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Citizen Science in support of SDG monitoring

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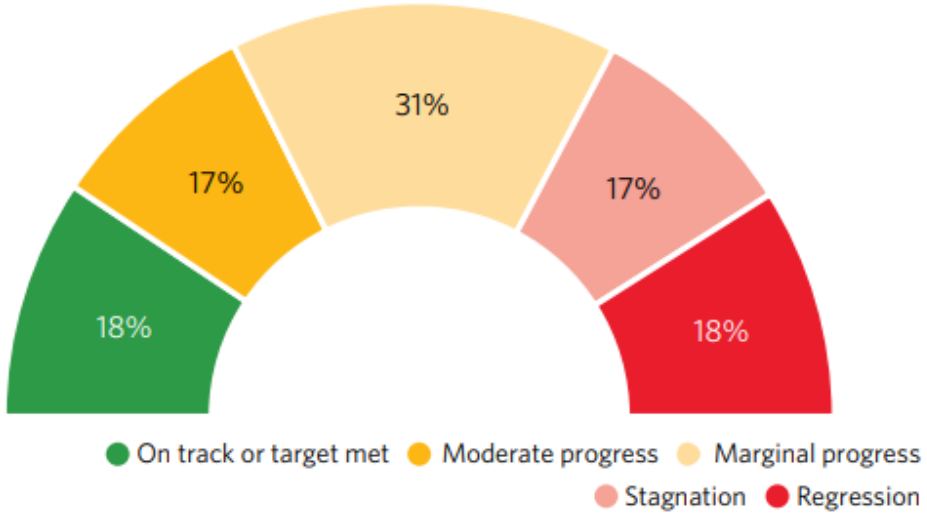
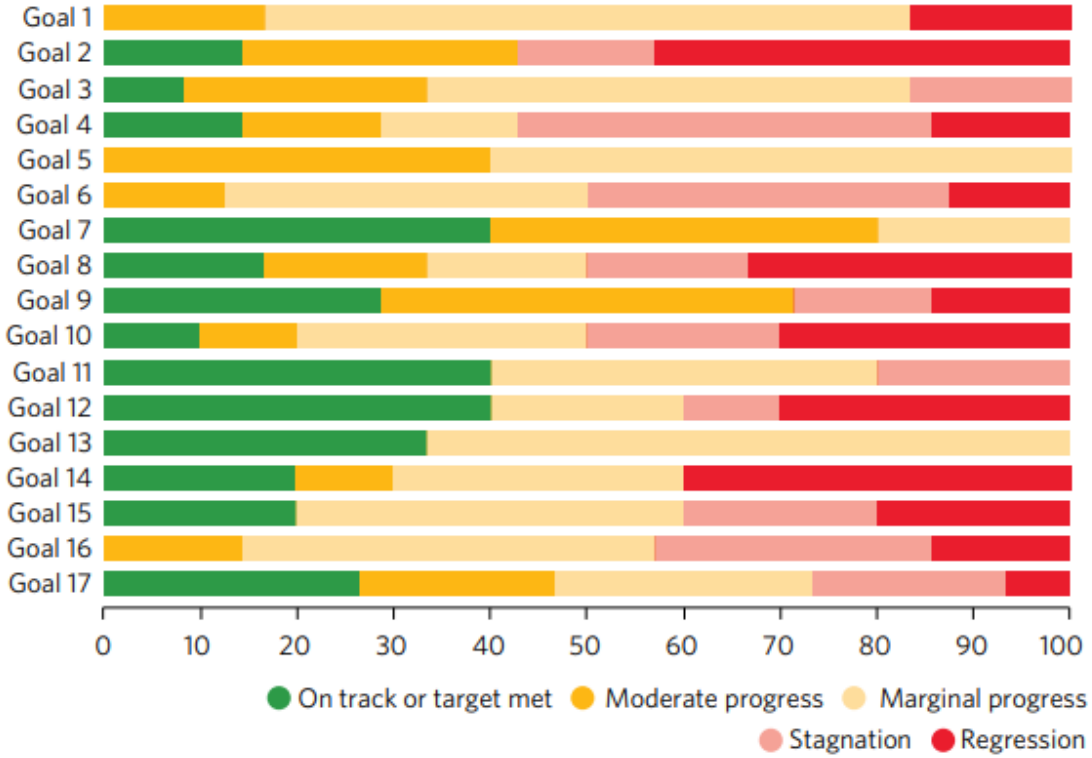
1 NO POVERTY
2 NO HUNGER
3 GOOD HEALTH
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 RENEWABLE ENERGY
8 GOOD JOBS AND ECONOMIC GROWTH
9 INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE AND JUSTICE
17 PARTNERSHIPS FOR THE GOALS
THE GLOBAL GOALS
For Sustainable Development

