

Job Description

2017/JRC/E.1/018

GIS DEVELOPER (GID)

**“IMAGE PROCESSING AND GIS FOR IMPROVING AGRICULTURAL AND
RURAL STATISTICS”**

Job Description

1. CONTEXT, INTRODUCTION AND OBJECTIVES

1.1. Context and introduction

The Global Human Settlement Layer (GHSL) project provides expertise in geographical data processing methodologies to support the information requirements of the regional policy service of the European Commission. This expertise is based on a new data processing technology allowing sustainable automatic information extraction from massive satellite imagery datasets.

Following the exchange of letters between the FAO and the JRC, the JRC is ready to host a visiting scientist of FAO/Global Strategy at the JRC to develop a characterisation of rural areas by combining the settlement model of the GHSL with latest global land cover products. This work contributes to the development of a global, people-based definition of cities and settlements¹ in the frame of specific administrative agreement with DG REGIO (AA 33994-2015 NFP - 2015 SENTINEL GHSL).

1.2. Objectives

The objective of the work outlined in this document is to test the applicability and feasibility of the proposed approach to define rural territories (consistent with JRC-WB-OECD work on urban definition) and to delineate different types of rural based on the parameters; population size, density and land cover classes. The resultant rural classification will be used to organize survey and other data collections to produce statistical indicators related to rural development that are national policy relevant and in line with SDG's. The approach is to combine a global definition of rural areas derived from the GHSL settlement model² with land cover statistics from available global land cover products. In particular, the work will include i) identification and evaluation of appropriate land cover products, ii) development of methods for the statistical description of rural areas based on the population size, density and land cover classes, iii) carry out sensitivity tests to different thresholds and select the ones based on importance and usefulness, iv) overlay the country grid with administrative boundaries, v) evaluate the results, and solve problems when identified, vi) countries validation vii) documentation of the work and contribution to guidelines for the Global Strategy.

2. DESCRIPTION OF TASKS

The visiting scientist will be expected to work in the Sentinel GHSL team and the work will encompass the following activities:

- i) review of currently available land cover data sets, and selection of the most appropriate data based on a thorough evaluation
- ii) development of methods for the statistical description of rural areas based on the population size and density and land cover classes,

¹ <http://habitat3.org/quito-implementation-plan/developing-a-global-people-based-definition-of-cities-and-settlements/>

² http://ghsl.jrc.ec.europa.eu/ghs_smod.php

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- iii) elaboration of experiments for the pilot testing in various countries and documentation of the results, this may include sensitivity analysis to test different thresholds,
- iv) Writing of technical reports describing the experiments; revision of technical documents related to the project deliverables (data, maps, documents)
- v) Support the preparation of guidelines and training material for use of the method by the project partners

3. REQUIREMENTS, WORK ENVIRONMENT AND CONDITIONS

3.1. Requirements

3.1.1. Profile and level

GIS Developer at post-doctoral level

3.1.2. Knowledge and skills

- In-depth knowledge of GIS and Earth Observation software and tools
- Good knowledge of (geospatial) scientific programming languages including Matlab or Python
- Good knowledge of geospatial data analysis.

3.1.3. Specific expertise

- Basic experience with geospatial data related to crisis management-
- Basic experience in testing and validation of geomatic products

3.1.4. General skills

- Good knowledge of English.
- Capacity to work efficiently in a multi-disciplinary environment.

3.2. Work environment

The tasks will be performed at the JRC Ispra premises.

3.3. Conditions

3.3.1. Service evaluation and monitoring

Regular weekly meetings to discuss progress with the JRC technical responsible.

Regular virtual and physical meetings with GSARS/FAO focal points in liaison with JRC technical responsible as per pre-determined schedule for guiding the process, oversee activities and to monitor progress.