Northern Ireland Assembly

Research and Information Service
Briefing Paper

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Contextual overview of the use of Remote Sensing data within CAP eligibility inspection and control

1 Background and context

Remote sensing is the process of using space based satellite or aerial imagery to examine features such as landuse.

Within the context of the Single Farm Payment (SFP) process, remote sensing is used across various EU member states to determine the eligibility of claims made by landowners.

The increasing adoption of remote sensing technology across many EU member states has been motivated by a desire to make farm inspections linked to the Single Payment Scheme both quicker to complete and more cost effective, whilst still ensuring that payments are made to those entitled to them and for the correct amounts.

The Joint Research Centre (JRC), which is effectively the European Commission's in house science service, has direct responsibility for the setting of the technical

standards for the use of remote sensing data across the EU. The JRC also provides the raw remote sensing data for analysis by the various EU member states across a range of functions.

This paper provides a brief overview of how remote sensing is utilised across the EU as a control mechanism in relation to the Single Farm Payment/Basic Payment scheme. The paper also highlights the usage of control with remote sensing in Northern Ireland and expands upon data from a previous RaISe paper that considered the benefits and effectiveness of remote sensing as a CAP eligibility control mechanism within the Republic of Ireland and Wales.

2 Remote sensing within the CAP Pillar 1 – EU level

As part of their CAP Single Farm Payment/Basic Payment Schemes all EU Member States have a particular responsibility to ensure that there are no duplicate claims on the same piece of land.

The basis for the use of remote sensing data within this context is found in Commission Regulation (EEC) No 3887/92[1] which laid down detailed rules for establishing an integrated administration and control system for certain Community aid schemes. All EU Member States are required to operate so called Integrated Administration and Control Systems (IACS) and the Land Parcel Identification System (LPIS) is an integral component.

The Land Parcel Identification System (LPIS) forms a critical element of Pillar 1 of the Common Agricultural Policy, as it is utilised to determine the eligibility of land for which farmers have claimed direct payments.

In order to meet these responsibilities Member States are required to develop and implement so called control mechanisms, which effectively check on farmer compliance. In terms of land eligibility under Pillar 1 these control mechanisms include the following:

- Administrative cross checks of applications (100%);
- On the spot (OTS) checks of a sample of applicant farms/farmers – (at least 5% of total farmers claiming direct subsidies – made up of a random selection and risk based selection).

On the spot checks could initially only be completed by actual inspection visits to farms, but since 1992 there has been provision to complete the OTS by the means of remote sensing.

Since 1992, many EU Member States have utilised satellite images provided by the Joint Research Centre to undertake remote sensing based OTS activity and a 2010

[1] COMMISSION REGULATION (EEC) No 3887/92 laying down detailed rules for applying the integrated administration and control system for certain Community aid schemes, 23rd December 1992

paper presented as part of a workshop by Simon Kay and Csaba Wirnhardt revealed that 61% of the 690,000 EU wide CAP eligibility inspections in 2009 were completed using remote sensing images, a figure which was projected to rise to 70% in 2010[2].

3 Remote sensing CAP Pillar 1 utilisation – Northern Ireland

In EU terms Northern Ireland's utilisation of remote sensing data in relation to CAP is quite late in the day, with DARD Minister Michelle O'Neill announcing her intention to make use of the resource in June 2012[3], with an initial pilot of 250 eligibility inspections.

DARD's decision to utilise remote sensing was largely driven by a wish to make the Single Farm Payment inspection process quicker and more efficient, which would mean that more farmers would receive their SFP earlier.

The actual work involved in the remote sensing inspections was conducted by an external company with expertise in this area, and this contract was awarded to the Dublin based Icon Group in 2012 and continues to this day. The Icon Group was paid a total of £93,115 for work completed in 2013[4].

The actual mechanics of the operation within Northern Ireland sees The Icon Group making use of satellite imagery provided by the EU's Joint Research Centre. For the purpose of this imagery data, Northern Ireland is divided into 4 so called areas (North East, North West, South East and South West), and there is then an individual zone chosen within each of these 4 areas within which farms are selected for inspection by remote sensing. Each of these zones is made up of nine individual tiles, with each zone covering around 596km². In 2012 DARD selected farms for inspection by remote sensing from 1 of the zones, with 2 zones being used in 2013 and all 4 zones being used in 2014.

DARD is bound by EU regulations (EU Regulation 65/2011) requiring eligibility checks to be carried out on 5% of Single Farm Payment recipients. This 5% requirement is further broken down, with DARD selecting 3.75% of cases randomly and 1.25% on an at risk basis. Farms that will be subject to remote sensing inspections are selected on an at risk basis, using the same at risk criteria for selecting farms that will be subject to actual physical (classic) inspection.