Overall progress across targets based on 2015–2025 global aggregate data



Note: Percentages do not add up to 100 per cent due to rounding.

Progress assessment for the 17 Goals based on assessed targets, by Goal (percentage)

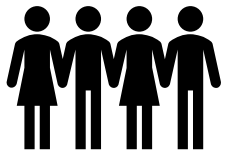


UN SDG Report, 2025

Where are we today? SDGs, Data and Policy Shifts

- **DHS Termination:** The U.S. has ended support for the Demographic and Health Surveys (DHS), a key source of population, health, HIV, and nutrition data in 90+ countries since 1984.
  - o One-third of SDG indicators rely on household survey data.
  - o DHS alone contributes to about 30 SDG indicators
  - o The loss of DHS data threatens evidence-based policymaking in low- and middle-income countries.
- **Environmental Monitoring Cuts (US):** 2025 proposal: 54% cut to EPA budget, undermining climate, pollution, and environmental justice programs.
- **Shift in Priorities:**
  - o Increased defense spending diverts funds from sustainability efforts.
  - o AI-driven “efficiency” risks further weakening data quality.
- **Policy Stance:** U.S. administration openly rejects and disengages from SDGs, signaling declining global sustainability commitment.

Citizen science



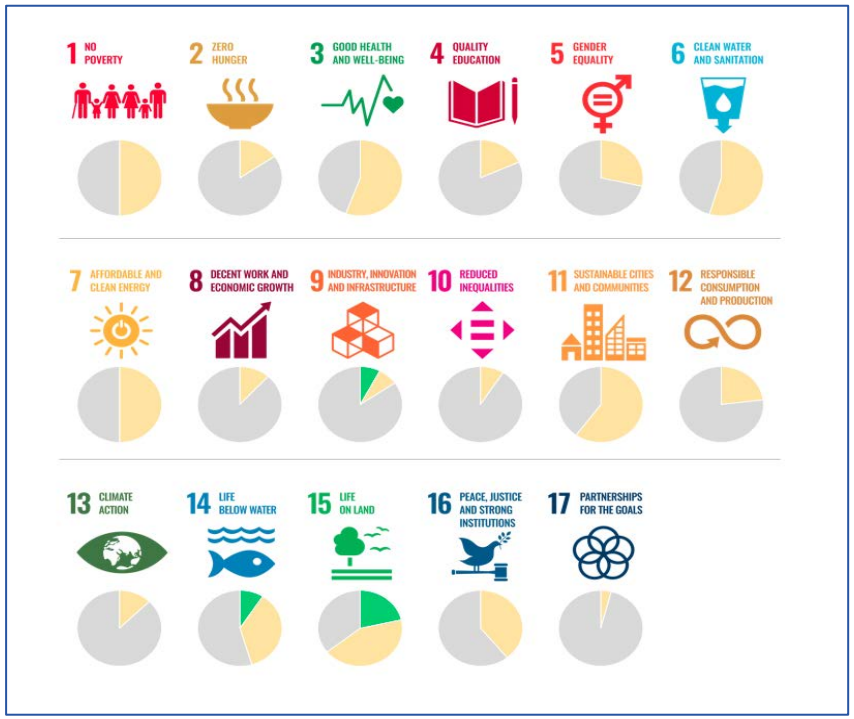
Public Participation

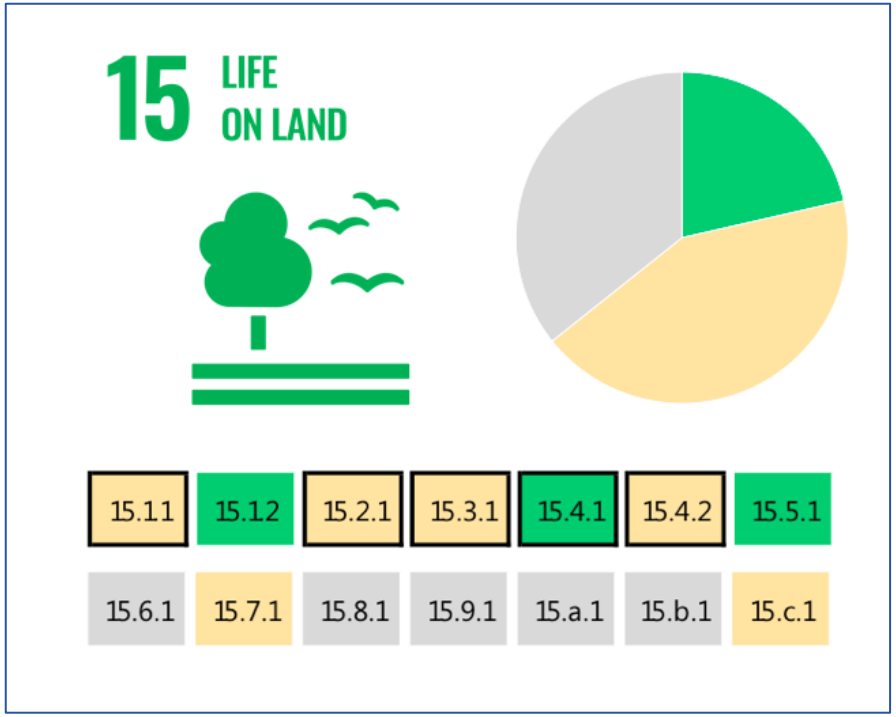
Knowledge production

Voluntary contributions

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

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.





Fraisl, D., Campbell, J., See, L. *et al.* Mapping citizen science contributions to the UN sustainable development goals. *Sustain Sci* **15**, 1735–1751 (2020). https://doi.org/10.1007/s11625-020-00833-7

eBird

- One of the world's largest biodiversity-related science projects, with more than 100 million bird sightings contributed annually around the world
- An average participation growth rate of 20% year over year
- Documents bird distribution, abundance, habitat use, and trends through checklist data collected within a simple, scientific framework. Birders enter when, where, and how they went birding, and then fill out a checklist of all the birds seen and heard

    - SDG indicators 15.1.2 Proportion of important sites *for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type* and 15.4.1 *Coverage by protected areas of important sites for mountain biodiversity*
    - GBF Headline indicator Red List Index, Red List of Ecosystems and others...

