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**Memorandum of Understanding  
between RSAC, GEOLAT, Fedecafé and  
the International Coffee Organization**

## **Background**

1. This document contains a copy of the Memorandum of Understanding (MoU) between Remote Sensing Applications Consultants Ltd (RSAC), GEOLAT SAS, National Federation of Coffee Growers of Colombia (Fedecafé) and the International Coffee Organization (ICO) to collaborate on the project co-financed by Innovate UK called: *Satellite Remote Sensing for Improved and Sustainable Coffee Production (SatCafé)*.
2. SatCafé will develop the use of satellite data to monitor changes of land use in coffee-growing areas. This will involve the use of different types of satellite data, including free imagery from the Sentinel missions and very high resolution images. In addition, Unmanned Aerial Vehicle (UAV) data will be collected for comparison and to validate satellite-derived measurements. Recent developments in the availability of satellite data linked to cloud processing platforms are transforming working practices, and facilitate the development of automatic mapping of large areas.

## **Action**

The Council is requested to note the attached Memorandum of Understanding between RSAC, GEOLAT, Fedecafé and the ICO.

## Memorandum of Understanding

between

**Remote Sensing Applications Consultants Ltd (RSAC),**

The Long Barn, Sutton Manor, Bishop's Sutton, Alresford, SO24 0AA, United Kingdom

and

**GEOLAT SAS (GEOLAT),**

Carrera 39 N. 25-09 APT 301 Barrio Recuerdo, Bogotá, D.C., Colombia

and

**Federación Nacional de Cafeteros (Fedecafé),**

Calle 73 No. 8-13, Bogotá, D.C., Colombia

and

**The International Coffee Organization (ICO),**

222 Gray's Inn Road, London WC1X 8HB, United Kingdom,

hereinafter '**the Parties**'.

This Memorandum of Understanding (MoU) establishes the terms and understanding between the Parties to collaborate on the project co-financed by Innovate UK called: Satellite Remote Sensing for Improved and Sustainable Coffee Production (SatCafé, hereinafter 'the project').

### **Background**

Colombia is one of the main coffee producers in the world, most of its coffee growers are smallholders, who work on farms located in mountainous areas of the country, many of these located in post-conflict areas. The sustainability of coffee production is of growing concern, because many of the areas where coffee is grown in Colombia are particularly susceptible to the effects of climate variability.

SatCafé will develop the use of satellite data to monitor changes of land use in coffee-growing areas, to enable these changes to be analysed in relation to their geographic location (elevation, latitude and longitude). This will involve the use of different types of satellite data, including free imagery from the Sentinel missions and very high resolution images. In addition, Unmanned Aerial Vehicle (UAV) data will be collected for comparison and to validate satellite-derived measurements. Recent developments in the availability of satellite data linked to cloud processing platforms are transforming working practices, and facilitate the development of automatic mapping of large areas.

The aim is for results to be integrated into the National Coffee Information System (SICA), thus contributing to decision-making processes. The project will also help to optimise the detection of land use changes in coffee areas, a task currently performed by the Extension Service of Fedecafé through farm visits.

The project is part of an Innovate UK programme to support the adoption of new technologies and innovations in Colombia's coffee sector, focused on post-conflict areas and smallholders. At present, 30% of coffee growers are women, and they farm a total area of approximately 225,000 hectares, with an average of 1.4 hectares of coffee planted per farm.

The funding comes from the “Colombia Prosperity Fund” administrated by the British Embassy in Bogotá, and the funded Parties are RSAC, from the United Kingdom, and GEOLAT from Colombia. RSAC and GEOLAT declare that they are fully authorized to use these financial resources for the development and implementation of this MoU.

RSAC has extensive worldwide experience in developing applications of earth observation satellite data for agricultural monitoring. RSAC is the main partner of SatCafé.

GEOLAT is a SME based in Colombia, dedicated to the development of terrestrial remote sensing applications.

