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Items for decision: Data and indicators for the 2030 Agenda for Sustainable Development

The Copenhagen Framework on Citizen¹ Data

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¹ The term "citizen" here refers to individuals in a society without implying any connotation related to citizenship and the legal status associated with a person's country of residence.

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I. Background

1. Citizen contributions to data, which encompasses citizens engagement in multiple processes throughout the [data value chain](#)², is increasingly recognized as critical to overcoming many of the [data challenges](#) we face today and encourages a more inclusive decision-making process. In particular, it helps fill critical data gaps for marginalized groups, ensuring that their experiences are reflected in data and statistics and advancing fairness, inclusiveness, openness, accountability and transparency in statistics and in public policy.

2. Citizen contributions to data is particularly relevant to the '*leave no one behind*' principle, anchored in the 2030 Agenda for Sustainable Development, an essential and necessary approach to promote peace and equal development worldwide. Citizen contributions to data can be initiated by different stakeholders, including community leaders, civil society organizations (CSOs), academia or citizens and communities themselves, national statistical offices (NSOs), other state agencies within national statistical systems (NSSs), national human rights institutions (NHRIs), and can contribute to different stages of the data value chain.

3. For instance, through the SDG process, CSOs are actively engaged as experts and are an integral part of national consultations for statistical operation methodologies and indicator requirements in various countries. Some NSOs also use data generated by citizens for SDG reporting or to complement SDG reporting as additional information. Additionally, CSOs and citizens are leading data collection efforts in the communities they serve focusing on issues that matter to them such as the needs of marginalized populations and pertinent issues such as on environment and health. They do this through various ways including surveys, social media, community mapping, as well as qualitative methods such as community dialogues, scorecards, focus group and key informant interviews. These data can help to improve the documentation of lived experiences of marginalised populations, identifying drivers of vulnerability, monitoring the level of recognition and implementation of their rights. Citizen contributions to data hence have the potential to be an invaluable addition to the monitoring of development.

4. Unleashing the full potential of citizen contributions to data and making it fit for policymaking, however, faces many challenges. These, for example, include the lack of trust or engagement between the state and non-state actors, concerns about quality of data collected by non-state actors, the lack of knowledge and capacity of CSOs and NSOs to work with citizen data, the concerns over sustainability of citizen data efforts etc.

5. To address the challenges while leveraging the power of the citizen contributions to data, this paper proposes a framework that can help conceptualize and agree on the different ways that citizens can play a role in data; and support formulating action points for the community to move forward. This work was first recommended by the [United Nations Expert Group Meeting on Harnessing data by citizens for public policy and SDG monitoring: a conceptual framework](#), conducted by the UN Statistics Division in November 2022. More specifically, the November 2022 Expert Group Meeting recommended that,

“The framework should offer the possible delineation of citizen data into categories that can be defined by (a) how data are used; and (b) the processes that data are generated, whether initiated by NSOs, civil societies, or jointly. Potential categories could include:

- *Citizen data to be integrated into official statistics;*

² The data value chain describes the evolution of data from collection to analysis, dissemination, and the final impact of data on decision making.

- *Citizen data that are quality assured and complementary to official data, but do not necessarily need to be integrated into official statistics;*
- *3. Other citizen or community-based efforts that would remain independent and outside of the official data.*

6. The Expert Group also recommended considerations on “*how to channel the citizens’ efforts to support the traditional data sources such as surveys and censuses to ensure those foundational data are more inclusive.*”

7. Establishing a conceptual framework on citizen data was further requested by the 54th Session of the United Nations Statistical Commission in 2023. The Commission “*stressed the need to develop a conceptual framework on CGD³ and supported the establishment of the Collaborative on Citizen Data to provide a space to share knowledge and experiences, foster collaboration across different communities, identify conceptual and methodological gaps and capacity needs, and inform the development of guidance, including on quality assurance*”⁴.

8. In September 2023, the second United Nations [Expert Group Meeting](#) was conducted, with a focus on the conceptual framework. A first draft of the current document was prepared for discussion at the meeting. The final report for the Expert Group Meeting is available [here](#). The current document is further revised based on the discussions during and after the meeting. The experts have agreed to name the conceptual framework the “Copenhagen Framework on Citizen Data”.

