

EO DEVELOPMENTS UNDER THE PLAN FOR EUROPEAN COOPERATING STATES (PECS) IN SLOVAKIA : WETLANDS MANAGEMENT AND LAND COVER CHANGE MONITORING FOR IDENTIFICATION OF POTENTIAL ILLEGAL ACTIVITIES - EXPRO+

ESA AO/1-11293/22/...

8 April 2022

New, Associate and Cooperating States (CIP-IPS)

Industrial Policy Division (CIP-IP)

DISCLAIMER

- This presentation material does not contain sufficient information to be used officially, in any way, in the context of the expected ITT (Invitation-to-Tender AO/ 1-11293/22...).
- This presentation is just to help understand, in a simplified manner, some of the Rules and Procedures associated with ESA procurements.
- Please ensure that any proposal submitted to ESA is compliant with the requirements contained in the official ITT documentation specific to the tender.

Registration in esa-star is an essential pre-requisite to bid!

To register in esa-star:

<https://esastar-emr.sso.esa.int/>

The **Government of the Slovak Republic** adopted on **7th October 2020** the **resolution approving the intention of Slovakia to continue in cooperation with ESA** after **end of PECS extension period** with focus **to become an Associate Member** and approved financial contribution to ESA of 4,5 million € per year during current Slovak budget period. The **ESA Council** approved an 18 month extension of the current PECS agreement on the **16th of December 2020** to enable further strengthening of the Slovak Space Industry and the opportunity for advancement of products and services to higher Technical Readiness Levels (TRLs).

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In the ESA Council Meeting Media Information Session on **17th March 2022**, it was announced Slovakia is being welcomed into ESA as an Associate Member. The Associate Membership Agreement approved by ESA will go next for Internal Ministerial Endorsement and consultations within the Slovak Republic before the signature and final ratification. **It is expected that the Associate Agreement will take effect when the PECS Programme formally ends in August 2022.**

This expected Top Down PECS development offers to help deepen the understanding of the benefits of employing EO methodologies among environmental professionals in Slovakia. Two priority themes were agreed and these themes are:

- 1. Passportization and monitoring of Slovakian wetlands with links to the ESA Danube/Black Sea Regional Initiative.**
- 2. Land cover change monitoring for identification of potential illegal activities in Slovakia**

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This ITT will contain the tasks to be executed and the deliverables to be provided in two separate development activities addressing the identified priority theme. Each of the two priority themes (1 & 2) must be addressed by a dedicated proposal submission per theme. DO NOT address both topics in a single proposal!

Theme 1: For Wetlands Management

The core objective is to develop an EO based capability to support identification and management of wetlands from space, and subsequent monitoring of changes in these habitats, considering seasonal variations in environmental conditions.

The main parameters of interest are soil moisture, Normalized Difference Water Index (NDWI), NDWI2 and combining Normalized Difference Vegetation Index (NDVI) and Normalized Difference Pond Index (NDPI) together with Land Cover (LC) / Land Cover Change (LCC) mapping supported by topographic datasets and basic hydrological modelling. Capabilities of interest include characterization of seasonal changes in wetland area/extent, building on methodologies associated with Water Framework Directive (WFD) based monitoring and assessments, ICDPR recommendations for habitat monitoring and characterization and outcomes of relevant Pannonian Basin Experiment (PannEx) projects associated with the underlying hydrological processes. There is strong interest in methodologies based on the combination of data from the Copernicus Sentinel missions (in particular, Sentinel 1 and Sentinel 2) as well as Hyper-Spectral data from the PRISMA mission and data from the Space-SI NEMO HD micro-satellite.

Each of the two priority themes (1 & 2) must be addressed by a dedicated proposal submission per theme. DO NOT address both topics in a single proposal!

