EO 4 Ecosystem Accounting 2022

National Implementation in Canada

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Brief Background

1. In the Federal budget of 2021, the Government of Canada tasked and funded Statistics Canada (and Environment and Climate Change Canada as co-sponsor) to create and maintain a Census of Environment (https://www.statcan.gc.ca/en/subjects-start/environment/census)
    - Overarching objective: *to deliver and maintain a full suite of ecosystem accounts and profiles quantifying the relationship between ecosystems and the Canadian society*

2. Main components:
    A. A register of ecosystem assets
        - A national, spatially explicit framework used to support the production of integrated statistics on ecosystems that are comparable across space and time
    B. Ecosystem profiles and accounts
        - Integrated bio-physical and socio-economic data; full suite of ecosystem accounts

The use of EO in Ecosystem Accounts

1. Statistics Canada is becoming a regular user of Satellite and *in-situ* Earth Observation
   - Environment, agriculture, economic programs are increasingly using EO

2. The Census of Environment (CofE) program makes use of SEO to:
   - Support the delineation of ecosystem assets
   - Provide measures of condition for various types of ecosystems
   - Support modelling and estimations for ecosystem services
   - Allow advanced statistical analysis to track spatial and temporal changes
   - Foster departmental and inter-departmental collaboration
   - …

3. In turn, CoE **results** will support:
   - The implementation and tracking of the outcomes of investments in nature-based solutions
   - Reporting on the state and trends of terrestrial, freshwater and marine ecosystems
   - Canada meeting its reporting obligations (e.g. Convention on Biological Diversity; UNFCCC)
   - …

Lessons Learned

1. One should not underestimate the complexities of using EO in ecosystem accounting
    - The urgency of satisfying the demand for information, the scarcity of fit for purpose data, and the complexity of the tasks represent quite a challenge.

2. When generating ecosystem account data, local data (from Satellite EO) is what has brought so far the most attention by the media and academia;
    - Our work on Urban greenness has drawn a lot of positive attention

3. The NSO needs to work collaboratively with other government departments and stakeholders involved in the science of Earth observation
    - but the NSO should lead the effort

Lessons Learned (cont.)

4. Satellite Earth observation (incl. Analysis Ready Data) are generally not immediately fit for the purpose for ecosystem accounting
   - There is a need for Ecosystem Accounting Ready Data (EARD)

5. It may not be reasonable or possible to expect space agencies to produce EARD, at least currently.
   - Perhaps NSOs and other data producers need to step up to the plate, and develop processes to work with Big Data to reach that outcome. But most NSOs lack capacity and expertise

6. Some ecosystems can be tracked in terms of area (extent), but many cannot
   - We may limit accounting for ecosystem extent change which involves land use change or a catastrophic event
   - Otherwise, detected changes most likely belong to the condition account.

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Thank you!

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