9. For the purpose of this work, “citizen” is to be understood in the broad context. Refugees, asylum seekers, migrants, stateless persons and other marginalized groups might not have citizenship in a country they live in, but they are nonetheless rights-holders under international and national laws and face specific needs which are equally important to be captured by adequate data and to actively contribute to the data production process. Therefore, they are all included within the scope of this framework under the umbrella term “citizen”.

10. While acknowledging the diversity in terminologies of citizens’ engagement in data, including citizen science, community science, citizen-generated data, crowdsourcing, volunteered geographic information, citizen observatories, citizen engagement in social innovation, community-based monitoring, participatory mapping, participatory action research, community-driven or community-generated data, the paper uses “citizen data” for consistency and inclusivity.

II. The Copenhagen Framework on Citizen Data

1. Objectives of the Copenhagen Framework

11. The paper presents a conceptual framework that defines the possible types of citizen data and offers a common understanding of relevant concepts and their definitions as a solid foundation for citizen data. The conceptual framework will inform the way forward to:

³ The original language in the document but the framework has expanded to cover both citizen-generated data (CGD) and citizen science data.

⁴ UN Statistical Commission, Report on the 54th session, E/2023/24E/CN.3/2023/37, Decision 54/102, paragraph (h).

- leverage the power of citizens in the planning, monitoring and implementation of development frameworks, such as the 2030 Agenda and the SDGs, and ensuring that efforts made in the process are fully reflective of the situation of all population groups, including the underrepresented, underserved and marginalized;
- encourage responsible production and curation of citizen data to help address problems that are otherwise unnoticed as guided by the principles of citizen data (Chapter III);
- support citizens, including marginalized population groups, to develop a sense of agency and ensure representation, as they actively engage in data production and harness the power of citizen data for informed decision-making; and
- increase the relevance and responsiveness of the NSO as the steward of the national data ecosystem by fostering an enabling environment to citizens, communities and civil society organisations as data producers to contribute to sustainable development.

2. Operational definition of citizen data

12. The range of citizens' contribution to data is extensive, encompassing all stages of the data value chain and taking different forms. For the purpose of developing the conceptual framework, the focus is on data produced by and with sufficient engagement of citizens, communities, civil society organizations and other actors at the design and/or collection stages of the data process, with the aim to inform decision making, responding to specific needs of a community, supplementing existing data from the National Statistical Systems at various levels, or filling data gaps. Box 1 below is an operational definition of citizen data for statistical purposes.

Box 1. Operational definition of citizen data

'Citizen Data', to be guided by the set of key principles, are defined as data originating from initiatives where citizens either initiate or are sufficiently engaged, at the minimum, in the design and/or collection stages of the data value chain, irrespective of whether these data are integrated into official statistics.

13. Box 1 has identified three key elements in defining Citizen Data, "initiate", "sufficiently engaged" and "in the design and/or collection stages of the data value chain", corresponding to the three defining characteristics of citizen data (section 3 below).

14. The operational definition underscores the importance of sufficient citizen's engagement in the initial stages of the data value chain for the produced data to be defined as "citizen data", while maintaining flexibility to embrace various forms of citizen data. For example, citizen-generated and community-driven data typically demand a higher level of engagement in both the design and collection stages. Citizen science data are often spearheaded by researchers or the scientific community, while citizens may participate in formulating research questions, collecting or analyzing data.

15. Nonetheless, given the vast diversity and multitude of practices within the field, it is challenging for this definition to completely encompass all the different practices and types of citizen data initiatives. As such, there is a pressing need for the continuous refinement of this framework to ensure it remains relevant and inclusive of emerging practices.

16. Although not part of the operational definition, citizen data initiatives are often responding to issues that citizens deem urgent or are important to them. This dimension is fulfilled when citizens are sufficiently engaged in the design and/or collection stage when the objectives of the data collection are being set.

17. Citizens' contributions to regular data collection processes conducted by national statistical offices or other state agencies, such as censuses or surveys, which engage citizens with the main purpose of increasing the response rate or making data more inclusive, are not considered in this framework. Similarly, citizens' contributions ONLY to the analysis, dissemination, communication and use of data produced by NSOs and other non-citizen driven actors where citizens did not play a role in the design and production, are also not included in this framework.

18. The section is followed by the section on "Defining characteristics" that explains the three key elements in defining citizen data, followed by the section on "Distinguishing characteristics" that covers the objectives of citizen data initiatives. Although not a defining characteristic, laying out objectives helps differentiate and categorize different types of citizen data initiatives. The last section of this chapter provides a taxonomy on the "Copenhagen Framework on Citizen Data" that provides specific guidance on under what circumstance a particular initiative can be considered citizen data.