Theme 2: For Wetlands Management

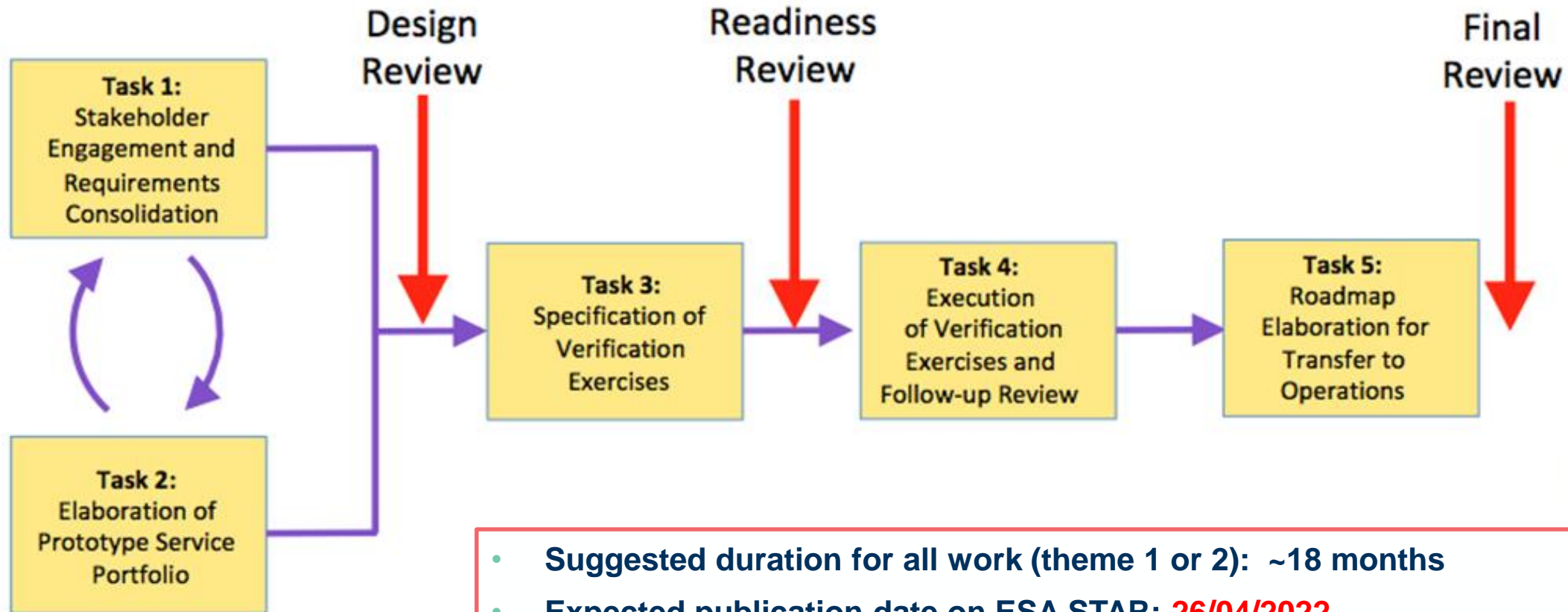
The core objective is to develop an EO based capability to support the detection of changes in land surface properties associated with illegal activities. These include illegal ploughing of protected grasslands, illegal forest cuts and cutting of non-forest vegetation, illegal construction in forest areas and changes in landfill sites or illegal waste dumping.

To ensure effective consideration of the context and accurate detection of actual illegal activities, it will be necessary to develop additional capabilities to detect processes with similar signatures that are not related to illegal activities (e.g., bark beetle or other Invasive Alien Species (IAS) infestations) to ensure both false alarm minimization but also effective identification of the execution of illegal activities in areas where actors may consider such actions undetectable due to the occurrence of these natural processes.

Each of the two priority themes (1 & 2) must be addressed by a dedicated proposal submission per theme. DO NOT address both topics in a single proposal!

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The work logic approach will be the same irrespective of the chosen theme (1 or 2). Example below:



- Suggested duration for all work (theme 1 or 2): ~18 months
- Expected publication date on ESA STAR: **26/04/2022**
- Expected deadline for proposals: **07/06/2022 @ 13:00 (CEST – Amsterdam)**
- Start of work expected: 3Q2022 (~week 32)



It is highly recommended to examine ECSS documentation that will be relevant for this development.

ECSS documentation is available for free download from www.ECSS.nl. Registration on the website is free.

Documents recommended for reading pleasure include:

- **ECSS-M-ST-10C Project Planning and Implementation**
- **ECSS-E-ST-40C Space Engineering – Software**
- **ECSS-Q-20 Space Product Assurance - Quality Assurance**

- Copernicus Open Access Hub - <https://scihub.copernicus.eu/>
- Copernicus DIAS - <https://www.copernicus.eu/en/upcoming-copernicus-data-and-information-access-services-dias>
- ESTHub Satellite Data - <https://geoportaal.maaamet.ee/eng/Services/ESTHub-Services-p654.html>
- ESA PDGS Datacube - <https://datacube.pdgs.eo.esa.int>
- ESA European Datacube - <https://eo4society.esa.int/2019/05/21/european-data-cube-facility-service-an-eo-resource-factory/>
- Open Geospatial Consortium - <http://www.opengeospatial.org/>
- Climate Change Service - <https://climate.copernicus.eu/data-action>
- EO Science for Society: Regional Initiatives - <https://eo4society.esa.int/tag/regional-initiatives>
- ICTRR – EUSDR PA4 & PA5 COORDINATION - <https://www.icTRR.org/flowpaper/app/#page=1>
- Danube Transnational Programme participants - <https://www.interreg-danube.eu/approved-projects>
- Complex information and monitoring system - <http://www.biomonitoring.sk/>

→ PECS

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Support information in esa-star Registration User Manual:
<https://esastar-emr.sso.esa.int/Account/DownloadFile>

**See also: the presentation "BRIEFING HANDBOOK
BASIC OF ESA PROCUREMENT" for more support information**

ITT Expected Opening: ~26 April 2022
Submission Deadline : **7 June 2022 @ 13:00 CEST**

Negotiation / contract expected: **3Q2022**

