
WP23_25: Earth Observations for Ecosystem Accounting

1230,166

Basic Information

Full title of the Initiative

Earth Observations for Ecosystem Accounting

Short Title or Acronym

EO4EA

Current category in the 2020-2022 GWP

GEO Initiative

Proposed category in the 2023-2025 GWP

GEO Initiative

Points of Contact

First Name	Last/Family Name	Email
Timothy	Wright	twright@conservation.org
Daniel	Juhn	djuhn@conservation.org

Purpose

Objective

The purpose of the initiative is to further the development and use of Earth Observations for natural capital accounting (NCA) consistent with the set of standards and guidelines put forth by the UN System of Environmental-Economic Accounting (SEEA) and specifically the Ecosystem Accounts (EA).

Please provide a short description of the Initiative

There is an urgent need to align the way that we manage our ecosystems with the economic systems used for decision making to ensure long-term resilience and sustainable development. Statistical agencies around the world are starting to develop ecosystem accounts to address this challenge and the earth observation community will play a critical role in operationalizing and scaling up these efforts. The Earth Observation for Ecosystem Accounting (EO4EA) Initiative seeks to advance the application of earth observations to support Ecosystem Accounting under the System of Environmental Economic Accounts (SEEA). Our mission is to enable the widespread adoption of SEEA Ecosystem Accounts by co-developing the EO standards, tools, products, and capacities that are needed by the accounting community. Our membership includes national governments, academic institutions, intergovernmental organizations, and NGOs.

Why is this Initiative needed?

Natural Capital Accounting, and Ecosystem Accounting in particular, is inherently spatial and requires the application of high quality, spatial explicit data on the state and condition of ecosystems. There is a need to connect the earth observation community with the accounting community to overcome technical challenge and operationalize the development of ecosystem accounts.

What evidence is there to support this need?

The Dasgupta Review (2021) concluded that accounting for natural capital was one of the most important "options for change" to effect a transformational shift needed towards sustainable development

Is this Initiative open to participation by representatives of any GEO Member, Participating Organization, and GEO Associate?

Yes

Are you aware of other projects or initiatives at a global or regional scale (both in GEO and externally) that provide similar products or services?

No

Please identify the most important actual and/or intended outputs (products, services, etc.) produced by the Initiative, along with their intended and/or actual users. This list does not need to be comprehensive but should identify the outputs which are most used and are expected to have the greatest potential impact.

Output	Status	Users	Additional info
Account-ready data standards	In development	EO data producers and users	
Ecosystem Accounting case studies and pilots	Occasionally updated	National Statistics Offices/Account developers	
Data and model interoperability guidelines for accounting	Planned	EO data users and account developers	
Core EO-derived data products for accounting	Planned	National Statistic Offices/Account developers	
Various on the ground pilots	In development	National Statistic Offices/Account developers	

If needed, please provide additional comments or explanation to accompany the outputs table

- no answer given -

What kinds of decisions are the outputs of this Initiative primarily intended to support?

The outputs of the initiative will support national governments and national statistics offices, that are developing ecosystem accounts, intended to support a range of decisions for natural resource management, sustainable development planning, options for nature based solutions policy formulation, and a range of investments.

How will these decisions benefit from the outputs of this Initiative?

Development decisions need to incorporate the value of nature into the decision making process. The outputs

developed by this initiative will facilitate the creation of ecosystem accounts which will support sustainable development and natural resource management.

What kinds of impacts (for example, reduced loss of life, monetary savings, conservation of biodiversity, etc.) are anticipated as a result of the use of the outputs of this Initiative?

Conservation of biodiversity, improved management of ecosystems, more holistic understanding of wealth, reduction in habitat loss/degradation, ecosystem services and livelihoods for human well being.

Has this Initiative been asked to provide specific information (for example, reports, data, services) on an ongoing basis to an international convention, organization, or other multilateral body?

No

Technical Synopsis

Please provide a brief description of the methods used by the Initiative to produce its (actual or planned) outputs.

The work of the initiative will be divided into two core areas; 1) technical activities and 2) engagement activities.

Technical activities will focus on data development and platform harmonization. The purpose of the technical activities will be to overcome the technical barriers to applying earth observation data for accounting. This will include co-developing EO data standards with statistical agencies so that data is fit for purpose and can be readily applied for accounting. We will also work to promote data and model interoperability for mapping the state and condition of ecosystems and the services that they provide. Finally, the initiative will provide technical assistance in the EO components of ecosystem accounting by contributing to standards and methods that can be used by statistics agencies.