3. Defining characteristics

19. Defining citizen data will consider the following three characteristics:

- A. Levels of citizen participation
- B. Stages of the data value chain that citizens are engaged
- C. Types of initiative for data collection

20. While acknowledging the diversity and plurality of citizen contributions to data, as outlined above, the framework focuses on "citizen data" that covers the dimension of design and/or data collection with the engagement of citizens in a position of effective influence over the process. Engagement of citizens in regular data collection programmes by NSOs where citizens do not have influence over the design of the data collection is also an important dimension to ensure inclusivity of data but is, however, beyond the scope of the framework in this phase. Additional aspects of citizens' engagement might be considered as the framework is further developed based on experiences in countries.

A. Levels of citizen participation

21. When citizens, communities and CSOs engage in the production of data at their own initiative, with full control over the process, and with the intention to use the data as an instrument to drive change, they are exercising this power. Consequently, when state actors recognize and work with these data, they are enabling citizen empowerment. On the other hand, when a data process is initiated by actors such as NSOs, NHRIs or the academia, the level of citizen participation at the design or data collection stage will define whether the data produced is citizen data.

22. Citizen participation in data, a concept that has been extensively discussed and embraced in urban planning and development, empowers citizens to influence what data are important to collect and how data are collected and used for policymaking and for an impact on their lives. Adapted from Arnstein's ladder in 1969 on citizen participation, Table 1 below illustrates the level of citizen participation in data, in the order from the least empowering level to the most. The adaptation is reflected in two aspects: (a) providing a strong focus on various engagements of citizens related to data; and (b) acknowledging the role of citizens as initiators of the data production while the original ladder adopted an approach in the urban planning context when government handing power over to citizens. Under the new schema, citizens achieve sufficient participation in data in levels 4 to 5 while their participation needs to be strengthened if the levels stay at 1 to 3.

Table 1. Levels of citizen participation⁵

	Level	Citizen participation ladder	Description
Insufficient participation - perfunctory (limited)	1	Information	One-way flow of information, from officials to citizens, with no channels provided for feedback and extremely limited power for negotiation. Citizens have little opportunity to influence the design of the data production. The most frequent tools are news media, pamphlets, posters and responses to inquiries.
	2	Consultation	Inviting citizens' opinions, if not combined with other modes of participation, still offers no assurance that citizen concerns and ideas will be taken into consideration in the data production. The most frequent methods used for consulting people are attitude and user satisfactory surveys, neighborhood meetings, public hearings and townhall meetings.
	3	Conciliatory: limited participation	Citizens begin to have some degree of influence though tokenism is still apparent. A small proportion of marginalized population group members were selected to represent their communities on public bodies such as advisory committees, but most decisions are still made by officials.
Sufficient participation towards citizen empowerment	4	Partnership	Power is redistributed through negotiation between citizens, supporting civil society organisations and officials. There is an agreement to share planning and decision-making responsibilities through joint boards, planning committees etc.
	5	Self determination of citizens / communities	Communities initiate and lead decision-making in design and data collection, showcasing collective agency. They actively control the entire data process with grassroots-level influence, avoiding imposition from above

B. Stages of the data value chain where citizens can engage

23. For citizen data scoping, it is important to discuss which stages of the data value chain in which citizens can engage. For the purpose of this framework, the stages of the data value chain are understood as follows. The stages are also mapped against the Generic Statistics Business Process Model (GSBPM)⁶ whenever possible, for ease of reference for the official statistics community.

1. Design stage (GSBPM phases 1 and 2), define

⁵ Arnstein, Sherry R. "A Ladder of Citizen Participation," JAIP, Vol. 35, No. 4, July 1969, pp. 216-224.

. Adapted.

