Consultation with the Earth Observation Community

Information/Background Document for Earth Observation Day
6 December 2024

Background

1. The Consultation is organized pursuant to Convention on Wetlands Resolution XIII.10 which, in paragraph 23, requests the Secretariat, subject to the availability of resources, to investigate the options and associated costs for working with earth observation organizations, including the Group on Earth Observations (GEO), to put earth observation (EO) data and monitoring tools at the disposal of Contracting Parties for national wetland inventories (NWI) or monitoring of changes to Wetlands of International Importance; and Standing Committee SC63-30, which requests the Scientific and Technical Review Panel (STRP), working with the Secretariat, to organise a consultation with the earth observation community on development of an initiative to foster dialogue, knowledge exchange and guidance for earth observation in support of wetland inventory, assessment, monitoring and conservation.

2. The first meeting of the Conference of the Contracting Parties (COP1, Cagliari, 1980) recognized that national wetland policies should be based on a nationwide inventory of wetlands and of their resources (Recommendation 1.5). Since the Convention's first Strategic Plan, for the 1997-2002 period, national wetland inventories (NWI) has remained a priority area of work. The current, fourth Strategic Plan for 2016-2024, includes Target 8 "*National wetland inventories have been initiated, completed or updated and disseminated and used for promoting the conservation and effective management of all wetlands*". The draft fifth Strategic Plan, to be considered for adoption by COP15 in 2025, also includes a target on NWI.

3. COP resolutions have regularly reiterated the importance of NWI for policy planning and decision making on the conservation and effective management of all wetlands, the designation of Wetlands of International Importance, the development or updating of climate change strategies and plans including nationally determined contributions (NDCs), planning implementation of and tracking progress in delivering on the Kunming-Montreal Global Biodiversity Framework (KM-GBF), and implementation of the 2030 Sustainable Development Agenda including reporting on SDG indicator 6.6.1 change in the extent of water related ecosystems, for which the Convention is a co-custodian together with UNEP.

4. General NWI guidance is provided in the '*New Toolkit for National Wetlands Inventories'* (Convention on Wetlands 2020).The STRP has also explored EO applications, as described in its technical report on the use of Earth Observation for wetland inventory, assessment and monitoring (Convention on Wetlands Technical Report 10).

5. The Secretariat has developed a support mechanism for NWI, as outlined in SC62 Doc.9, SC63 Doc.10 and SC64 Doc. 10. This includes five workstreams: a. further identification of specific needs and key constraints which Contracting Parties face in wetland inventory; b. development of additional guidance; c. capacity building including training courses and training materials; d. implementation support, including institutional partnerships; and e. resource mobilization.

Purpose of the consultation

6. The overall purpose of the consultation is to contribute to and strengthen ongoing efforts in development and use of National Wetland Inventories, thereby supporting Contracting Parties in protection and wise use of wetlands, delivering and reporting on commitments under the Convention on Wetlands as well as other relevant global environmental agreements such as the Global Biodiversity Framework, the Paris Agreement or the Land Degradation Neutrality targets.

7. The consultation is focused on the following objectives:
   - Share information on the latest advancements in EO relevant to wetland inventory, assessment, and monitoring.
   - Identify ways EO data and tools can be made accessible to and utilized by Contracting Parties in national wetland inventory.
   - Identify means by which the technical and capacity needs of Contracting Parties in using EO for national wetland inventory can be further addressed.

8. The consultation is expected to provide recommendations on further developing EO-based initiatives within the framework of the Convention, enhancing the capacity of Contracting Parties to implement EO solutions in wetland inventory, monitoring and management, and fostering long-term partnerships with the EO community. The consultation may also identify scientific and technical needs that may be addressed in the STRP 2026-2028 work plan (SC64 Doc.18).

How the consultation is being conducted

9. The consultation builds on the ongoing work under the Convention to support Contracting Parties in national wetland inventory and comprises:
   - Targeted interviews: Initial interviews with key EO experts to gather insights on advancements in EO technologies and their potential applications in wetland inventory, monitoring, and conservation.
   - Earth Observation Day: As a central element of the consultation, the Earth Observation Day, held back-to-back with STRP27 on December 6, 2024, will bring together stakeholders in the EO community, scientific and technical experts and national focal points participating in the work of the STRP to discuss and advance the consultation's objectives.
   - Report preparation: The outcomes of the consultation will be synthesised in a report capturing key findings and actionable recommendations, including regarding the focus of and mechanisms for further engagement with the EO community.

10. Lessons learned and needs of Contracting Parties identified through the Secretariat's activities as well as targeted interviews conducted with stakeholders in the EO community (summarized below) provide the basis for discussions during Earth Observation Day.

11. Following the Earth Observation Day, a draft consultation report will be compiled. The Chair of the STRP will deliver a verbal update at the 64th Meeting of the Standing Committee (SC64), highlighting key insights from the consultation. This may include suggested changes to the proposed draft resolution on the future implementation of scientific and technical aspects of the Convention for 2026-2028 (SC64 Doc.19).

12. The consultation report will be finalized taking into consideration discussions at and outcomes of SC64, and be made available to Convention on Wetlands COP15, to be held in July 2025. Consultation outcomes will also be incorporated in the upcoming guidance documents on NWI processes in preparation by the Secretariat (SC64 Doc. 10).

Insights from National Wetland Inventory processes

13. Lessons learned from NWI processes and priorities and needs of Contracting Parties to the Convention are summarized below, based on 13 in-depth interviews conducted by the Secretariat (presented in SC63 Inf.2), as well as recent reports of the Secretariat on progress in NWI (presented in SC64 Doc. 10, SC63 Doc.10 and SC62 Doc.9).