Engagement activities will focus on communication and amplification. The primary goal of our engagement activities will be to ensure that ecosystem accounting is integrated within GEO activities. The SEEA has already been identified as a unifying framework for reporting on multilateral environmental agreements, such as the Global Biodiversity Framework and the Sustainable Development Goals. By engaging the GEO Work Program, we can leverage existing work programs and ensure that is compatible with the principles of the SEEA. To further grow the EO4EA community, the initiative will host and participate in webinars, presentations, and workshops that support the application of EO data for accounting. Finally, through our engagement activities, we will seek to link the earth observation and ecosystem accounting community around common goals.

If you would like to provide further details on the technical methods, you may upload one or more documents here.

- no supporting documents provided -

Are there any significant scientific or technical challenges that need to be resolved by the Initiative during the 2023-2025 period?

Yes

Please describe these challenges and the steps being taken to solve them.

Developing standards for account-ready data is a key technical challenge that will be addressed by the community. We will do this by working closely with the experts from national statistic offices to co-develop metadata standards that would facilitate the application of EO data for accounts.

Does the Initiative expect to complete any key new outputs, improvements to existing

outputs, or improvements to the methods of producing outputs, in the 2023-2025 period?

Yes

Please describe these new outputs or improvements.

We plan to improve data and model interoperability to support ecosystem accounting. This will be done through the Artificial Intelligence for Environmental Sustainability (ARIES) platform.

Please identify the key tasks that must be implemented to ensure delivery of these changes, with target dates for completion.

Task	Task description	Expected completion (month/year)
Ecosystem Account Ready Data	Develop EO data standards for accounting.	
Core EO data products	Identify core EO data products that are needed to support accounting and work with data producers to deliver these products.	
Data and model interoperability	Promoting data and model interoperability through the ARIES for SEEA platform	
On the ground pilots	Various efforts by members to pilot applications of EO to EA	

Resources

Have all resources required to implement the Initiative's planned work in the 2023-2025 period been secured?

Please list all financial and non-financial contributions to the Initiative (other than in-kind, voluntary participation by individual contributors) having a value of more than USD 50,000.

Contributing Organization	GEO Status	Type of Resource	Value	Currency
NASA	United States	Financial	423,058	USD

Lessons from the 2020-2022 Period

Were all planned activities for the 2020-2022 period implemented as expected?

No

Please describe which activities were delayed or not implemented and how has this affected plans for 2023-2025.

The initiative was initially organized around the individual components of the ecosystem accounts. This was done in an effort to advance the technical work in support of the SEEA. While the initiative was very active in the development and ultimate ratification of the SEEA Ecosystem Accounts standard, it did not take the form of the work streams that we had proposed in the 2020-2022 implementation plan. One reason for this is that the standards were still under development during the 2020 - 2022 period, now that the standards have been ratified there is much more clarity on what is needed from the EO community to support accounts. Therefore, we have realigned our initiative to address technical issue around applying EO data for accounts and providing a platform for engage between the GEO and accounting communities. With this in mind, the work plan presented here restructures the effort around the two themes that will not only make EO4EA more effective, but also more relevant given the current state of SEEA. (See below).

Were there any key challenges faced by the Initiative in the 2020-2022 period?

Yes

Please describe.

The key challenge that was identified in the 2020-2022 period was the need for dedicated funding to support the specific technical activities. Our funding was primarily allocated for meetings and opportunities to bring people together, however, we did not have funding for technical outputs. This made it challenging for our member to effectively collaborate on shared objectives. In the 2023-2025 period we are going to focus on creating better mechanisms for members to collaborate and apply for grants as a way to fund more intensive technical work.

Were there any impacts or changes to operations due to COVID-19?

Yes

Please describe.

Due to the COVID-19 pandemic many of the meetings and events that we had planned needed to be done virtually. This community functions better in face to face setting. We had planned to support face to face workstream development but that simply was not possible during the past 2.5 years.

Please describe the key changes proposed for the 2023-2025 period, for example, new projects, new areas of focus, or adjustments to the activity governance.

The key shift in the 2023-2025 period is to shift the way that the initiative is organized away from work streams that reflect the components of the accounts (extent, condition, services, etc.) and toward thematic areas of data/platforms and engagement. This will improve our ability to react to the needs of the accounting community and remove the silos that made the integration of EO products across accounts challenging. We also plan to adjust the governance structure to better distribute the authority of the initiative so that it can respond more quickly to the needs of the community.

Does the Initiative have outputs (products, services, etc.) available to users now, even if only on a pilot or testing basis?