Source: Earthwatch Institute

SDG 6.3.2 Proportion of bodies of water with good ambient water quality

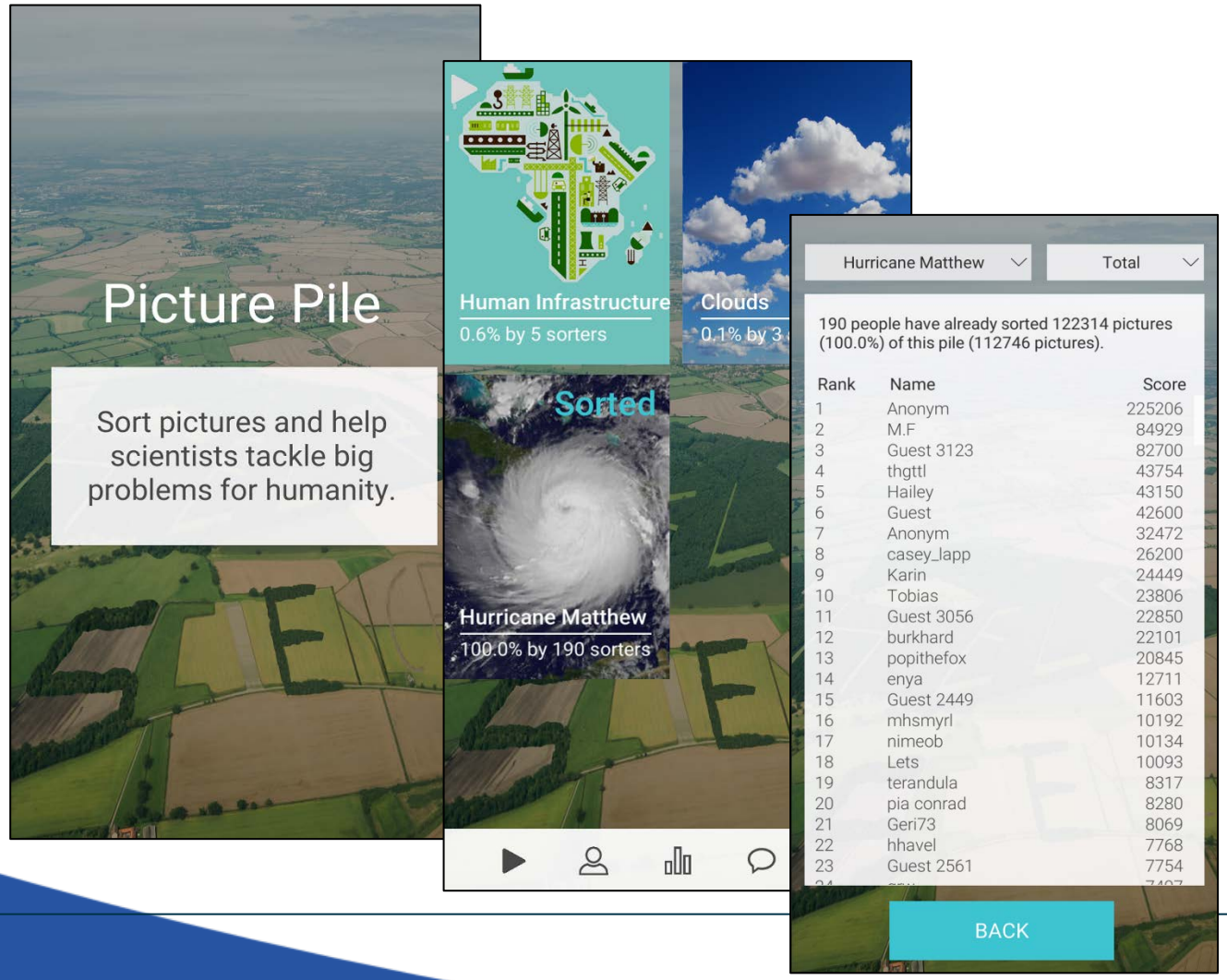
GBF Target 11 Complementary indicator

FreshWaterWatch

Thousands of volunteers from around the world .

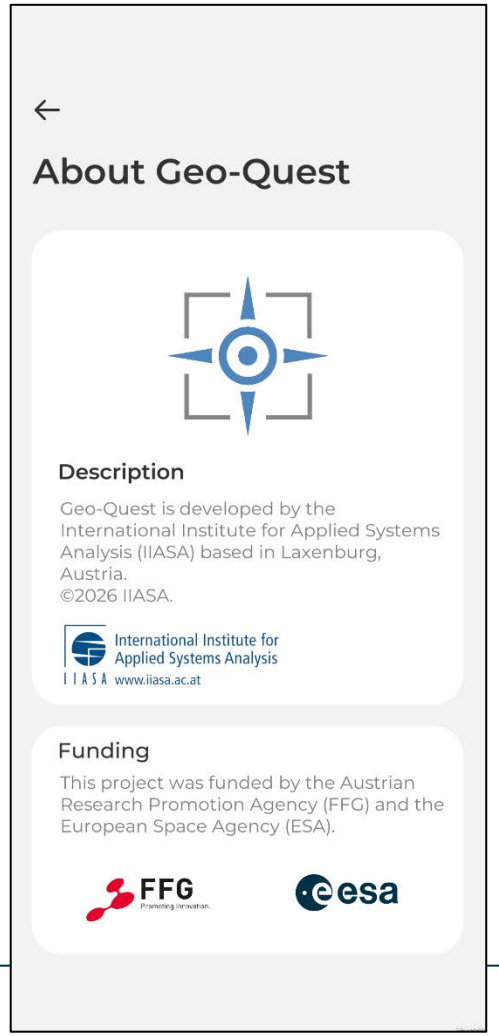
Citizen science and Earth Observation: Top-down & bottom-up citizen science

