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Assessment of Policy and Stakeholder Requirements completed

Sarah Carter, Martin Herold, Wageningen University; Uwe Ballhorn, GAF AG

The REDDCopernicus Project completed its "Assessment of Policy and Stakeholder Requirements". This Assessment had two main objectives; first the review and identification of requirements for Earth Observation (EO) based Forest Monitoring (FM) in International and European policy segments; secondly the review and assessment of key stakeholder / User requirements for the EO FM. The output of this Assessment will be used in the compilation of the Forest Monitoring Services.

Global and national FM requirements related to Sustainable Forest Management (SFM), climate change mitigation and adaptation efforts, and as a part of wider land monitoring for Green House Gas (GHG) assessments are evolving rapidly. Included in this is REDD+, which is a key driver in FM needs in tropical developing countries. Requirements for REDD+ MRV do vary although several common needs can be identified such as that EO data are an essential data source and uncertainties should be assessed and considered for all approaches. Many other monitoring needs stem from national reporting requirements for a number of international policies related to climate change (i.e. UNFCCC).

Highlights in this issue:

- Policy and Stakeholder Requirements
- Assessment of European Forest Monitoring Capacities
- Initial Design of the Copernicus REDD+ Service Component
- Workshop with DG GROW, ESA and REA
- Regional Workshops with country stakeholders planned

A broad stakeholder assessment was carried out, which gathered information from six stakeholder groups: (1) European Commission, (2) Financiers, Donors, and International Development Agencies, (3) REDD+ Country Users, (4) Research and Scientific Community, (5) International Initiatives and NGOs, and (6) Private Sector Organizations. Information was gathered through a stakeholder survey and a workshop. Users required data including processed, analysis-ready satellite time series data, and thematic products for forest changes and forest characteristics (Figure 1). In general, for Activity Data (AD) a spatial resolution of <30 m and temporal resolution of <3 years was required across all stakeholders. Providing thematic information beyond forest area and changes are important including specifically information on forest degradation and broader forest-related land use changes. For biomass and Emission Factor (EF) data the Above Ground Biomass (AGB) pool was considered most useful. Long-term data continuity and the availability of open and transparent information was essential for all stakeholders. Further, the integration of a capacity building component is fundamental to address challenges for data use.

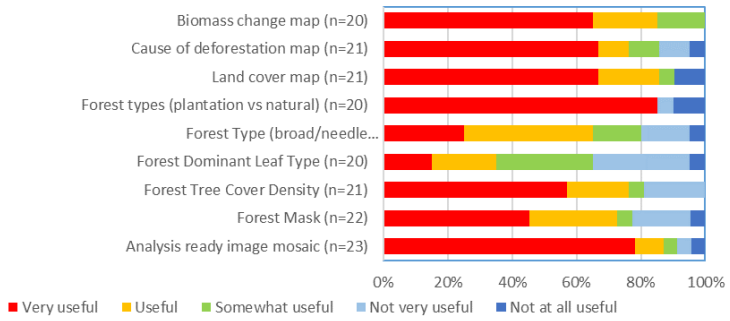

Figure 1: Stakeholder responses on the usefulness of potential products of a Copernicus Forest Monitoring and REDD+ Service Component

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European Capacities for EO Forest Monitoring – Status and Maturity

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Capacities for global forest monitoring are increasing, as new satellites are launched and more data becomes available. Novel methods and tools are continuously being developed to process and understand data, with new cloud computing and other infrastructures being used for the analysis of large data volumes. Europe in particular has a wide and growing ecosystem of EO data supply, product and service providers. The focus of this Assessment was to identify mature and operational or potentially operational concepts which could be integrated into the Forest Monitoring Services.

The following types of capacities were systematically assessed:

- EO data and ancillary data, which are available and suitable for FM / REDD+
- Geospatial products of potential relevance for the FM and REDD+ Component
- Existing methods/algorithms and tools for the processing of EO data into geospatial data products for FM / REDD+
- Data processing infrastructure, platforms, and services
- Production capacities to implement complex and big data workflows for product generation (relevant project experiences in EO FM)

Capacities were assessed using an online survey "Survey on European Capacities for Forest Monitoring" which was launched and open for responses from June 2019. To assess the Maturity of concepts, the Criteria for Consistently Assessing Level of Maturity (CALM) framework established by the Global Forest Observations Initiative (GFOI) was implemented. In total, 59 concepts were entered into the survey, which included 27 methods/tools, 19 datasets/products, and 13 platforms. A number of capacities were identified which are useful for wide range of tasks to REDD+ and FM needs, and these were discussed at a stakeholder workshop held at JRC on 24–25 June 2019 (Figure 2).