Fedecafé is active in diverse areas in order to achieve its mission: “To seek the welfare of Colombian coffee growers through an effective, democratic and representative organisation”. Fedecafé represents approximately 540,000 coffee producers in Colombia, providing training, advice and technical assistance on coffee cultivation practices and environmental issues.

The SICA - National Coffee Information System, is a dynamic and geo-referenced database with national coverage, that contains basic information about coffee producers, their farms and coffee production systems. The SICA as a whole, its physical and intangible components, is owned by Fedecafé, as administrator of the National Coffee Fund. Collection of the information held within the SICA is carried out by Fedecafé's Extension Service. Fedecafé may share information from SICA only in compliance with the applicable regulations on data storage and confidentiality.

The ICO is the main intergovernmental organisation for coffee, bringing together exporting and importing Governments to tackle the challenges facing the world coffee sector through international cooperation. The mission of ICO is to strengthen the global coffee sector and promote its sustainable expansion in a market-based environment for the betterment of all participants in the coffee sector. The ICO contributes to SatCafé with specialised advice on coffee issues and an international platform for dissemination of results.

## **Purpose**

This Memorandum of Understanding formalises the intentions of the Parties to:

1. Collaborate for mutual benefit in the following areas: RSAC to provide technical support for satellite-based mapping and monitoring techniques to Fedecafé; Fedecafé to provide knowledge about coffee cultivation in Colombia to RSAC and GEOLAT, in order to facilitate the processing and interpretation of satellite data; RSAC and GEOLAT to provide the ICO with the results and knowledge obtained from the project on coffee areas of Colombia.
2. Share information and data to be used solely for the purpose of developing and implementing the project. The data will not include confidential or personal information about individual coffee growers.

The above objectives will be accomplished by carrying out the following activities:

1. Through a series of workshops, RSAC and GEOLAT will provide background knowledge on remote sensing techniques and applications, including the latest types of satellite data and game-changing cloud processing techniques. Fedecafé staff are expected to participate in the workshops to share and acquire relevant knowledge.
2. Fedecafé will provide access to relevant information and data required to implement the project. These data are related to the dynamics of land use and renovation in the coffee-growing areas selected for study. RSAC and GEOLAT will treat all data provided by Fedecafé in strict confidence.
3. RSAC and GEOLAT will develop methods and prototype systems for mapping and monitoring the dynamics of land use in coffee-growing areas using satellite data, according to Fedecafé requirements. This will include the joint development of processes for the integration of outputs within SICA. All results will be presented to and evaluated jointly with Fedecafé.

## **Study areas**

For analysis based on medium resolution images, 3 polygons will be considered, each of approximately 20,000 hectares, located in coffee-growing areas of 3 different sectors, as follows:

1. North of Tolima (municipalities of Villahermosa, Fresno and Mariquita) South East of Caldas (municipalities of Marquetalia and Manzanares).
2. South of Huila (municipalities of Pitalito, Palestina and Acevedo).
3. Coffee Belt, Risaralda (municipality of Pereira), Quindío (municipalities of Filandia, Quimbaya, Circasia, Armenia, Montenegro and La Tebaida), Valle del Cauca (municipalities of Alcalá and Ulloa).

For analysis based on high resolution images, 3 polygons will be considered, each of approximately 10,000 hectares, with a perimeter of 10 km by 10 km, located in coffee-growing areas of 3 different sectors, as follows:

1. Department of Tolima, municipality of El Líbano, area surrounding the Cenicafé farm.
2. Boundary between the departments of Caldas (municipality of Chinchiná) and Risaralda (municipality of Santa Rosa de Cabal), area surrounding Finca Naranjal.
3. Department of Huila, municipality of Gigante, area surrounding the Concentración Jorge Villamil.