⁶ GSBPM phases are as follows: 1. Specify needs; 2. Design; 3. Build; 4. Collect; 5. Process; 6. Analyse; 7. Disseminate; and 8. Evaluate. More information about GSBPM is available <https://unece.org/statistics/documents/2019/01/standards/gsbpm-v51>

- (a) objectives policy issues and data needed
 - (b) partnerships/collaborations
 - (c) methodologies and approaches for data collection
 - (d) who can access and use the data and how data are being used
2. **Conduct data collection operations (GSBPM phases 3 and 4)**
 3. Conduct initial data processing, validation of results and release (GSBPM phase 5)
 4. Conduct analysis and dissemination (GSBPM phase 6 and 7)
 5. Organize data uptake, connecting with users and encouraging/incentivizing data use (GSBPM phase 7)
 6. Review data impact, gather feedback (GSBPM phase 8)

24. In the context of the conceptual framework, citizen data refers to data produced when citizens are sufficiently involved in either: (a) the design stage, which outlines the objectives, partnerships, methodologies, and approaches for data collection, as well as access, usage, and application of the data; or (b) the data collection stage. While not included in the definition, the significant role of citizen engagement in other stages of the data value chain, particularly in data uptake and use, is crucial. The term "participate sufficiently" is determined by the level of citizen participation, corresponding to levels 4-5 as indicated in Table 1.

C. Types of initiatives for data collection

25. The section examines the spectrum of citizens' engagement in data collection processes. It delineates various initiatives, contingent upon the engagement level of citizens and communities. These methodologies can vary extensively, including those entirely driven and controlled by citizens, to collaboration of citizens with a state agency such as NSOs or other state or non-state organisations. The type of initiatives combined with the level of engagement of citizens in different stages of the data value chain, is what defines the overall level of engagement of citizens in the process of data production, dissemination and use. In addition, it helps those who organize citizen data collection see themselves in a more structured way. The types of initiative covered in this document include:

1. **Civic action** - fully driven, generated and owned by the citizens/communities/CSOs.
2. **Civic-driven collaboration** - initiated by citizens/CSOs and implemented in collaboration with NSO or other state actors.
3. **Jointly initiated collaboration** - initiated together by citizens/CSOs and NSO (or another state actor). May also be considered as "co-creation".
4. **NSO-driven collaboration** - Initiated by NSOs and implemented in collaboration with citizens/CSOs.
5. **Collaboration driven by other actors** – initiated by other actors and implemented in collaboration with citizens/CSOs.
6. **Initiatives by other actors without collaboration** with citizens or with only limited engagement (as shown in Table 1).

4. Distinguishing characteristics

26. Distinguishing characteristics are used to differentiate and categorize different types of citizen data initiatives. While those characteristics are not defining citizen data per se, they hold considerable policy significance and can guide further work on citizen data. They also

help citizen data producers identify themselves in different categories as laid out in this section.

Objectives of citizen data

27. Citizen data are collected for multiple purposes, ranging from supporting policy monitoring and execution to ensure equal rights and access, to elevating public knowledge, comprehension, and awareness. Additionally, it plays a crucial role in advancing scientific studies and research. This summary presents an array of objectives that citizen data endeavors aim to fulfill. While not exhaustive, these objectives furnish insight into the potential of citizen data. These outlined goals are instrumental for subsequent discussions on citizen data, particularly when examining other facets such as data quality, which may vary according to the data's intended use.

- Responding to data needs of groups or communities that do not feel represented by the data available in their national or local data ecosystem – an important avenue to address the fact that some groups are left out of official statistics due to reasons such as resource and practical constraint related to traditional data collection methods, lack of awareness, difficult access, or discrimination against them.
- Evaluating or monitoring service access and supporting legal and policymaking - a critical aspect of ensuring equitable and effective service delivery in various sectors, such as healthcare, education, social services, etc. This process involves assessing the availability, affordability, and quality of services, and using the gathered data to inform legal and policy initiatives.
- Assessing and monitoring the level of recognition and implementation of rights - a fundamental process that safeguards and promotes human rights is to ensure that individuals and communities are able to enjoy their basic freedoms and entitlements. This process involves ongoing scrutiny, evaluation, and documentation of the extent to which legal rights and international human rights standards are acknowledged, effectively put into practice and experienced by rightsholders.
- Challenge official data or fill in gaps not addressed by official data.
- Understanding complex issues, dynamics and powers prevailing in communities, which cause increasing marginalization.
- Increasing public understanding and awareness, mobilizing actions and empowering local communities - Intertwined processes that can drive positive change and foster greater resilience, inclusion, and well-being in societies.
- Providing evidence for scientific studies and research - a crucial step in the scientific process that helps establish credibility, validate hypotheses, and contribute to the advancement of knowledge.

