Mapping citizen science contributions to the UN Sustainable Development Goals

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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.

Keywords Sustainable Development Goals (SDGs) · Citizen science · SDG indicators · Tier classification for SDG indicators · Crowdsourcing · Community-based monitoring
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, National statistically Significant Observatories (NSOs) and government officials; UN and other UN agencies representatives; 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 engagement to support the implementation of the SDGs.
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.

Citizen Science

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

Voluntary contribution

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

Knowledge production
Methodology

1. Compile all SDG indicators

2. Review metadata and workplan

3. Search for citizen science projects (i.e. ECS00 project list, SciStarter, Zooniverse, Google, the literature)

4. For each SDG indicator, determine if citizen science is already contributing, could contribute or no alignment at present

5. First peer review by co-authors

6. Second peer review by lead author and UN Environment

7. Final mapping of CS contribution to SDG indicators
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
## Mapping Info Sheet

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

### Tier I

| Activity | Source/Link | Notes |
|----------|-------------|-------|
| Global Forest Watch, LACO-Wiki, Picture Pile: Deforestation, FotoQuestGo | [https://www.globalforestwatch.org/](https://www.globalforestwatch.org/) | High quality remote sensing imagery of areas with forest cover is widely available, and citizen science approaches, such as participating in crowdsourcing, volunteered geographic information and more are identifying and categorising the nature of forest cover, and forest change. There is a large number of existing citizen science initiatives that focus on this topic. |
| eBird, Bird Track, Seabirds, PanEuropean Common Bird Monitoring Scheme, International Water Bird Census, IBA | [https://www.cepf.net/sites/default/files/iba-statusreport2015.pdf](https://www.cepf.net/sites/default/files/iba-statusreport2015.pdf) [https://ebird.org/news/birdlife-americas](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) [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 Important Bird and Biodiversity Areas (IBAs) and Key Biodiversity schemes ([Fritz et al, 2019](https://doi.org/10.1016/j.cebp.2019.02.015); [SDSN TReNDS, 2019](https://www.trendsinternational2019.org/downloads/). 44% of each of each terrestrial KBA is covered by existing protected area (2019). The largest subset of KBAs is identified using data on bird为准, all the projects mentioned here (eBird, Bird Track, PanEu Bird Monitoring Scheme, International Waterbird Census, etc.) as well as the fields of bird monitoring and biodiversity, are already contributing to monitoring of this indicator. |
| Relasphone, Amazon Aerobotany, Moabi DRC, Logging Roads, FotoQuest Go, Forest Eyes, Forest Watchers, Picture Pile | [https://www.mdpi.com/2017-4292/8/10/869](https://www.mdpi.com/2017-4292/8/10/869) [http://info.pernature.com/aerobotany](http://info.pernature.com/aerobotany) [https://blog.globalforestwatch.org/people/tracing-the-paths-to-forest-destruction-new-crowdsourcing-initiative-tackles-logging-roads-in-the-congo-basin](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/](http://fotoquest-go.org/en/) [https://blog.tiase.ac.at/2016/05/17/picture-pile-gaming-for-science/](https://blog.tiase.ac.at/2016/05/17/picture-pile-gaming-for-science/) [https://geo-wiki.org/games/picturepile/](https://geo-wiki.org/games/picturepile/) | The citizen science initiatives mentioned in the column to the left can also be used as direct inputs to some of this multi-part indicator. One of the sub-indicators provides information on both the direction of change (whether there is a loss or gain in how much area is covered by natural forest), and the latter is important in order to monitor progress among countries that are losing forest area, but have made a larger 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

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Join a Campaign
Safecity organizes several campaigns to spread awareness about gender based crimes. Join one of our campaigns or use our resources to start your own.

Volunteer
Safecity is a completely volunteer based initiative. Volunteer your time and help us take it forward with our team of passionate and dedicated volunteers.
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!

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