Instances can and do occur where the eligibility of a farm which has been selected for inspection by remote sensing cannot be confirmed. These circumstances can occur when the satellite/aerial image data is unclear or insufficient to make a decision, and in such instances DARD staff conduct a so called Rapid Field Visit (RFV) to determine eligibility.

[2] Kay, Simon and Wirnhardt, Csaba Experience in European CAP: Agricultural Subsidy Claims, Checks, Irregularities and Expert Evidence (European Space Agency - Workshop: Evidence from Space, 05 October 2010)pp.18-19

[3] Minister provides update on Single Farm Payments, DARD Press Release, 11th June 2012

[4] AQW 32041/11-15 Mrs Sandra Overend, 13/03/2014

Table 1: SFP eligibility inspections by DARD[5]

Year	Total number of eligibility inspections	Number conducted by remote sensing	Remote sensing inspections as % of total inspections	Overall payment % achieved by end of December
2012	1,871	250	13%	82.8%
2013	2,129	1,139	54%	90%
2014	1,889	1,335	71%	95%

As set out in table 1, DARD has expanded the utilisation of remote sensing since its introduction in 2012, and it should be noted that overall SFP payment percentage has risen in line with this increased remote sensing application.

4 Effectiveness of remote sensing as a CAP control mechanism

Given the utilisation of remote sensing across the EU since 1992 in the assessment CAP eligibility, there has been some assessment as to the effectiveness of the approach and associated advantages and limitations. This section of the briefing paper provides a brief overview of some of these views and draws upon a previous RaISe paper from 2012 (NIAR 634-12) which considered the use of remote sensing in the Single Farm Payment process within Wales and the Republic of Ireland.

Republic of Ireland[6]

- Use of remote sensing has increased the efficiency of the Single Payment Scheme – with eligibility checks being completed quicker
- Irish Comptroller and Auditor General report from 2010 established the financial benefit of remote sensing – average cost of a physical on farm inspection visit in the region of €1,800 as opposed to the estimated €60-70 per remote sensing eligibility check
- Use of remote sensing has reduced the overall level of physical inspections – with those now being completed focused on so called “awkward cases”
- Looking to the future (in 2012) Irish authorities were keen to explore other ways to make use of the increasingly remote sensing data that was available – possible example was better identifying and measuring the scale of ineligible features
- Despite the positives – recognition amongst officials that on the ground physical inspections are more accurate than a remote sensing inspection.

Wales[7]

- Initial remote sensing pilot ran in 2006 – expanded since this date

[5] Data provided by DARD and accessed through the TRIM system
[6] NIAR 634-12 – based on conversation with Irish Departmental officials
[7] NIAR 634-14 – based on conversation with Welsh Departmental officials

- Anecdotal evidence from staff suggests that remote sensing has sped up the administration of the Single Payment Scheme
- Increased efficiency of the system largely due to 2 specific factors – the reduction in overall physical inspections and the focussing of physical inspection on cases which fail eligibility
- The costs of inspection had been reduced by the use of remote sensing but there was no assessment as to the specific level of the savings
- Looking to the future (in 2012) Welsh authorities were keen to explore the expanded use of remote sensing in areas such as cross compliance.

In addition to this information for the Republic of Ireland and Wales, a PWC Review of the Rural Payments Agency published in 2010[8] made the following comments around the Agency's usage of remote sensing:

Remote Sensing is a more cost-effective form of inspection than physical visits to farms. However, there are a number of limitations:

- *Remote sensing only reports on land boundaries and does not consider environmental or cross compliance issues which physical inspections can identify.*
- *Remote sensing is ineffective where there is cloud cover and steep gradients. Currently in England each year six geographical zones are initially selected for the remote sensing sample, but we understand that no consideration is given as to how effective the remote sensing is likely to be in that area. For example in Cumbria in 2009, out of a total of 650 RS inspections, 96 follow up inspections were required (15%).*
- *Follow up physical inspections are required if the images from remote sensing are not clear or if the farmer disputes the boundaries in the images. Such inspections are ad hoc and therefore can't be planned into workflow allocations, so they can pose timetabling difficulties.*
- *There are often uncertainties as to when the RS imagery will be delivered, which has an impact on resource planning and milestones.*

Impact and resolution

- *There are inherent shortcomings in RS as a technique, and these mean that it must be used in conjunction with physical inspections.*
- *We (PWC) believe that RS has the potential to be a very cost-effective tool, but that it is currently used in a sub-optimal way. A more targeted approach that reflects the suitability of RS to the various zones would increase the overall level of effectiveness."*

[8] Report of Workstream 2 – Operations, Review of the Rural Payments Agency, Price Waterhouse Coopers, March 2010, pp.118-119

As a more general concluding point, the suggestion by some that land eligibility inspections completed by the means of remote sensing will never be as accurate or detailed as the data provided by an on farm inspection visit, could theoretically present future disallowance risks if audits of remote sensing inspection regimes discover flaws or errors.