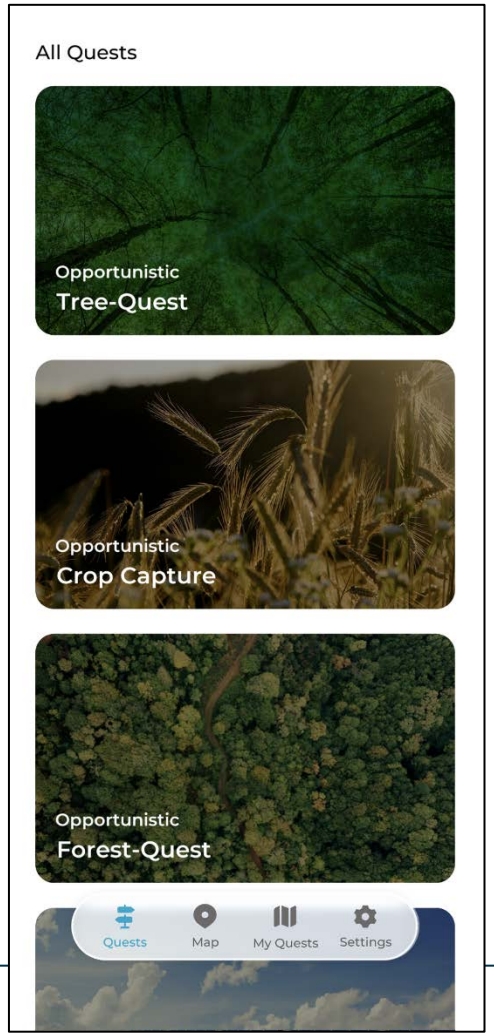
- **Top-down: Picture Pile**



Complemented by bottom-up citizen science:

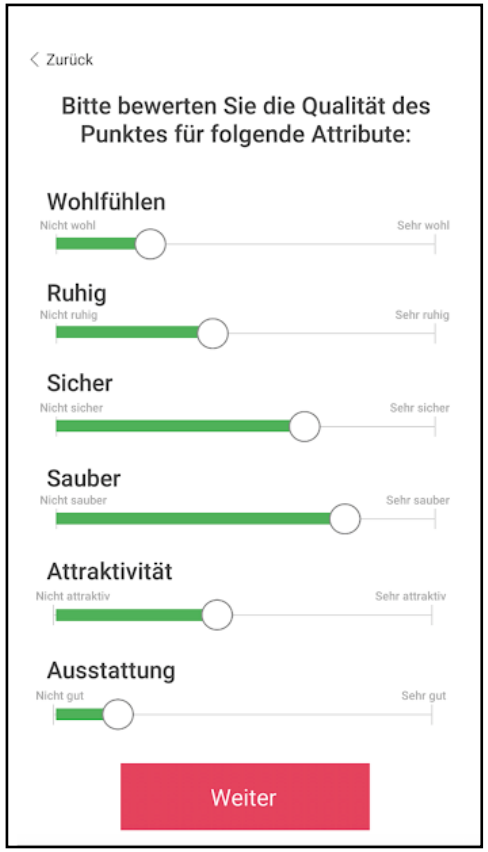
Geo-Quest

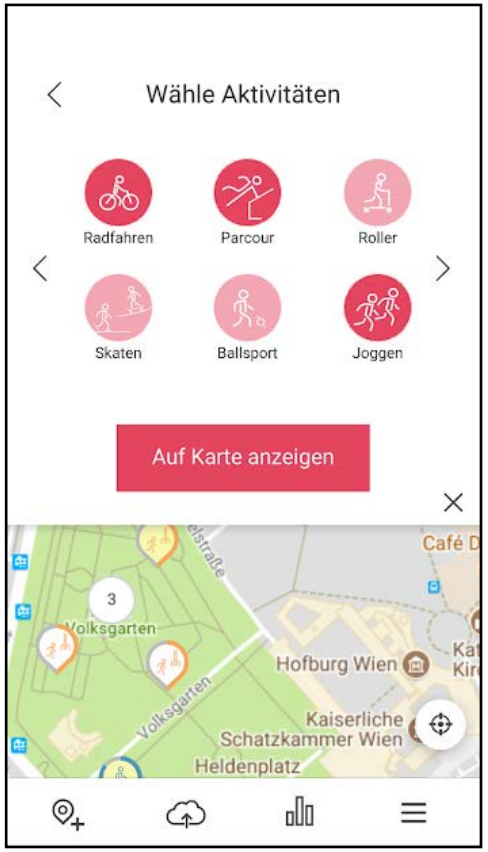




SDG 11.7.1 Built-up area of cities that is open space for public use

City Oases





Home > Sustainability Science > Article

The contributions of citizen science to SDG monitoring and reporting on marine plastics

