities about which data is being collected. Data should never be used in ways likely to facilitate land grabbing, increase corporate control and consolidation, erode biodiversity, or intentionally increase food insecurity.

Individual privacy, community sovereignty, and human rights are the foundation of data justice. We call for a new economic governance regime for data that first defines the boundaries of data collection through a human rights framework, outlawing data processing that violates individual and collective autonomy and self-determination in any form. The CSIPM deserves to be positioned as a leading partner with consideration of its contributions during all stages of the data governance system. States must be held responsible and take responsibility for establishing comprehensive legal protections over data, and regulating, data collecting corporations and other non-state actors that are engaged in data collection.

Policies on digital technologies for FSN must recognize that communities are sovereign to deny or restrict data collection in their territories, and/or to remain unconnected. This includes data collected by the government, which should not be considered “open by default” but must instead be governed through a human-rights based approach with democratic governance. Any data collection processes—whether by local authorities, non-governmental organizations, or governments—must guarantee the substantial rights of people over their data, including primary economic rights. Any data collected by the private sector must have clear consent from individuals and communities that can be reversed at any time as circumstances change and be communicated in ways that are understandable to them in their local terms and languages. This data should also be easy to access, erase, and port to other formats to prevent “lock-ins.”

Communities must help determine the purpose and problems for which data is needed. Community members should be involved in making decisions about what data is collected, how it is collected, who has access to it, how it is stored and analyzed. When collected for a specific purpose, further uses are made contingent upon further consent. The right to control one's own data also applies at the national level. Any global data governance and data sharing structures must have clarity on their membership, functioning, and regulatory norms especially in relation to the governance of the cross-border flows of data. The ability for governments – especially those in the Global South – to restrict flows of data to protect the interests of vulnerable sections of their population and regulate the access of foreign digital service companies to strategically important FSN data are inviolate.

Technologies should be assessed before they are implemented. Increasingly, many of the tools, methods, and platforms of data collection and analysis for food security and nutrition are in the hands of the corporate sector, including agribusiness. Such tools and methods often are encouraged and supported by governments without thorough or participatory assessment, and heavily influence which food production methods are funded and implemented. Transferring total reliability and accountability to private data systems for the critical issue of food security is deeply problematic and dangerous to future food security and food sovereignty. An assessment of the whole digital food chain and its future needs should be developed to avoid excluding key aspects of the diversity of food systems as well as to protect those elements of food systems that may be eroded by the digitalization of food

production, processing and distribution processes. The extent of impacts digitalization in general and data collection in particular are not yet fully assessed, especially on food systems of local communities.

Data should be governed by communities that are represented and affected by data and, when communities determine it is safe, held as a commons. A sui generis framework for the societal commons of data is needed that can uphold it as a collective resource to be managed through appropriate stewardship mechanisms where benefits are distributed and accrue to source communities. All digital and data-based technologies are premised on the collection and analysis of data. This “data” captures the relationships and knowledge between people and land. So, data is not and should never be treated as a commodity, nor should it be something over which private actors should be able to claim a monopoly through intellectual property (IP) rights. Individuals and communities have justification to assert rights over data collected about them, but data is not something that should be owned.

Instead, non-personal data should be held as often as possible in a commons with safeguards on privacy – a collectively controlled resource respectful of human rights. All government data that refer to agriculture and FSN should be treated as inappropriable social knowledge commons with clear safeguards against free-riding and capture by powerful players, particularly to prevent their over-broad exercise of IP rights. These commons may use FAIR and CARE principles as a minimum standard for equitable generation and distribution of data value while eliminating the risk of individual and collective harms.

Public data infrastructures and capacity support is needed to enable data sovereignty and collective governance. In order for communities to exercise data sovereignty and carry out democratic data governance, governments must provide public education and infrastructure. Digital infrastructures - including the internet - are essential for rural areas and must be decentralized and managed by public entities in democratic and participatory ways. Governments must enable communities to engage in public data governance and the assessment of new data-based technologies, which requires resources for communities to understand the implications of data. This includes clear communication about the rights of data subjects (individuals and communities) as well as popular education about how data is collected, analyzed and used and what the implications may be (both negative and positive). Governments should also work with communities to develop data literacy programs, especially for marginalized populations. Governments must also support communities in developing means to collect, analyze and use data, based on their needs and concerns, to enable the innovations at grassroots level.

Following these principles, data may be used to enable food sovereignty and agroecology. Digital technologies may enable food sovereignty and agroecology when they are co-created and governed by food provisioning communities. Communities must be enabled to develop their own platform and data stewardship models leveraging public digital infrastructure. Data may serve organizations and communities struggling to hold state and corporate actors to account for violations of the RfFN. This includes data on land concentration, food speculation, and the effects of false climate solutions.

