Mapping citizen science contributions to the UN Sustainable Development Goals

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ORIGINAL ARTICLE

Mapping citizen science contributions to the UN sustainable development goals

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Abstract

The UN Sustainable Development Goals (SDGs) are a vision for achieving a sustainable future. Reliable, timely, comprehensive, and consistent data are critical for measuring progress towards, and ultimately achieving, the SDGs. Data from citizen science represent one new source of data that could be used for SDG reporting and monitoring. However, information is still lacking regarding the current and potential contributions of citizen science to the SDG indicator framework. Through a systematic review of the metadata and work plans of the 244 SDG indicators, as well as the identification of past and ongoing citizen science initiatives that could directly or indirectly provide data for these indicators, this paper presents an overview of where citizen science is already contributing and could contribute data to the SDG indicator framework. The results demonstrate that citizen science is "already contributing" to the monitoring of 5 SDG indicators, and that citizen science "could contribute" to 76 indicators, which, together, equates to around 33%. Our analysis also shows that the greatest inputs from citizen science to the SDG framework relate to SDG 15 Life on Land, SDG 11 Sustainable Cities and Communities, SDG 3 Good Health and Wellbeing, and SDG 6 Clean Water and Sanitation. Realizing the full potential of citizen science requires demonstrating its value in the global data ecosystem, building partnerships around citizen science data to accelerate SDG progress, and leveraging investments to enhance its use and impact.

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SDG CoP: UN Sustainable Development Goals and Citizen Observatories
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The WeObserve SDGs and Citizen Science Community of Practice (SDGs CoP) is an open platform for citizen science/citizen observatories and the SDGs.

Our aim is to connect citizen science practitioners
Offices (NSOs) and government officials; UN and ot
and the broader data and stats communities to share and exchange knowledge ideas and resources on how to demonstrate the value of citizen science data and impact for SDG achievement.

SDGs are a roadmap to achieve a healthy, prosperous and fair future for all. Achieving the SDGs requires informed decisions that are based on accurate, timely and comprehensive data. Even though data availability has improved over the last decade, there are still major gaps in information and knowledge for guiding policy formulation and implementation. New innovative approaches to data collection, such as citizen science/citizen observatories, which is very broadly defined as public participation in scientific research, can contribute to SDG monitoring. In addition, citizen science could also help mobilize citizen action and

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Recources

- Glossary

- Inception report

- Citizen science and the United Nations Sustainable Development Goals, Nature Sustainability

Citizen Science

Public Participation

- *Five models on degree of participation* (Shirk et al. 2012): From projects, where citizens primarily contribute data to initiatives citizens design the research with scientists.
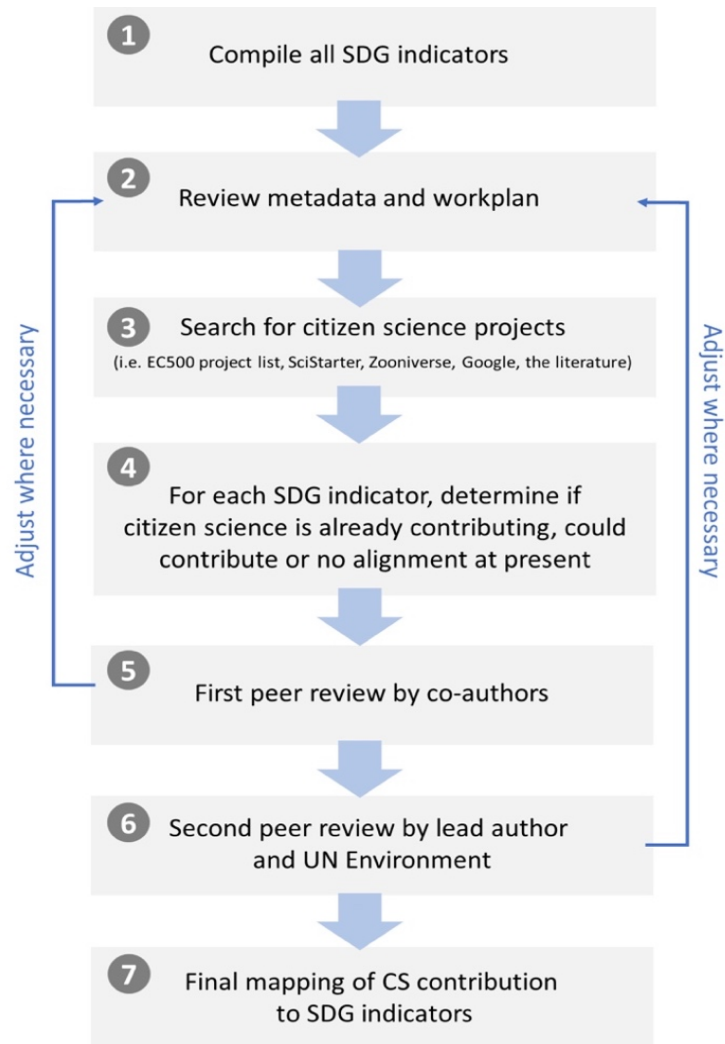
Voluntary contribution

