Supplementary Material

Appendix A. Survey Instrument (English version)

This survey is being conducted by the International Science Council's CODATA–WDS Task Group on Citizen Science for the Sustainable Development Goals (SDGs). Our goal is to document the value of citizen generated data for monitoring progress towards the United Nations Sustainable Development Goals, and to provide guidance to citizen science initiatives on how to measure the SDG indicators. The specific goal of my survey is to identify how citizen science tools and projects have contributed to monitoring and tracking progress towards SDGs 6 (on water and sanitation) and 11 (on sustainable cities) in Africa. The set of questions below will help us to compile this information.

Please fill out a separate form for each project you are involved in. Any personal views shared by you during this interview will be considered as confidential unless we explicitly obtain your permission to quote you in resulting reports. Thank you for your time.

1. What is the nature of your Citizen Generated Data? (Circle one or more)
    a) Contributive, where citizens gather data
    b) Collaborative, where citizens may also analyze or interpret this data
    c) Co-created, where citizens participate in all levels of a project, from designing the research question to analyzing data
    d) Others (Please specify) _____
2. What is (was) the purpose of engaging citizens in your Citizen Science Project? (circle one or more)
    a) To make a direct contribution to research
    b) Increase scientific understanding
    c) Immerse themselves deeply in learning about environmental issues
    d) Provide a transformative experience
    e) Engage in an issue of direct relevance to the community
    f) Other (Please specify) _____
3. Please tick from the list below, the domains of your Citizen Science Project(s), past and current:

S/N	Type of Project	Please tick as m as as applicable.
1	Urban ecosystems and ecology	
2	Urban planning	
3	Urban disaster management	
4	Urban transportation	
5	Urban other	
6	Water supply	
7	Water quality	
8	Water ecosystems and ecology	
9	Water other	
10	Sanitation – trash pick up	

11	Sanitation – human waste	
12	Sanitation – industrial waste	
13	Sanitation other	
14	Safe and affordable Housing	
15	Safe and sustainable transport systems	
16	Sustainable urbanization	
17	Safeguard world cultural and natural heritage	
18	Protection of poor people in vulnerable situations	
19	Reduction of adverse environmental impact / waste management	
20	Access to safe, inclusive and accessible green and public spaces	
21	Strengthening national and regional development planning	
22	Increase number of cities adopting and implementing integrated policies and plans.	
23	Mapping of resources	
	Other (please write below)	

4.   Which method do you use in collecting and generating data?

S/N	ITEM	Please tick as many as applicable.
1	Direct Observations	
2	Interviews	
3	Social surveys	
4	Expert opinion	
5	Participant observation	
6	Synthesis of documents and records	
7	Focus group discussions	
8	Other(please write below)	

5.   What tools were used in carrying out specific Citizen Science Projects? Please tick as many as applicable.
- a)   Smartphone (e.g. photos, apps)
- b)   Sensors (e.g. microphones, air pollution monitors)
- c)   Data Visualization

d) Survey
e) Test kits (e.g., to measure water quality)
f) Other (Please specify) _____

6. Which organizations contribute to or collaborate on this Citizen Science Project?

S/N	Name of Organization	Type (Donor, NGO, CBO, Academic, Government)
1		

7. Have you discussed with the National Statistical Office (NSO) about the potential use of your data?
   a. Yes
   b. No
8. If yes, what was the response? _____
9. Are your data incorporated into the following?

Item	Yes	No
Official government statistical databases		
Compendia (e.g. printed reports)		
Laws		
Policies		
Others…………………….		

10. Where data are integrated, what technical hurdles needed to be addressed in order to integrate the CS data to the ministry or NSO database?

Item	Yes	No
Data conversions		
Data Storage		
Data Integration		
Data Sharing		
Quality Assurance/Check		
Others...........................		

11. What political hurdles do you need to overcome in order to integrate the Citizen Science (CS) data to the ministry or NSO database?

Item	Yes	No
Institutions		
Power Relations		

Processes		
Interests		
Ideologies		
Others…………………		

12. List examples of the impact your Citizen Science Project has had on people's lives or development policy or practice (e.g. the way a government or development agency goes about its work)?

S/N	EXAMPLES OF CITIZEN SCIENCE PROJECT	IMPACTS ON LIVES/DEVELOPMENT POLICY/PRACTICE

13. What are the outcomes/benefits derived from Citizen Science Projects in your country?
   a) Educate the public
   b) Inform research and policy
   c) Contribute to civil society
   d) Others (Please specify) _____

14. What kinds of training and for what duration do you undertake before your data collection exercise to deduce reliable measurements?