Original Article | Open access | Published: 19 September 2023

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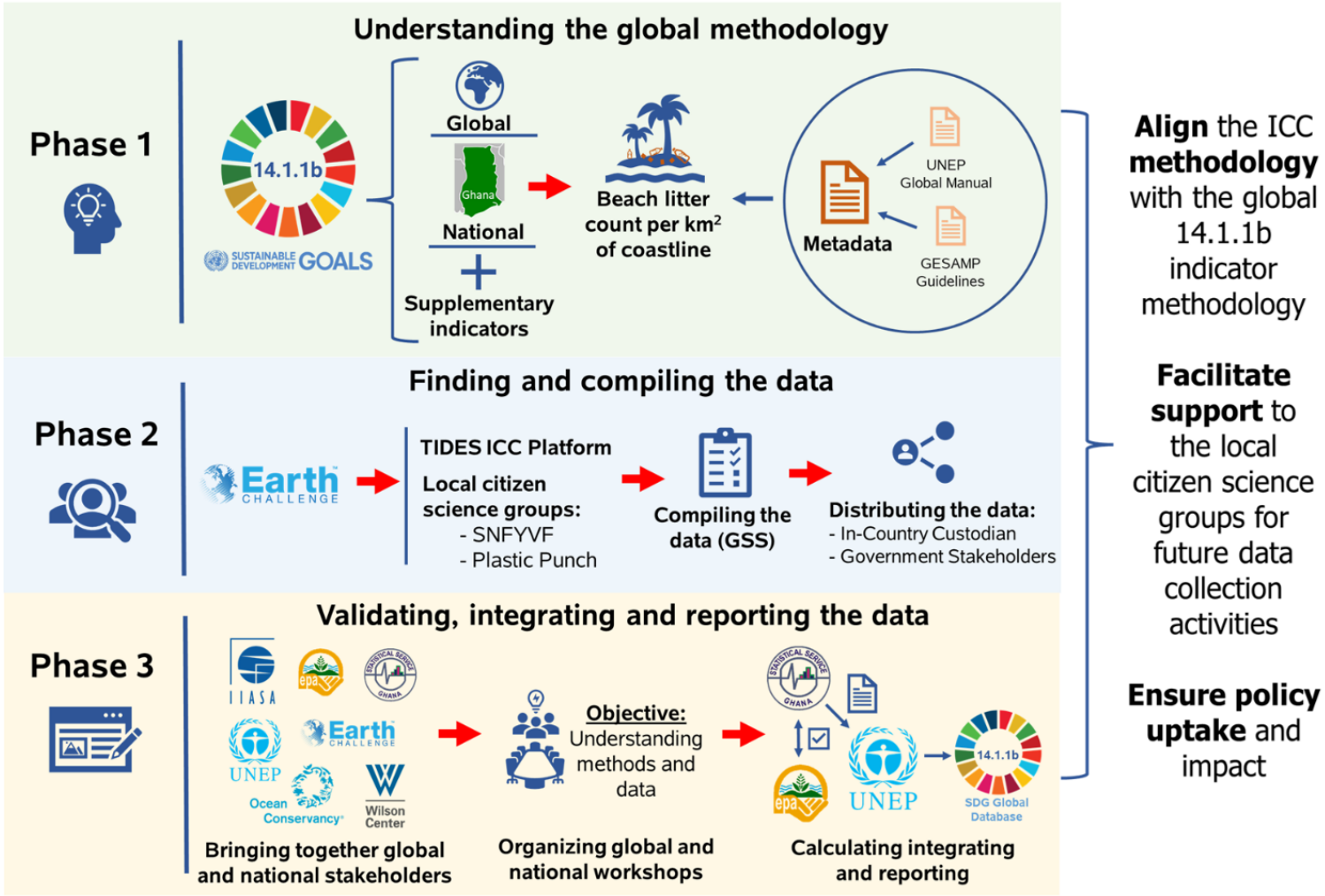
Dilek Fraisl, Linda See, Rachel Bowers, Omar Seidu, Kwame Boakye Fredua, Anne Bowser, Metis Meloche, Sarah Weller, Tyler Amaglo-Kobla, Dany Ghafari, Juan Carlos Laso Bayas, Jillian Campbell, Grant Cameron, Steffen Fritz & Ian McCallum