- Contributions on voluntary basis; no professional background or disposable income. Active contribution with the purpose of involvement in a citizen science activity.
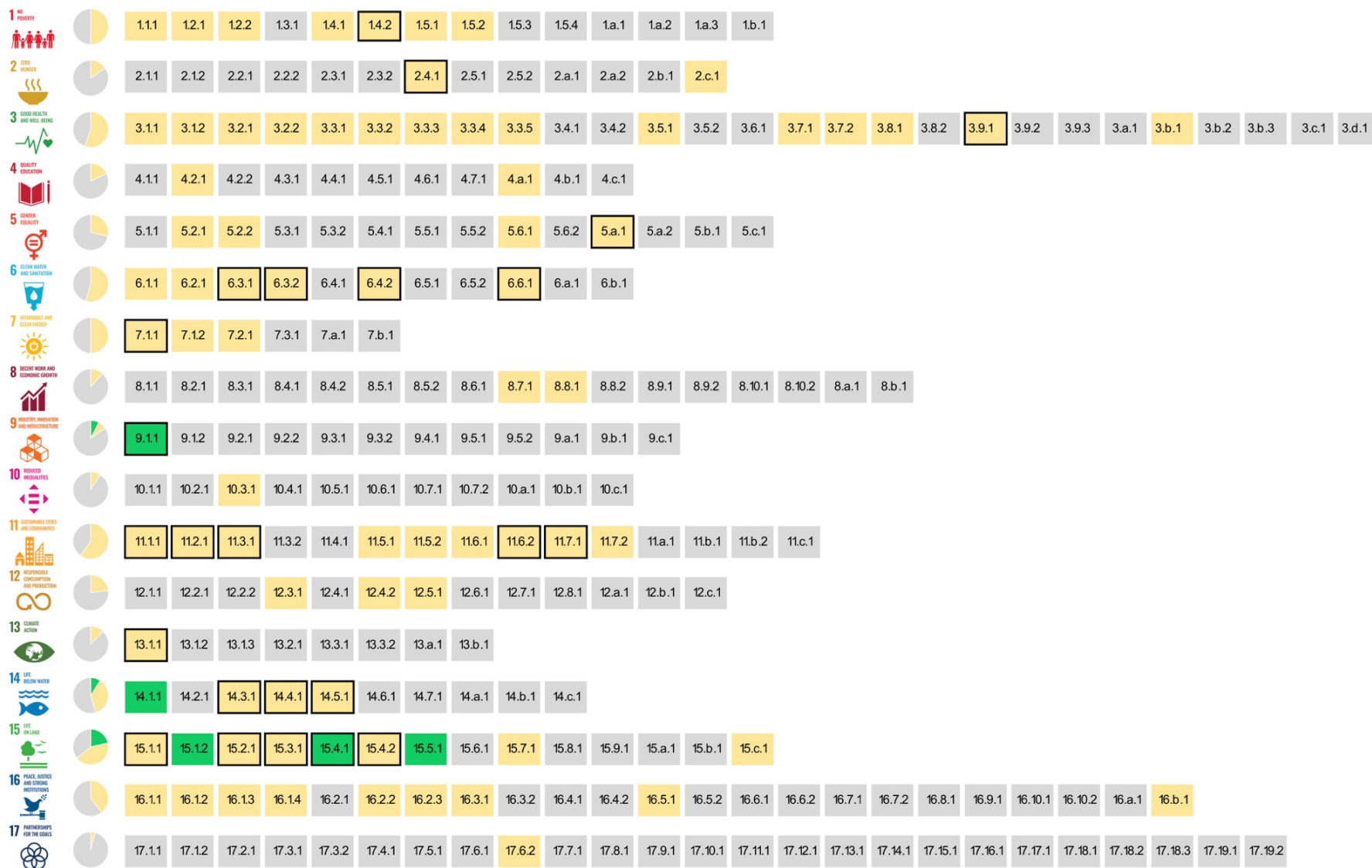
Knowledge production

- Production of scientific knowledge and clear research outcomes that include monitoring & observation.