IV. Voices from the ground

In March, 2023, the CSIPM Data Working Group held two workshops to share information and experiences about the impacts of digitalization on food and agriculture, with

approximately 150 participants from diverse constituencies, including women and youth. The Working Group also conducted several interviews of small-scale food producers, farmers, Indigenous Peoples, researchers and individuals working towards food sovereignty worldwide. Additionally, our own members have provided extensive real-life examples of the benefits and the risks of data collection and digital technologies.

Just as CSIPM has denounced the injustices of our food systems in other publications and workstreams, with this vision statement, we uplift the reality that corporate profits in a capitalist, neoliberal economy with support from powerful and power-seeking governments is leading the expansion of the digitalization of our food systems. In Voices from the Ground: from COVID-19 to Radical Transformations of our Food Systems, 2020, our constituencies showed us that multiple dimensions of systemic injustices and interconnected vulnerabilities are “closely linked to the economic, social, and environmental injustices of neoliberal policies and a food system based on intensive, export-oriented agriculture production, global supply chains, market-led food provision, and corporate profit.” “Digitalization” is a phenomenon that extends over all aspects of life. It is difficult to separate exactly what it means for just agriculture or just food, let alone discuss the inherent contradictions of risks and benefits with enough clarity to identify the specific impacts of “data for food security and nutrition”. Therefore the voices from the ground reflect the impossibility of addressing only the aspect of “data recollection and analysis tools” and constituencies refer to the bigger picture of the digital “tsunami”.

Some tools and digitalization processes seem to make life easier, for instance, the exchange of information, or the organizing of actions, although digital surveillance and ideological influences by governments or corporations could easily change this positive aspect into a negative. Some agricultural tasks can be easier and less labor-intensive (such as with automatic irrigation in Mali), yet, at the same time, farmers and farmworkers can be replaced by technologies.

Despite the positive aspects of technology, there is also resentment that digitalization imposes a certain way of relating to nature and of producing food and nutrition:

"Digitalization is a process that has already begun, and we need to get all the benefits out of this on the small and marginal farming communities for producers across the world. But most corporations, the way they would like to harvest the data and they use it for their profit is a big, big area of concern. Data monopolization is a big area of concern." - Kannaiyan Subramaniam, India, small-scale food producer.

Control of seeds, and of other means of production is of deep concern. The increase of corporations' control of seeds is resulting in the losses of peasants' seed autonomy, agroecology and food sovereignty. Seed laws enacted in some countries are biased against peasant-produced seeds which are accused of being below standards. To overcome this accusation, through LVC - Assembly of the Poor, peasants in Thailand are learning the techniques for creating their own seed database, documenting characteristics of the plant, such as the type, appearance, taste, location, and more. The database is important for the peasant's claim of ownership of the seeds.

"Despite the corporations' efforts to capture the native seeds and occupy the seed market, in Thailand, there are still numerous purebred seeds in the peasants' farms. Therefore, we

must continue to safeguard the native genetic diversity from the seed industries.” - Anne, Assembly of the Poor, Agroecology camp

Digitalization in agriculture and food is perceived as a driver of profit, more than a series of tools and processes that can ease the work in the fields and benefit the majority of non-industrial agriculture. There is awareness that this technology has not been developed by the peoples for the peoples, but comes from the corporate world and intends to create dependency and exclusion, just like other agricultural innovations throughout history.

A farmer is now forced to produce food in a different way, which is not conventional or traditional, but dependent on technology.” Moayyad Bsharad, LVC-MENA Region, land worker

The selection of certain data, and ignoring other data, is sometimes used to justify a political or profit-oriented goal. An example of a political goal comes to us from the occupied Palestinian territory of Gaza.

