

The UN Sustainable Development Goals (SDGs), climate and biodiversity challenges, and citizen science

Passani, A.¹, Reeves, N.², Austen, K.³, Corcho, O.⁴, González, E.⁴, Grossberndt, S.⁵

¹T6 Ecosystems; ²King's College London; ³FVB-IGB; ⁴Universidad Politécnica de Madrid; ⁵NILU-Norwegian Institute for Air Research

To tackle the most pertinent and complex global challenges, engagement from all parts of society is required. Citizen Science (CS) projects often thematically address SDGs, and beyond this possess the potential to support societal change that will create a culture ready to meet these goals. The ACTION project (Participatory science toolkit against pollution) supports CS projects by: selecting innovative pilots in the field of pollution through two open calls, supporting the selected pilots economically and with a dedicated acceleration program and co-designing with them the ACTION CS toolkit. The United Nations Sustainable Development Goals consist of 17 goals divided into 169 targets and 232 indicators and covering issues ranging from poverty, inequality and food security to climate change, sustainable development and energy efficiency [1]. Monitoring of these indicators is the role and responsibility of custodian organisations – either UN agencies or international organisations – who derive indicators using national, governmental and commercial sources of data [2]. Nevertheless, monitoring indicators through these methods can be very costly, particularly for developing nations who may lack the resources and funds to carry out the wide-scale monitoring needed to effectively monitor the SDGs [3].

Citizen science and citizen-generated data are increasingly being recognised as effective and accurate sources of data for the monitoring of development indicators. Simple sources such as sensor networks and field test kits can be vital sources of data for monitoring and recording vital data. Meta-analyses have suggested that environmental monitoring citizen science projects have the capacity to contribute to all 17 goals, to 42 of the 169 indicators [4] and 81 of the 232 indicators [5]. Most significantly, citizen science can play a key role in monitoring for the Life on Land, Sustainable Cities, Good Health and Wellbeing and Clean Water goals [6].

ACTION open calls

The first call ran from the 1st of August to the 31st of October 2019, we received 116 applications from 30 countries. Ultimately we funded 6 projects, looking at air pollution, noise pollution, pesticides, plastic pollution and water quality. This year we will hold the second open call, to fund 4 additional pilots. This call opened on the 1st of September and will close on the 1st of November 2020 at 12 noon CET. We invite applications from citizen science projects with a focus on pollution to apply. Due to the uncertainty caused by COVID-19, this year we focus on pilots for which activities can be completed entirely remotely and online. More details including how to apply and eligibility requirements can be found at: actionproject.eu/apply-2020/

ACTION and Open Data

The Declaration of Rio on Science for Global Sustainable Development [6] defined the need for cooperation between universities, public research organizations and industry. The "Open Data Directive" (Directive(EU) 2019/1024) stimulates the proper publication of the data generated by public administrations. Aligned with these two initiatives, the FAIR principles for open data were published[7]. It comes from Findable, Accessible, Interoperable and Reuse. These principles explain how to describe the data (metadata) to be correctly published in order to be consumed by other applications. In ACTION, we believe that CS should adopt these concepts by default to increment and to improve the scientific cooperation as well as to get involve the society in the research process (and be part of the solution). Thus, we have developed an Open Data Portal [8] based on Zenodo to allow our CS pilots to publish their digital outcomes following these principles. **This can be a first step to support them contributing to the SDGs as data providers.**

ACTION pilots and SDGs

Within ACTION, we are also interested in describing how each pilot can help a territory in improving its performance on specific SDGs targets. Therefore, as part of the ACTION impact assessment activities, for each of our pilot we will describe the SDGs targets they address:

- by providing data
- with dedicated actions at local level
- by developing innovation capable to generate a more systemic change.

The figures below show the SDGs targets on which we expect our ongoing pilots to have an impact in one of the three above-mentioned way. This hypothesis is under evaluation at the time of writing



References

[1]Fritz, Steffen, et al. "Citizen science and the United Nations sustainable development goals." *Nature Sustainability* 2.10 (2019): 922-930. [2]Fraisil, Dilek, et al. "Mapping citizen science contributions to the UN sustainable development goals." *Sustainability Science* (2020): 1-17. [3]Quinlivan, Lauren, Deborah V. Chapman, and Timothy Sullivan. "Applying citizen science to monitor for the Sustainable Development Goal Indicator 6.3. 2: a review." *Environmental Monitoring and Assessment* 192.4 (2020): 1-11. [4]Bio Innovation Service (2018) Citizen Science for Environmental Policy: development of an EU-wide inventory and analysis of selected practices. Final report for the European Commission, DG Environment under the contract 070203/2017/768979/ETU/ENV.A.3, in collaboration with Fundacion Ibericvis and The National History Museum [5]West, Sarah. How could citizen science support the Sustainable Development Goals?. Stockholm Environment Institute, 2017. [6]Fraisil, Dilek, et al. "Mapping citizen science contributions to the UN sustainable development goals." *Sustainability Science* (2020): 1-17 [7]<https://www.wcrf.org/2015-news/58-declaration-of-the-2013-rio-de-janeiro-world-science-forum-on-global-sustainable-development> [8]<https://www.go-fair.org/fair-principles/> [9] <https://data.actionproject.eu/>

The contents of the poster reflects the author's views. The European Commission is not liable for any use that may be made of the information contained therein.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement number 824603.

<https://actionproject.eu>



@ACTION4CS
#ACTION4CS