Methodology

Results

The SDG indicators where citizen science projects are 'already contributing' (in green), 'could contribute' (in yellow) or where there is 'no alignment' (in grey). The overall citizen science contributions to each SDG are summarized as pie charts. Black borders around indicators show the overlap between citizen science and EO, as identified by GEO (2017)

Litter Intelligence

Sustainable Coastlines

LITTER SURVEY #01 • 25 October 2018 • Waikanae Beach, Gisborne, New Zealand • www.sustainablecoastlines.org/litterproject

Global Forest Watch, LACO-Wiki; Picture Pile: Deforestation, FotoQuestGo

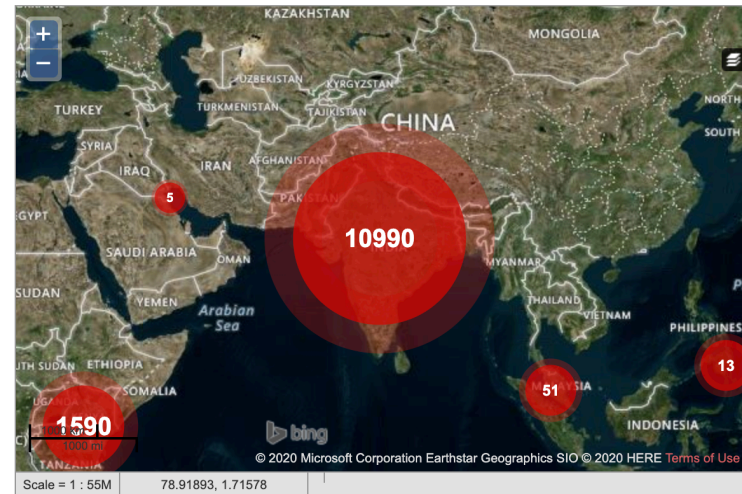|	H	J	K	L	M	N
s, combat desertification, and halt and reverse land degradation and halt biodiversity loss						
	Tier I		Global Forest Watch, LACO-Wiki; Picture Pile: Deforestation, FotoQuestGo		https://www.globalforestwatch.org/ https://laco-wiki.net/en/Welcome https://geo-wiki.org/games/picturepile/ http://fotoquest-go.org/en/	High quality remote sensing imagery of areas with forest cover is widely available, and citizen science approaches, such as participa crowdsourcing, volunteerd geographic information and more are v identifing and categorising the nature of forest cover, and forest co are a large number of existing citizen science initiatives that focus topic.
	Tier I	eBird, Bird Track, Seabirds, PanEuropean Common Bird Monitoring Scheme, International Water Bird Census, IBA Canada Regional Caretaker Networks, Maritime Breeding Bird Atlas, North American Breeding Bird Survey, INaturalist, Natura Alert, and many more bird monitoring & biodiversity projects...			Call recording with Stuart Butchart - Birdlife International https://www.cepf.net/sites/default/files/iba-statusreport201 5.pdf https://ebird.org/news/birdlife-americas https://www.birdlife.org/sites/default/files/attachments/iba-monitoring-factsheet-birdlife-international.pdf https://www.birdlife.org/sites/default/files/attachments/iba-monitoring-factsheet-birdlife-international.pdf	Citizen science is already informing this indicator on protected are Important Bird and Biodiversity Areas (IBAs) and Key Biodiversi schemes (Fritz et al, 2019; SDSN TReNDS, 2019). 44% of each fi of each terrestrial KBA is covered by existing protected area boun 2019). The largest subset of KBAs is identified using data on birds Hence, all the projects mentioned here (eBird, Bird Track, PanEur Bird Monitoring Scheme, International Waterbird Census, etc.), ar the fields of bird monitoring and biodiversity, are already contribu monitoring of this indicator.
	Tier I		Relasphone, Amazon Aerobotany, Moabi DRC, Logging Roads, FotoQuest Go, Forest Eyes, Forest Watchers, Picture Pile		https://www.mdpi.com/2072-4292/8/10/869 http://info.perunature.com/aerobotany http://rdc.moabi.org/en/ https://blog.globalforestwatch.org/people/tracing-the-paths -to-forest-destruction-new-crowdsourcing-initiative-tackles -logging-roads-in-the-congo-basin http://fotoquest-go.org/en/ https://blog.iiasa.ac.at/2016/05/17/picture-pile-gaming-for-science/ https://geo-wiki.org/games/picturepile/	The citizen science initiatives mentioned in the column to the left direct inputs to some of this multi-part indicator. One of the sub-in on both the direction of change (whether there is a loss or gain in how this rate is changing over time; the latter is important in order progress among countries that are losing forest area, but have man their rate of annual forest area loss.