5. The Copenhagen Framework – a taxonomy

28. Table 2 below illustrates whether an initiative can be considered as citizen data or not, defined by the levels of citizen engagement, the stages of the data value chain and the types of initiative. Data produced from initiatives that are driven by citizens, communities or CSOs

(Columns 1 to 3 in Table 2), whether independently or in collaboration with other actors, are citizen data, as citizens are either in full control or in partnership in all stages of the data value chain. For data from non-citizen driven initiatives (Columns 4 and 5 in Table 2), the level of citizen engagement in the design or data collection stage defines whether they are citizen data. The importance of citizen engagement in the other stages of the data value chain is also discussed in the taxonomy.

29. Data produced by actors without collaboration with citizens, or with only limited/insufficient engagement of citizens are not citizen data, therefore are not included in the taxonomy.

Table 2. Taxonomy of citizen data

Stages of the data value chain	Civic action – fully driven, generated and owned by the citizens/communities/CSOs	Civic-driven collaboration – initiated by citizens/CSOs and implemented in collaboration with NSO or other state actors	Jointly initiated collaboration – Initiated together by citizens/CSOs and NSO (or another state actor)	NSO-driven collaboration – Initiated by NSOs and implemented in collaboration with citizens/CSOs	Collaboration initiated by other actors – initiated by other actors and implemented in collaboration with citizens/CSOs
	1	2	3	4	5
Design stage: define objectives (policy issues and data needed)	Citizen's engagement at all stages of the data value chain is at the highest level: self determination of citizens / communities The initiative is fully driven by citizens, communities and CSOs, at all stages of the data value chain. No other collaborators.	Citizen's engagement at all stages of the data value chain is at the highest level: self determination of citizens / communities The initiative is driven/initiated by citizens, communities and CSOs and implemented in collaboration with state actors, including NSOs. But citizen's participation remains at the highest level.	In this type of initiative, citizens and a state actor are in partnership. There is an agreement to share planning and decision-making responsibilities for different stages for the data value chain.	The design stage is important for citizen-generated data and community-driven data when citizens are engaged in NSO-driven or other non-civic driven initiatives. The level of citizen engagement as "partnership" (level 4 in Table 1) is required to co-set objectives, partnerships, methodologies, as well as access and usage of the data. For citizen science data, citizens are not always part of the design stage but are sufficiently engaged in the data collection stage.	
Design stage: define partnerships/collaborations					
Design stage: define methodologies and approaches for data collection					
Design stage: define who can access and use the data and how data are being used					
Conduct data collection operations					
Conduct initial data processing, validation of results and release	The level of citizen engagement can be in the range from 1 to 4 in Table 1.				

Conduct analysis and dissemination				The level of citizen engagement can be in the range from 1 to 4 in Table 1.
Organize data uptake, connecting with users and encouraging/incentivizing data use				An important stage for citizens to be part of, especially on who has access to the data and how data are to be used.
Review data impact, gather feedback				An important stage for citizens to assess whether the data collected are used properly and made an impact as it originally intended to.

Note for color-coding: Data under columns in green can be considered as Citizen data; data under columns in yellow needs to be assessed based on the level of citizen engagement in different stages of the data value chain.

30. It is important to note that civil society organizations are intended in this framework as including small community-level entities and larger organizations that operate at the local, national, regional or global level as long as they engage with citizens sufficiently as defined above. Larger organizations that do not directly involve citizens or are not adequately representing the needs and interests of certain groups might not meet the criteria for citizen data and will have to be assessed on a case-by-case basis.

III. Principles of citizen data

31. The principles for citizen data are established to ensure that data production and use are responsible, professional and ethical. These principles serve as a framework for data governance, management, and protection, in the context of organizations that collect and use citizen data. The principles are extracted and adapted from existing data and statistical principles, taking into account the [human rights-based approach to data](#) and other considerations.

1. **Independence:** Data collection should be initiated and conducted free of any unwanted political pressure.
2. **Relevance:** Data collected should directly respond to the issues identified or valued by the citizens or the organizations (community level and/or CSO) representing them.
3. **Participation and informed consent:** All groups of interest should be involved, including those that are vulnerable and marginalized, and participation should be free, open, equitable, accessible, and transparent. Individuals should provide informed and voluntary consent before their data are collected. They should have control over their data and understand the purpose and use of **the data collected**.
4. **Professional standards:** Data collection, processing and dissemination should be conducted according to professional and methodological scientific considerations to ensure data quality and fitness for use and wider societal or policy impact.
5. **Data security:** Copyright, intellectual property, data sharing agreements, and data security should be clearly defined and implemented.
6. **Self-definition and self-identification:** population of interest should be self-defined and personal identity and characteristics should be assigned to individuals through self-identification (at individual's discretion).
7. **Transparency:** Data collectors should provide clear, openly accessible metadata and paradata about their operations, including research design, data collection methodology and description on how data will be used and shared.