Best Paper Award 2024, Springer Nature, Sustainability Science

The process of integrating citizen science data on marine litter for SDG indicator 14.1.1b reporting in Ghana



Fraisl, D., See, L., Bowers, R. *et al.* The contributions of citizen science to SDG monitoring and reporting on marine plastics. *Sustain Sci* (2023). https://doi.org/10.1007/s11625-023-01402-4

GLOBAL RECOGNITION AND IMPACT

@Smart Nature Freaks Youth Volunteers Foundation

- Ghana has become the first country to integrate existing citizen science data on marine plastic litter into their official statistics, SDG monitoring and reporting.
- Results used in Ghana's Voluntary National Review of the SDGs, and reported on the UN SDG Global Database
- Informing the integrated coastal and marine management policy in Ghana.
- Bridging local data collection efforts with global monitoring processes and policy agendas by leveraging the SDG framework.
- Partnerships with citizen science networks have been built to ensure sustainability of data and the approach, led by the government.
- Other countries, such as Siera Leone and Colombia, are also adopting the approach and have engaged in knowledge exchange workshops with Ghana aimed at replicating the model and process.

GLOBAL RECOGNITION AND IMPACT

- Recognized in the UN SDG Reports published by the UN Statistics Division (UNSD) (both in 2023 & 2024 editions)
- Showcased on the UNSD website as a best practice model
- Highlighted in the UN Statistical Commission - Secretary General's Report (Statistical Commission Fifty-sixth session, 2025)
- Influenced other UN agencies (UNDP's work on SDG 16 citizen satisfaction indicator, UN-HABITAT Quality of Life Indicator Framework)
- Won the Group on Earth Observations (GEO) SDG Award, including its second phase (drones, citizen science and AI integration to produce litter density maps)
- Featured by the UNSD Citizen Data Collaborative across sessions, publications, and best practice platforms
- Featured in a recent Nature Sustainability perspective piece, which was then highlighted in a Nature editorial
- Presented at the UN World Data Forum, UN Statistical Commission, UN Environment Assembly, UN Big Data and Data Science for Official Statistics Conference, and other major UN events, and scientific conferences; published on the Worl Bank blog

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Ensure inclusiveness through meaningful engagement of all stakeholders

Create time and space for these stakeholders to meet and connect

Listen and understand the motivations, interests and concerns

Be transparent about citizen science results and methodologies, especially how these methodologies were implemented

Citizens and communities are no free labor to close government data gaps; they should receive a share of the benefit from participating

@Smart Nature Freaks Youth Volunteers Foundation

Bridging local data collection efforts with global monitoring processes by leveraging the SDG framework

nature sustainability

Perspective

https://doi.org/10.1038/s41893-024-01489-2

Leveraging the collaborative power of AI and citizen science for sustainable development