Yes

Please provide any available information describing this usage (for example, user statistics, results of user testing) and/or feedback from users (for example, user comments, evaluations).

Members are involved in the creation of ARIES, which is SEEA's forward facing platform for countries to produce accounts. Its in pilot mode at the moment. Because the ecosystem account community is rallying around the principles and standards that ARIES espouses, EO4EA is also harnessing its energies around its further development.

Please provide supporting documentation if available.

- no supporting documents provided -

Do you have evidence of any impacts that have occurred in part as a result of using the outputs of the Initiative (for example, policy decisions taken, behaviour changes by users, risks mitigated)?

No

Have there been any internal or external reviews or evaluations of the Initiative since 2019?

No

Please indicate any GEO Work Programme activities with which you have ongoing collaboration.

- EO4SDG - Earth Observations for the Sustainable Development Goals
- GEO BON - GEO Biodiversity Observation Network
- GEO-ECO - GEO Global Ecosystems
- GEOGLOWS - GEO Global Water Sustainability
- GEO-LDN - GEO Land Degradation Neutrality
- GEO-WETLANDS - GEO Wetlands
- BLUE-PLANET - Oceans and Society: Blue Planet

Please indicate any additional GEO Work Programme activities with which you would like to establish new collaborations.

- AFRIGEO - African Group on Earth Observations
- AMERIGEO - Americas Group on Earth Observations
- AOGEO - Asia-Oceania Group on Earth Observations
- DE-AFRICA - Digital Earth Africa
- EO4SENDAI-MONITORING - Earth Observation and Copernicus in support of Sendai Monitoring
- GEO-EV - GEO Essential Variables
- GEOGLAM - GEO Global Agricultural Monitoring
- HUMAN-PLANET - GEO Human Planet

Stakeholder Engagement and Capacity Building

Are there specific countries or organizations that your Initiative would like to engage?

Yes

Please list these countries, regions or organizations.

Because we are currently engaged with at the international level with UNSD-SEEA and (for example) and with the Gaborone Declaration for Sustainability in Africa (GDSA) member countries, we would like to explore partnerships with similar regional initiatives in Asia.

What are your plans to engage them?

Current:

UNSD-SEEA - Participate in expert forums and working groups. Engage through membership on EO4EA Steering Committee

GDSA countries - engagement through the African NCA community of practice and through Conservation International/NASA partnership.

Future considerations:

Regional level: ASEAN, deeper ties with UN Agencies in other non-Africa regions, SERVIR

Country level: Any country that has formally expressed interest to UNSD in ecosystem accounting

Does your Initiative engage users in the work of the Initiative (for example,

consultation, testing, co-design)?

Yes

Please briefly describe the Initiative’s approach to engaging users.

National Statistics Offices have been engaged for both consultation and co-design of the initiative

Does the Initiative have a user engagement strategy or similar kind of document?

No

Are there categories of users that are not represented at this time, but you would like to engage?

Yes

Please list these user categories or regions.

EO data producers are currently under-represented in the initiative and will become the priority focus for the coming year.

What are the plans for further engagement of users in the Initiative?

We plan to engage with more EO experts by leveraging our relationships in GEO and working with other GEO Flagships and Initiatives, such as GEOBON, GEO-ECO, and Blue Planet. We also would like to coordinate more closely with data producers such as NASA and ESA.

Does the Initiative have a documented capacity development strategy?

No

Please describe the approach to capacity development that is being implemented by the Initiative?

Current capacity development will be done through our all-member meetings and spotlight sessions, where we showcase recent developments related to earth observations and ecosystem accounting. The initiative will also act as a connection between national agencies that produces and apply spatial data with the statistics offices that are responsible to developing accounts.

Are there any commercial sector organizations participating in this Initiative?

Yes

Please list the commercial sector organizations.

Organization name	GEO Member/PO/...	Country in which the organization is based	City in which the organization is based
ESRI		United States of America	Redlands, CA
Planet Labs		United States of America	San Francisco, CA
Vito Remote Sensing		Belgium	

Are there opportunities for commercial sector uptake of the outputs of the Initiative?

Yes

Please describe these opportunities.

Although ecosystem accounting is a government-activity, there are opportunities for private sector

engagement as data producers, contributors, and users of ecosystem accounts.

Is there already commercial uptake occurring?

No

Are there opportunities for further commercial sector participation in the Initiative?

Yes

Please describe these opportunities.

Commercial sectors can participate as data producers supporting accounting, providing resources to enable account generation, or providing service to amplify the uptake of accounts.