8. **Ethical and safe production and use:** Protection of human rights, safety and wellbeing should be a primary concern throughout the data value chain. Proper use of data should be ensured in order not to harm, discriminate or stigmatize any individual or groups (do no harm).
Data producers are accountable for upholding human rights in their operations and for the impact of their data collection operations.
9. **Confidentiality, privacy and data attribution:** Data referring to individuals, whether they refer to natural or legal persons, are strictly confidential and should be used exclusively for statistical purposes. Information that identifies individuals or discloses an individual's personal characteristics should never be made public as a result of data dissemination.
10. **Openness, and accessibility:** Data should be made accessible and publicly available to all including persons with disabilities and those with limited access to technologies, and where possible, results should be published in an open access format for use and re-use.

32. For the application of the principles to be effective, there needs to be also an enabling environment (see chapter IV below). In addition, below are some notes on how the principles are effectively upheld in the data processes.

33. Principle 1 and 2 are meant to ensure that decisions on the issues to be addressed in the data collections are taken by the citizens or the organizations that represent them and not driven by political interests. In addition, citizens should be allowed to independently decide the perspective taken on issues of relevance to them and to collect data that directly respond to their specific needs.

34. The application of principle 4 should take into account the respective capacities and limitations of all involved parties. Professional, methodological and scientific consideration should also refer to existing international standards and practices, including those enshrined in the Fundamental Principles of Official Statistics (FPOS) and United Nations National Quality Assurance Framework for Official Statistics (NQAF).

35. Principle 10 is key to ensure the protection of individual and communities whose safety and wellbeing could be affected directly and indirectly by the data and should be applied irrespective of whether or not there are already national protection regulations in place.

IV. An enabling environment for the sustainable coordination, production, and use of citizen data

36. Citizen data, along with the data produced by National Statistical Offices (NSOs), other state entities, the private sector, and academia, forms an essential part of the national data ecosystem. While all aspects of the national data ecosystem are important for the sustainable coordination, production, and use of this citizen-generated data, we focus on those elements that are more directly linked to the implementation of the framework on citizen data and its associated principles. The list that follows offers an aspirational yet non-exhaustive set of aspects critical to nurturing such an environment.

37. **A whole-of-society approach to data.** While the 2030 Agenda for Sustainable Development has enabled a whole-of-society approach for its implementation, such approach needs to be further strengthened in data. This requires changes in mindset and power structure within the national data ecosystem that acknowledge the contribution of citizens and communities to data, i.e., taking an inclusive approach that involves various stakeholders, especially marginalized communities, and ensures the data reflects diverse perspectives.

Partnerships between state institutions, academia, the private sector, CSOs and citizens facilitate the pooling of resources, knowledge and expertise. This collaborative approach can enhance the impact and reach of citizen data.

38. **Human capital.** Technical skills and knowledge for the production of fit-for-purpose data and its use are important for all stakeholders within the national data ecosystem, including citizens, communities and state institutions. Additional skills that are particularly relevant to citizen data include building trust, fostering partnerships, implementing sufficient level of citizen engagement across different stages of the data value chain, which has been a core dimension of the conceptual framework.

39. **Trust.** Trust among stakeholders is essential for a robust national data ecosystem. This trust is nurtured when there is transparency from both the state institutions and citizens in their processes and decisions, implement mechanisms for citizen oversight, involve citizens in decision-making, and adapt to their evolving needs and concerns. Furthermore, trust in the data process is reinforced through transparency, rigorous quality standards, citizen engagement, and adherence to ethical practices. The generation of citizen data and its integration into policymaking not only depend on this trust but also significantly contribute to strengthening it.