### **Data exchange**

#### *Fedecafé*

Fedecafé will provide data from the SICA database for the selected study areas in shapefile format, with the following variables: lot id, coffee variety, type of renovation, type of pruning (zoca), date of renovation, plant density, number of plants, illumination. Fedecafé will deliver the information in compliance with the applicable laws on data storage and confidentiality. The information will only be used for the exclusive purposes of this MoU.

#### *RSAC and GEOLAT*

RSAC and GEOLAT will provide products derived from satellite data (mostly mosaics of Sentinel-2 cloud-free images), results of data analysis and outputs including maps showing changes.

### **Notices**

The Parties will communicate through their respective authorised representatives and will review the progress of the MoU when it is deemed necessary.

### **Financing**

This MoU is not a commitment by any of the Parties to provide financial resources for any of the activities described. The commitment of the Parties is to work together to deliver the project and achieve its objectives for mutual benefit. Each Party will contribute the resources necessary for the efficient development and implementation of this MoU. RSAC and GEOLAT explicitly declare that the “Colombian Prosperity Fund” – British Embassy is aware of this MoU and authorises use of the funds provided for its implementation.

### **Term**

This MoU may be modified by mutual consent of the authorised representatives of the Parties. This MoU will become effective upon signature by the authorised representatives of the Parties and will remain in effect until modified by mutual consent or terminated by any of the Parties. In the absence of mutual agreement by authorised representatives, this MoU will end on 30 June 2020.

### **Expected results**

Monitoring for areas of coffee including maps that show changes in land use relating to coffee cultivation. Maps will be generated at a frequency of a few months to observe the dynamics of coffee-growing areas, with the potential to cover further coffee regions.

Detailed mapping of coffee crops using very high resolution satellite data (e.g. 0.5 metres) to investigate the use of software for the identification of patterns and characteristics for automated mapping of coffee crop extents and counting coffee trees. Collection of data using an Unmanned Aerial Vehicle (UAV) for comparison with results derived from satellite images.

### **Intellectual Property Rights**

In the event that the project generates intellectual property rights that are subject to legal protection, the Parties explicitly declare that such intellectual property (both the ownership and the economic benefits derived from it) will be distributed equally among the four Parties, that is, 25% for each Party.

### **End of the project**

There will be no obligation for the Parties to continue working together after the completion of the project, but in case Fedecafé is interested in RSAC and GEOLAT continuing to provide products and services, there will be a high level of commitment to do this in the most efficient and effective way.

RSAC, GEOLAT and Fedecafé, with the support of ICO, will seek opportunities to carry out monitoring projects in other coffee producing countries, aimed at optimising the monitoring of coffee-growing areas through the use of remote sensing.

### **Contact details of authorized representatives**

Party Name: RSAC

Party Representative: Mr Mike Wooding

Position: Managing Director

Address: The Long Barn, Sutton Manor, Bishop's Sutton, Alresford, SO24 0AA, United Kingdom

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Party Name: GEOLAT  
Party Representative: Sr. Cesar Augusto Valbuena Calderon  
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Party Name: Fedecafé  
Party Representative: Sr. Juan Pablo Becerra  
Position: Coordinador Programa Nacional SICA  
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Party Name: ICO  
Party Representative: Mr. José Sette  
Position: Executive Director  
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For Remote Sensing Applications  
Consultants Ltd (RSAC)

For GEOLAT SAS

Signed: Mike Wooding  
Director general  
Date: 23 July 2019  
Place: Alresford, United Kingdom

Signed: Cesar Augusto Valbuena  
Calderon  
Director general  
Date: 24 July 2019  
Place: Bogotá, Colombia

For Federación Nacional de Cafeteros  
(Fedecafé)

For the International Coffee  
Organization (ICO)

Signed: Juan Camilo Becerra Botero  
Primer Gerente Auxiliar  
Date: 19 July 2019  
Place: Bogotá, Colombia

Signed: José Sette  
Executive Director  
Date: 19 July 2019  
Place: London, United Kingdom