Does the Initiative have a plan for commercial sector engagement?

No

Governance

Please describe the roles of each of the key leadership positions, as well as any team structures involved in day-to-day management.

Currently, Conservation International is the Secretariat for the EO4EA initiative. We have a steering committee comprised of leaders in both the ecosystem accounting and earth observation community. Daniel Juhn, from Conservation International, is the chair of the steering committee. However, we plan to adjust the governance of the steering committee to include multiple co-chairs that can better represent the multifaceted nature of accounting. We will propose changes to the governance to be ratified by members in June, after the deadline for this workplan

Is there a steering committee or other governance bodies that advise the Initiative but are not involved in day-to-day management?

Yes

Please describe the roles of each body. If there are multiple governance bodies, please describe the relationships among them (such as through a governance structure diagram).

The steering committee provides high level guidance for the initiative. The steering committee meets quarterly to provide updates and contribute to the strategic direction of the initiative.

- no supporting documents provided -

What methods does the Initiative use to communicate with its participants?

- Email / e-newsletters
- Regular conference calls

Please describe the key risks that could delay or obstruct the completion of the planned activities and outputs of the Initiative, along with any actions taken to mitigate these risks.

- no answer given -

What methods are used by the Initiative to monitor its effectiveness?

- Informal discussions with users / beneficiaries

Would the Initiative be interested in assistance from the GEO Secretariat for developing an impact plan?

Yes

How are the results of the monitoring and evaluation activities shared with participants and the wider GEO community?

We have primarily used the GEO Plenary and GEO Symposium to share our results with the broader GEO community.

Are any monitoring or evaluation activities required by funders/contributors?

No

Participants

Please list the active individual participants in the Initiative

First name	Last name	Email address	Member	Org
François	Soulard	francois.soulard@canada.ca	Canada	- Statistics Canada
Jan-Erik	Petersen	jan-erik.petersen@eea.europa.eu	European Commission	EEA - European Environment Agency
Francisco	Jimenez Nava	francisco.jimenez@inegi.org.mx	Mexico	INEGI - National Institute of Statistics and Geography, Mexico
Mark	Noort	m.noort@hcpinternational.com	Netherlands	
Lars	Hein	lars.hein@wur.nl	Netherlands	- Wageningen University
Jeanne	Foust	jfoust@esri.com	Esri - Environmental Systems Research Institute, Inc.	Esri - Environmental Systems Research Institute, Inc.
Keith	Gaddis	keith.gaddis@nasa.gov	United States	NASA - National Aeronautics and Space Administration
Yana	Gevorgyan	ygevorgyan@geoscience.org		
Monica	Grasso	monica.grasso@noaa.gov	United States	NOAA - National Oceanic and Atmospheric Administration
Ken	Bagstad	kjbagstad@usgs.gov	United States	USGS - United

		v		States Geological Survey
Roger	Sayre	rsayre@usgs.gov	United States	USGS - United States Geological Survey
Stephen	Coulson	stephen.coulson@esa.int	ESA - European Space Agency	ESA - European Space Agency
Douglas	Muchoney	douglas.muchoney@fao.org	FAO - Food and Agriculture Organization of the United Nations	FAO - Food and Agriculture Organization of the United Nations
Christoph	Aubrecht	caubrecht@worldbank.org	The World Bank - The World Bank	The World Bank - The World Bank
Glenn-Marie	Lange	glange1@worldbank.org	The World Bank - The World Bank	The World Bank - The World Bank
Alessandra	Alfieri	alfieri@un.org		UNSD - United Nations Statistics Division
Daniel	Juhn	djuhn@conservation.org	CI - Conservation International	CI - Conservation International
Timothy Max	Wright	twright@conservation.org	CI - Conservation International	CI - Conservation International
EO4EA	Secretariat	secretariat@eo4ea.org	CI - Conservation International	
Marc	Paganini	marc.paganini@esa.int	ESA - European Space Agency	ESA - European Space Agency
Eva	Ivits	eva.ivits-wasser@eea.europa.eu	EEA - European Environment Agency	EEA - European Environment Agency

Other information

Please provide any other comments or information that was not included in the previous sections, but you would like to appear in the Implementation Plan.

Other specific elements to this workplan will be developed in June during the all member meeting. This includes the development of new ecosystem services modules for ARIES. We will be happy to update the workplan accordingly.

- no supporting documents provided -

Co-Editor Management

List of co-editors for this initiative

First name	Last name	Email address
Daniel	Juhn	djuhn@conservation.org