40. **Laws and regulations.** In a national data ecosystem, laws and regulations governing data openness, usage, and protection are crucial. For citizen data pertaining to individuals, it is essential to have legal frameworks and regulations that address data privacy, ownership or control of data collected from citizens, and stipulations on who can use such data and how. Additionally, to facilitate the integration of citizen data into official statistics, national statistical laws would need to be adapted to recognize non-public institutions including citizens, communities and CSOs could also be legitimate producers of official statistics.

41. **Data governance mechanisms and institutional arrangements.** Within a well-functioning national data ecosystem, an inclusive and well-functioning data governance system need to be in place that also allow for citizens to have agency and participate in decision-making over data. They include those that enact overarching strategic and policy objectives, such as an executive-level cross-functional group of key stakeholders that makes policy decisions, provides strategic direction, and mobilizes the necessary resources. To execute the strategy and manage the national data system, technical working group or task forces can then be established to address specific technical issues or to foster coordination and build partnership. The role of national statistical offices in data governance, including citizen data, needs to be strengthened in setting standards on its production and use.

42. **Inclusive statistical and technical infrastructure.** Statistical and technical infrastructure need to be made available to enable the equitable production, processing, flow and use of citizen data; and to facilitate the interoperability and integration of citizen data with other types of data within the national data ecosystem. Statistical infrastructure might include concepts and definitions, classifications, methodological guidance and standards. Technical infrastructure could include tools and platforms for data collection, storage, processing and dissemination. The statistical and technical infrastructure needs to be inclusive for communities and marginalized population groups.

43. **Data quality assurance that is fit-for-purpose.** A quality assurance framework is important for citizen data to maintain technical integrity while still offering flexibility, innovation, and responsiveness to specific needs. The framework also needs to take into consideration the complementarity of citizen data and official statistics and in harnessing the strengths of both to create a comprehensive and reliable data ecosystem.

44. **Funding.** A well-functioning national data ecosystem requires adequate funding.

Although the production of official statistics falls under the government's purview, it is vital to establish innovative funding mechanisms to ensure sustained financial support for citizens, communities, civil society organizations and citizen science communities in producing citizen data.

V. A roadmap to implement the conceptual framework

45. Implementing the agreed conceptual framework requires a well-defined roadmap that encompasses a range of strategic actions and initiatives at the local, national and global levels. The roadmap outlines the strategic plan and approach for implementing the Conceptual Framework on Citizen Data, promoting the adherence to the principles, and cultivating an enabling environment over time for the sustainable coordination, production and use of citizen data. The roadmap was agreed at the Expert Group Meeting in Copenhagen on Citizen Data, September 2023; and will be used to guide the work of the Collaborative on Citizen Data and led by the Collaborative, with the support of donors and partners where necessary, in supporting the implementation of the framework.

46. The roadmap consists of the following elements:

- a. Mobilizing resources and partners, including developing partners, NSOs, CSOs, citizen sciences networks with the support of the Major Groups and other Stakeholders, human rights institutions, academia, UN Country Teams and regional and international organisations to support the implementation of the conceptual framework.
- b. Finalising the Conceptual Framework, by March 2025:
 - i. Building case studies as proof of concept to demonstrate ongoing implementation, test the applicability of and help refine the Framework;
 - ii. Organising consultations at the national, regional and global level on the Conceptual Framework and the roadmap, with the support of partners listed under item a. Consultation with national statistical offices will also be carried out through the UN Statistical Commission;
 - iii. Refining the Framework based on input from the Expert Group Meeting and wider consultations, building on case studies and experiences at the national and local level.
- c. Implementing the Conceptual Framework:
 - i. Advocating for and raising awareness about citizen data, including its importance and value, as well as about the Framework;
 - ii. Supporting mapping exercise, establishing a baseline and designing of national roadmaps and guidelines on citizen data within the country;
 - iii. Leveraging networks of civil society organisations or similar fora;
 - iv. Fostering peer-to-peer learning through the Collaborative;
 - v. Assessing capacity building needs and providing guidance and technical assistance, for citizen data to adhere to the principles, for the institutionalization of mechanisms for data partnerships, and for the cultivation of an enabling environment for the sustainable coordination, production and use of citizen data;
 - vi. Building capacities of national actors to citizens/communities/CSOs and to other stakeholders within the national data ecosystem, including NSOs and other players at various levels (national, subnational and local) within the national statistical systems;
 - vii. Encouraging the establishment of similar structures as the Collaborative on Citizen Data at the regional and national level and sub-

national level, to inform and amplify the work of the Collaborative.