

Strategic project – Common Strategy for Sustainable Territorial Development of the cross-border area Romania-Bulgaria (MIS-ETC code 171)



Terms of Reference

Delivery of orthorectified satellite images over territory of the Bulgarian part of the CBC Project “Common Strategy for Sustainable Territorial Development of the cross-border area Romania-Bulgaria” MIS-ETC code: 171

Introduction and Rationale

The project aims to define and build a cooperation framework between the administrations of Bulgaria and Romania, in order to use the territorial capital to facilitate the competitiveness and innovation for the entire cross-border program area (CBA) and also, to protect and improve the environment. A core objective of the project is the provision of comprehensive and accurate overview of the social, economic and territorial conditions and the evolution of the cross-border area shared by both countries. This requires a development of common resources for territorial planning analysis and strategy, based on the elaboration of a harmonized common land cover database for the CBA at cartographic scale of 1:25 000.

Such land cover dataset could be efficiently built on the base of up-to-date satellite imagery, which will provide the accurate overview of the potential of the land in the CBA from bio-physical point of view – an important prerequisite prior to the socio-economic analysis. The technical parameters of the satellite data should be adapted and tailored with respect of the needs of the particular land cover product, such as:

- spatial resolution (level of detail) compliant with cartographic scale 1:25 000 – requiring ground sampling distance of the acquired image data better than 10 meters
- radiometric resolution capable to ensure the application of semi-automatic methods for classification, as well as enhanced feature recognition in shadow areas (due to topography) - requiring bit depth better than 10 (or even 12)
- spectral resolution allowing monitoring of plant health and activity – requiring the availability of the novel Red Edge band, which gives important information on the chlorophyll content.

Technical specifications of the orthorectified satellite images:

1. Area of Interest (AOI):

- a. The area of interest include all 9 districts part of the project namely: Vidin, Montana, Vratsa, Dobrich, Veliko Tarnovo, Silistra, Razgrad, Pleven and Ruse;

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Figure 1: Area of interest of the required satellite coverage - requested area marked with red

- b. The polygon boundary of the requested area is attached to this document and is provided as ArcGIS shape file: AOI_CBC_BG_2012.shp;
- c. The total area of the delivered data should cover an area at least 34 000 sq.km.

2. Acquisition dates:

- a. The satellite images should be acquired within the following time period (acquisition window): 01.06.2012 to 31.08.2012.
- b. Not more than 5% of the territory of the AOI could be covered with satellite images acquired within the period from 01.04.2012 to 01.06.2012, or 01.09.2012 to 15.10.2012.

3. Spectral resolution:

- a. The satellite sensor used for acquiring the images should be able of capture in the following spectral bands: Blue, Green, Red, Red, Red Edge and Near Infrared;
- b. The satellite images should be delivered as one single file for each scene containing all the requested spectral bands.

4. Spatial resolution:

- a. The ground sampling distance of the original image data should be better than 10 meters;
- b. The pixel size of the orthorectified product should be 5 meters or smaller;

5. Radiometric resolution:

- a. The bit depth of the original image data should be 12 bit or better;

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- b. The dynamic range of the delivered orthorectified images should be scaled to 16 bit.
- 6. Geometric accuracy:**
 - a. The geometric accuracy of the final product should be 32 meters (CE90 of 50 m) or better, calculated as RMSE.
- 7. Cloud cover:**
 - a. The maximum allowed CC for each satellite image should be not more than 20%.
 - b. The maximum allowed CC for the whole AOI should not exceed 2%.
- 8. Map projection:**
 - a. All images should be delivered in projection UTM Datum WGS84 Zone 35.
- 9. Resampling:**
 - a. The resampling method used should be Cubic Convolution.
- 10. File format:**
 - a. All images should be delivered as GeoTIFF file format.
- 11. Timetable for delivery:**
 - a. All images should be delivered no later than 7 days after the commission.

Note: The ToR – “Delivery of orthorectified satellite images over territory of the Bulgarian part of the CBC Project “Common Strategy for Sustainable Territorial Development of the cross-border area Romania-Bulgaria” MIS-ETC code: 171” is developed by the Agency for Sustainable Development and Eurointegration –ECOREGIONS (ASDE) – Project Partner 9, under the Work Package 3;