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Check for updates

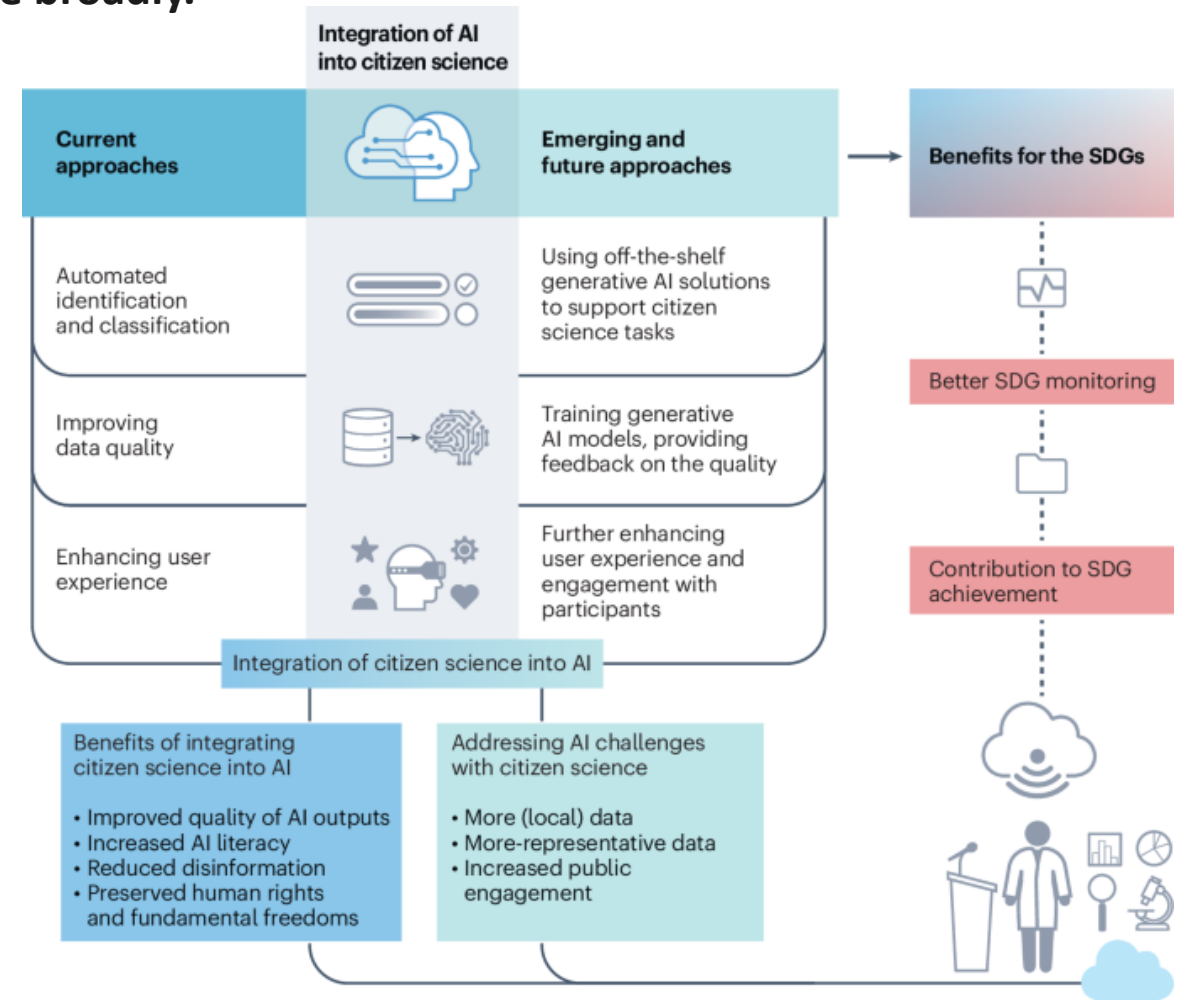
Dilek Fraisl[1,2], Linda See[1], Steffen Fritz[1,2], Mordechai Haklay (Muki)[3,4] & Ian McCallum[1]

Both artificial intelligence (AI) and citizen science hold immense potential for addressing major sustainability challenges from health to climate change. Alongside their individual benefits, when combined, they offer considerable synergies that can aid in both better monitoring of, and achieving, sustainable development. While AI has already been integrated into citizen science projects such as through automated classification and identification, the integration of citizen science approaches into AI is lacking. This integration has, however, the potential to address some of the major challenges associated with AI such as social bias, which could accelerate progress towards achieving sustainable development.

Fraisl, D., See, L., Fritz, S. *et al.* Leveraging The collaborative Power of AI and Citizen Science for sustainable development. *Nat Sustain* (2024). Https://Doi.Org/10.1038/S41893-024-01489-2

1. Integrating AI into citizen science

The current and future applications of AI in citizen science projects, benefits of combining AI and citizen science to address AI challenges, and ultimate benefits for the SDGs and sustainable development more broadly.



Fraisl, D., See, L., Fritz, S. *et al.* Leveraging the collaborative power of AI and citizen science for sustainable development. *Nat Sustain* **8**, 125–132 (2025). https://doi.org/10.1038/s41893-024-01489-2

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