Type	Duration
a) Classroom training	
b) Virtual training	
c) Field based training or Pilot Test	
d) Other (please specify) _____	

15. For your project, could technology (e.g., smart sensor and mobile technologies) be used to overcome barriers to data collection?

16. How easy/challenging is it for you to coordinate Citizen Science Projects in your country?
   a) Easy
   b) Somewhat easy
   c) Somewhat challenging
   d) Very challenging

17. How do you fund your Citizen Science Project?
   a) Funding from bilateral/multilateral organizations
   b) Private-Public Partnership
   c) Bank and Financial Institution Loans
   d) Government Budgetary Allocations
   e) Others, please specify_____

18. Is the funding short-term or long-term? (if you are willing please share your project budget)
_____
_____

19. How do you sustain the interest of volunteers in working on the project?
   a) Personal interest on the part of participants

b) Payment on a piece work basis
c) Employment on an hourly basis
d) Recruiting new volunteers based on referrals
e) Others (Please specify)_____

20. Are your CS generated data deposited in a trusted repository? (if you are willing please share the data repository)

_____

Appendix B: List of Citizen Science Projects Surveyed

The following is a list of the CS projects surveyed by the CODATA-WDS Task Group on Citizen Science for the SDGs.

Subregions	Name of Project	Location	SDG 6	SDG11
West Africa	Follow The Money	Nigeria	X	
	Youthmappers	Nigeria		X
	Sustainable Week Lagos	Nigeria		X
	Nigeria Slum/Informal Settlement Federation	Nigeria		X
	Almajiri	Nigeria		X
	NIHR Global Health Research Unit on Improving Health in Slums	Nigeria	X	
	BridgeUp Africa	Nigeria		X
	Citizen Land and Service Project	Ghana		X
	SDG 11 Monitoring Activities	Nigeria		X
	Eco Friendly Transitional Shelters for Vulnerable Groups	Nigeria		X
	Cropland Analytic Process using Indigenous Knowledge	Nigeria	X	
	Geo-Reference Infrastructure Demographic Data for Development	Nigeria		X
	Infrastructure Mapping	Nigeria		X
	OpenStreetMap Data mapping for SDGS	Nigeria		X
	Abuja Facility Mapping and Abuja Tourist Guide	Nigeria		X
	Reconstituting Past Flood Events: the Contribution of Citizen Science	Senegal		X

Subregions	Name of Project	Location	SDG 6	SDG11
	Greenbuilders	Burkina Faso		X
	AfriWatSan	Senegal	X	
	Schools and Satellites	Ghana	X	
	Biodiversity	Benin		X
	Sanitation and Hygiene in the Coastal Cities	Benin	X	
	Reduction in the Risk of Water-related Illnesses During Flood Periods	Côte d'Ivoire	X	
East Africa	Waterpoint Mapping	Kenya	X	
	Map Kibera	Kenya		X
	ATRAP (schistosomiasis prevention)	Uganda	X	
	Maasai Mara Citizen Observatory (mara.info.ke)	Kenya	X	
	Water and sanitation mapping in Mathare	Kenya	X	
	Watsan in Kibera	Kenya	X	
	AfriWatSan	Uganda	X	
	Youth Art Development and Entrepreneurship Network (YADEN)	Uganda	O	X
	Community-based Citizen Science Hydroclimate Monitoring in Wami-Ruvu and Rufiji Basins	Tanzania	X	
	REACH: Water Security for the Poor	Ethiopia	X	
	Kinara for Youth Evolution – Water for Life	Tanzania		X
	Community Assessment using Citizen Science App on mWater	Tanzania	X	
	T-Group Project	Uganda	X	
	Earth Challenge	Tanzania		X
	Participatory Decision Making Using P3DM for Human Elephant Conflict Management	Ethiopia	X	
	Water for Life	Tanzania	X	
	Mapping and Management of Trees and Open Dumping Hotspots	Malawi		X

Subregions	Name of Project	Location	SDG 6	SDG11
Southern Africa	Running Dry	South Africa	X	
	Citizen Science	South Africa		X
	Cape Citizen Science	South Africa		X
	Halt Humpback Bycatch	South Africa	X	
	Lake Sibaya Community science project	South Africa	X	
	uMkhomazi Landscape Restoration Project	South Africa	X	
	Tsitsa Project	South Africa	X	
	Suspended Sediment Sampling Programme of the Tsitsa Project	South Africa	X	
	Water Aid	South Africa	X	
	Rural Water Supply Monitoring	South Africa	X	
	Water and Sanitation for Topuito	South Africa	X	
	Big Data Modelling of SDGs (BDMSDG)	South Africa	X	
Central Africa	Clean and Green Congo Project	Congo	X	
	Seismicity & Seismic Risks: Analysis & Scenarios	Congo		X