16.1.3 Proportion of population subjected to (a) physical violence, (b) psychological violence and (c) sexual violence in the previous 12 months

HARASSMAP
Stop sexual harassment, together

ABOUT   OUR WORK   RESOURCES   TAKE ACTION

MAP   CHART   TABLE

● Harassment   ◉ Incident with intervention

FILTER

Map data ©2020 Mapa
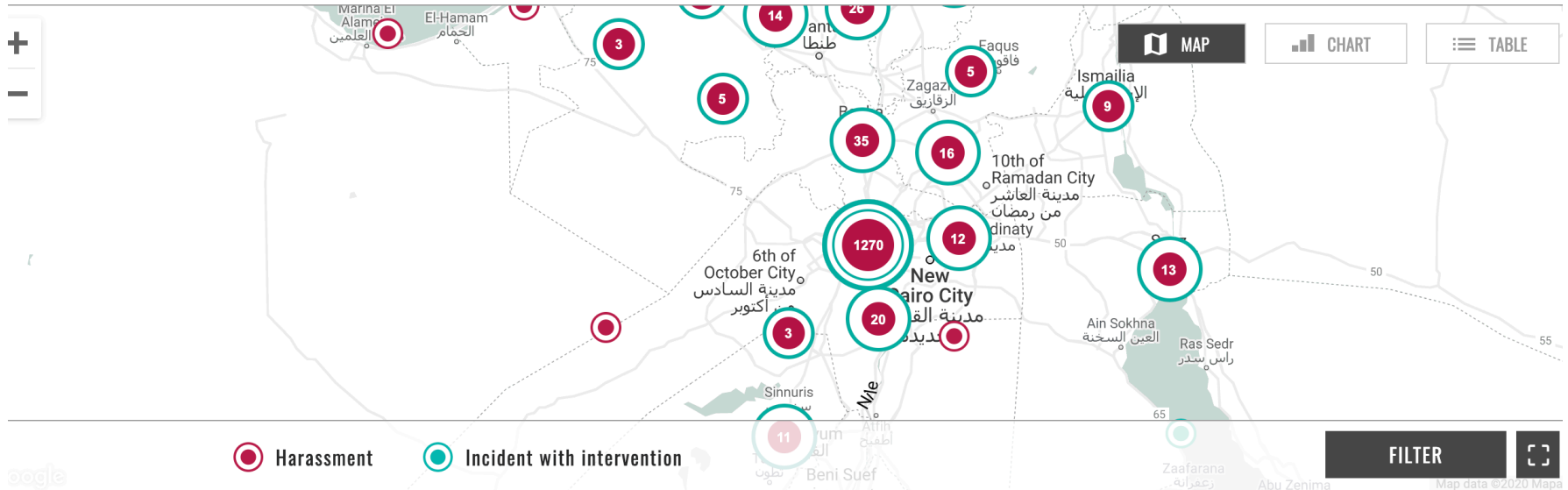
Learn the basics
Quick guide to sexual harassment and how to take action.

Share your story
Reporting is anonymous. This is how it works.

Get active
There is a lot more you can do. Check these practical tips.

Way Forward

Building awareness and sharing experiences on the use of citizen science for the SDGs;

Developing case studies or success stories where citizen science data have been used in innovative ways by NSOs;

Identifying criteria for ensuring data quality or data quality assurance procedures;

Integrating citizen science into the methodologies of SDG indicators;

Promoting consistent data collection across citizen science initiatives through aligning definitions with global definitions; and

Supporting open citizen science data that are formatted using standards.

Thank you!

- **Dilek Fraisl**, Jillian Campbell, Linda See, Uta Wehn, Jessica Wardlaw, Margaret Gold, Inian Moorthy, Rosa Arias, Jaume Piera, Jessica L. Oliver, Joan Maso, Marianne Penker, and Steffen Fritz

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