“Using Data collection on the food systems in Gaza and analyzing it by the occupier which holds power, the Israeli occupation was able to calculate an average of calories per person by which people do not starve but never feel well fed. Through this weaponization of food based on very accurately calculated Data, the Israeli occupation aimed at putting direct pressure on the population in Gaza through a form of collective punishment to drive them to abandon certain political choices they have made.” - Mariam Mohammad, Coalition of Lebanese Civil Society / Arab Network for Food Sovereignty

There were numerous statements about the lack of access to digital technologies, which can be attributed to poor connectivity on the one hand and a lack of capacity on the other. But also due to inequity in access and digital literacy. Which in turn speak of structural and historical injustices that access to digitalization in agriculture and food can't solve. It is clearly perceived that digital technologies are made for the biggest industrial farmers only, and others are expected to catch up, hence the economic gap has another version, the digital gap:

Access to information systems is very difficult, firstly because there are not enough networks and secondly because although it is true that almost every family has a mobile phone, access to the Internet is very difficult.” - Miriency González, MAELA, Colombia

Family agriculture and all the types of non-industrial production of food and nutrition are seen as incompatible with digital agriculture:

“This agriculture (agroecology) is a long way from digitalisation. Firstly, because the geography we have in our territories is so complex... Or as Hamadi Mohamed Abba, a pastoralist from Timbuktu in Mali expressed, when asked regarding the use of digital technology in his food production activity - “...for the moment the conditions are not met (inaccessibility to digital technologies due to lack of means and mastery).”

In addition, there is a great distrust of giving out data, which can be used for surveillance, control or repression, and on the other hand, there is the recognition that other forms of information are pertinent and are produced and protected by the peoples who produce them: *“We are also lifelong learners. The grandparents learned on the land, they got the knowledge from the land and the sea. I think that in this issue of the data debate, we have to*

be very careful not to expose all the Indigenous knowledge, so it is very important to talk about free and informed consent. Because it is the people who decide whether to share the data.” - Mani, Pueblo Kuna, International Indian Treaty Council, Panama

Nevertheless, there are also community initiatives which are being put in place to address the needs of small-scale food producers, and which aim to contribute to the development of short food chains. Such is the case of an app developed by Kannaiyan and Aswini, small-scale food producers in southern India. In view of the need to connect and strengthen the exchange of knowledge and information among small-scale food producers, and connect them with markets in their community, they are working on the development of an app.

“What we think is that the data that we get from our community is going to be something we can rely on, and we would like to implement the same approach in the nearby villages, towns and kind of slowly connect to other southern states.” - Aswini Ganesan, India, small-scale food producer.

Some regions and constituencies are developing their own statements regarding data: *Governance of data must aim to “guarantee individual and collective rights, promote democratic, open and decentralized structures of digital technologies, prevent all forms of surveillance and social control, and promote the equitable distribution of their benefits, non-discrimination, decolonization and sovereignty.”* - CLOC - La Via Campesina, “20 points towards a digital future that is free and sovereign.”

V. Questions for further reflection

Data technologies are rapidly transforming. The effects of data in the food systems and far reaching, broad, and systemic. These technologies have not existed for long enough to observe all their effects and patterns. Therefore, as the constituencies of the CSIPM consider these changes, these questions are intended for communities to reflect on data and analyze how it can be used to empower communities in pursuing food sovereignty and agroecological transitions.

1. Data use

- 1.1. How is data for food security and nutrition currently collected and analyzed?
- 1.2. How has data collection and use affected local communities and Indigenous Peoples? What negative effects has it had (i.e cases of appropriation of indigenous knowledge, seeds and lands through corporate/foreign governments “projects and development schemes”)? What positive effects has it had?
- 1.3. What are the data methodologies being used by peasants, fishers, pastoralists, and Indigenous peoples?
- 1.4. How can data be collected, shared and implemented in a way that prioritizes climate justice and traditional knowledge? How might data support communities in food systems climate adaptation?
- 1.5. How might data be used to track corporate and government accountability, to prove the inadequacy and unequal effects of false climate solutions, and gain support for real solutions?

2. Data regulation and governance

- 2.1. What data rights legislation and enforcement mechanisms are needed to ensure that communities' and individuals' rights to control their own data are respected?
- 2.2. Can collective data governance structures (such as data cooperatives, data coalitions, data unions, or data trusts) increase the ability for data to address community FSN needs, and make data more accessible to those who need it most? How can these structures be designed to maintain accountability to local communities and respect community rights over their data?
- 2.3. In what ways and in what cases does collective and or commons data governance further data sovereignty and data rights rather than seeing the two in tension? Can collective data governance increase the negotiating power of communities? Decrease information imbalance? Increase ability to enforce privacy rights and do something when rights are violated?
- 2.4. What collective data governance structures are inappropriate for food sovereignty?

3. Resources and communal needs

- 3.1. What accessible and flexible technological tools are needed for community-based data collection, storage, and processing that address dynamic local FSN needs?
- 3.2. What kind of education and resources do communities need in order to empower those affected by data collection and use?

4. Technology assessment

- 4.1. What principles should we use to assess data-based technologies used in food systems?
- 4.2. What technologies are inappropriate for food sovereignty and agroecology?