Figure 2: Participants at the Capacity for Copernicus REDD+ and FM Services Stakeholder Workshop, Ispra 24 June 2019.

Initial Design of the Copernicus REDD+ Service Component

Baudouin Desclée, Andreas Langner, Frédéric Achard, JRC; Justine Hugé, Christophe Sannier, SIRS

For building the future Copernicus FM and REDD+ Service Component, an initial design of its main technical and organisational elements has been prepared. For the technical elements, a benchmarking procedure is applied to a list of potentially suitable FM concepts established in the EU Capacities for EO Forest Monitoring review and focused on the collected Policy and Stakeholder Requirements. A first screening of those concepts with the best 'fit-to-purpose' level for REDD+ related forest monitoring tasks is based on various performance criteria, including requirements for technical REDD+ reporting, requirements raised during the stakeholder consultation as well as aspects of operationality. For the selection of the most appropriate products, the thematic potential to fulfil internationally agreed definitions is considered, e.g. criteria on forest definition, on land use categories, on activity data or on IPCC Approach and Tier levels. The CALM rating is used as indication for the maturity and degree of operationality of the potential products/concepts. From the seven selected products/concepts, a reduced list of four generic FM products is proposed for a potential REDD+ Copernicus service component.

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The report also provides a first overview and aspects for an institutional, financial and infrastructural framework to be considered for establishing a REDD+ service component. These main organisational elements are related to the existing EU Regulations that govern the Copernicus programme. The infrastructure framework ensures that appropriate solutions are established in terms of input data, storage, processing and service delivery requirements. The Sentinel 2 constellation was designed to be the main source of data for such activities that can be complemented by other EO data. The available infrastructure capacities and gaps for the Copernicus Data and Information Access Services (C-DIAS) and their functionality in developing countries are also examined as well as the delivery data.

Interaction with European Commission DG GROW, ESA and REA

Frédéric Achard, Baudouin Desclée, Andreas Langner, JRC; Peter Navratil, GAF AG

The Project Consortium organized a half day workshop in Brussels on 14 November 2019 where the first findings of the project were presented to the Directorate General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), the European Space Agency (ESA) member of the advisory board and the Research Executive Agency (REA), where the Workshop was hosted. The objectives of the workshop were to discuss the outcomes with European Commission services that are among the key stakeholders identified by the project. The Consortium Partners presented the results of the Policy Review and Stakeholder Requirements Assessment and the Assessment of European Capacity for Earth Observation based Forest Monitoring, both of which constitute the first Milestone of the Project. The initial design of the Copernicus Forest Monitoring and REDD+ Service Component identifies the technical options for the service. The presentation to DG GROW and REA covered the selection approach for the design options (through a benchmarking matrix exercise) as well as the analysis of the organisational and financial framework for the implementation of the Service Component. These first outcomes of the project were discussed with DG GROW, ESA and REA and useful suggestions for the initial design of the service component were made, including making the link more visible between the policy requirements and the products and providing a matrix to check the 'fit for purpose' of the datasets.

User Engagement with Country Stakeholders in four geographic regions planned

Andreas Langner, Baudouin Desclée, René Beuchle, JRC

The initial design for the future Copernicus Forest Monitoring and REDD+ Service Component will be introduced to REDD+ country stakeholders during four regional workshops and one mission that will be held in the first half of the year 2020. These four regional workshops will be held in (i) Brazzaville, Republic of Congo, in March 2020 for the Central African region, (ii) Dar-es-Salaam, Tanzania, in April 2020 for the East African region, (iii) Mozambique, in April 2020 for the SADC region and (iv) Bangkok, Thailand, in April 2020 for the South-East Asian region. Moreover, a mission to Brazil will be held in May 2020 for Brazilian stakeholders as well as a mission to Indonesia in May/June 2020.

The seven selected products / concepts will be presented as 'demonstration cases' at regional 'learning exercises' workshops to be organised during first half of 2020. During these regional workshops, the proposed concepts will be illustrated over representative regional test sites. For that purpose, a specific user interface has been developed to allow national users to assess the usefulness of the proposed products through the evaluation of their performance over sample locations.

A mission was already performed in September 2019 to the Brazilian Institute of Space Research (INPE) to contribute to the preparation of the learning exercises through the presentation of an initial pre-selection of key demonstration cases to a key Brazilian stakeholder. INPE is a key stakeholder for REDD+ measurement and reporting in Brazil. An overview of the project and products examples for tropical forest monitoring in the REDD+ context were presented. Inputs and feedbacks from INPE were gathered on issues related to REDD+ MRV, such as time frame, expected or desired datasets and tools.

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