14. Key findings:

    a) ***Diverse objectives of NWIs:*** The interviews identified up to 20 initial objectives for NWIs, with 13 commonly cited. These ranged from supporting wetland conservation and planning restoration projects to meeting Sustainable Development Goal (SDG) reporting requirements, particularly for indicator 6.6.1. Such a diversity of objectives underscores the multifunctional nature of NWIs but also highlights the need for careful planning, with a Tier-based approach, to avoid overcomplexity.

    b) ***Phased and flexible approaches****:* Successful NWIs often adopt phased approaches, starting with basic data collection (e.g., wetland boundaries) and progressively refining scope (e.g., ecological character or smaller wetland inclusion). This allows for gradual scaling while meeting initial policy priorities.

    c) ***Integration of EO Technologies****:* EO tools, including satellite imagery and LIDAR technologies, are instrumental in mapping large wetland areas and generating essential data. However, limitations persist for small or forest-covered wetlands, highlighting the need for ground-truthing as well as complementary methods.

    d) ***User-oriented design****:* NWIs function most effectively when designed as iterative processes rather than static products. User-oriented frameworks that link data to specific policy applications, such as climate adaptation, flood management, or biodiversity conservation, maximise utility and support long-term relevance.

    e) ***Capacity building and collaboration****:* Limited technical capacity and insufficient financial resources are consistent challenges. Enhancing GIS and EO skills within government and local organisations, fostering partnerships with EO dedicated institutions such as national space agencies, as well as universities and research institutions to enhance ground-truthing capacities, are critical enablers. Securing long-term funding can be achieved through stable institutional arrangements along the NWI process development.

    f) ***Data standards and coordination****:* Harmonised protocols for data collection, metadata, and quality control enhance interoperability among national agencies. Structuring advisory boards or technical support mechanisms at national and subnational levels also ensures robust oversight of NWI processes.

Summary of targeted interviews with EO community

15. Five semi-structured interviews were conducted with experts from UNEP DHI, Wetlands International, JAXA, Digital Earth Africa, and Tour du Valat, to discuss the technical and capacity needs of the Convention's Contracting Parties, particularly in relation to integrating EO technologies into wetland inventory, monitoring and management.

16. Key findings:

a) ***Tools and data: Availability vs. utilization***
   i. *Existing tools and data*: A wealth of EO tools, datasets, and content is already available, yet there is a significant lack of awareness and capacity among Contracting Parties to utilise them effectively.
   ii. *Country-level data challenges*: While national-level data often exists, it is rarely harmonised or shared.
   iii. *Spatial indicators and Wetland Extent*: The absence of comprehensive wetland extent data is a recurring issue. Challenges in EO data collection, such as ground-truthing and calibration, compound the problem.
   iv. *Knowledge baseline*: A foundational knowledge baseline is needed to effectively guide and prioritise data use.

b) ***Institutional and policy support***
   i. *Mandates*: Clear mandates at national and international levels are critical to systematic wetland inventory, to ensure sustained organisational efforts in the long term, and to ensure utilization and impact of data. Such mandates often exist, but may not be fully known across groups of stakeholders, and there may be misalignment between formal mandates and technical and financial capacity.
   ii. *Technical centres*: Establishing dedicated technical centres can be hubs for expertise, guidance, and data harmonisation.
   iii. *Regional approaches*: Collaboration at the regional level is often helpful to address shared wetland types/systems and common challenges.

c) ***Capacity building and knowledge transfer***
   i. *Training*: Tailored training modules and knowledge transfer initiatives are needed to build local capacity and raise awareness about EO tools.
   ii. *Participatory tool development*: Stakeholders, especially end-users, are often not involved early enough in tool development, leading to gaps in technical capacity and relevance.
   iii. *Local context integration*: EO tools and approaches must be adapted to regional and national contexts to ensure usability and applicability.

d) ***Implementation models and sustainability***
   i. *Funding models*: Many EO initiatives rely on service-provider-driven funding from space agencies. Once funding ends, projects often lack sustainability. Alternative implementation models are needed to ensure long-term viability.
   ii. *Co-design processes*: Capacity development, operational interfaces, and co-design of tools with stakeholders enhance usability and impact.
   iii. *Top-down and bottom-up efforts*: Both centralised and grassroots approaches are required to integrate EO technologies effectively.

iv. *Country-specific systems*: Solutions should be tailored to specific environmental contexts as well as institutional and policy context to effectively address challenges.

e) ***Disconnects and ownership***

i. *Awareness vs. needs*: There is a gap between what is available (tools and data) and what stakeholders need.

ii. *Ownership*: Promoting local ownership of EO tools and processes is critical for sustainability and relevance.

Relevant documents

→ SC64 Doc.18 Report of the Chair of the Scientific and Technical Review Panel.
→ SC62 Doc.9 Urgent challenges to the wise use of wetlands to receive enhanced attention: Update on wetland inventories.
→ SC63 Doc.10 Urgent challenges to the wise use of wetlands to receive enhanced attention: Update on wetland inventories
→ SC63 Inf.2 National wetland inventories: Synthesis of the 13 in-depth interviews for further identification of specific needs and key constraints for Contracting Parties.
→ SC64 Doc. 10 Urgent challenges to the wise use of wetlands to receive enhanced attention: Update on wetland inventories.
→ Resolution XIII.10 Status of Sites in the Ramsar List of Wetlands of International Importance.
→ New Toolkit for National Wetlands Inventories (Convention on Wetlands 2020)
→ Convention on Wetlands Technical Report 10 The use of Earth Observation for wetland inventory, assessment and monitoring.
→ Briefs on the relevance of the Convention on Wetlands to CBD and UNFCCC