

## 2 Overview

### 2.1 Name

INSPIRE data specification for the theme *Agricultural and Aquaculture Facilities*.

### 2.2 Informal description

#### **Definition:**

(INSPIRE, 2007) Farming equipment and production facilities (including irrigation systems, greenhouses and stables). [Directive 2007/2/EC]

#### **Description:**

The scope of “*Agricultural and Aquaculture Facilities*” thematic working group refers to all the physical instruments and constructions with permanent or semi-permanent emplacement (inland or outland) that are related to Agricultural and Aquaculture Activities (under the NACE Classification – level A - “Agriculture, forestry and fishing”). Including:

- A - Agriculture, forestry and fishing
- A1 - Crop and animal production, hunting and related service activities
- A1.1 - Growing of non-perennial crops
- A1.2 - Growing of perennial crops
- A1.3 - Plant propagation
- A1.4 - Animal production
- A1.5 - Mixed farming
- A1.6 - Support activities to agriculture and post-harvest crop activities
- ...
- A3 - Fishing and aquaculture
- ...
- A3.2 - Aquaculture
- A3.2.1 - Marine aquaculture
- A3.2.2 - Freshwater aquaculture

Activities listed below such as catching, hunting, fishing or collection of natural resources (vegetables or animal) on their natural environment could be included under the scope when supported by relevant physical instruments and constructions but always constraining the information to them as required on Data Specifications. Entities referring extended areas should be considered under most appropriate themes as (AM, SU or CP). These could be:

- A3.1 - Fishing
- A3.1.1 - Marine fishing
- A3.1.2 - Freshwater fishing
- ...
- A1.7 - Hunting, trapping and related service activities
- A1.7.0 - Hunting, trapping and related service activities
- A2 - Forestry and logging
- A2.1 - Silviculture and other forestry activities
- A2.1.0 - Silviculture and other forestry activities
- A2.2 - Logging
- A2.2.0 - Logging
- A2.3 - Gathering of wild growing non-wood products
- A2.3.0 - Gathering of wild growing non-wood products
- A2.4 - Support services to forestry
- A2.4.0 - Support services to forestry

Under the Agricultural and Aquaculture scope, "Facility" is considered as a generic term that refers to physical structures or sets of them designed, built or installed to serve a specific function (agricultural or aquaculture) and areas of land or water where such structures are or may be located. Based on this generic definition, the scope covers a wide range of entities from Holdings to Abstract Installations (Specific Technical Units).

"Facilities" dedicated to the optimal conservation of materials directly derived from Agricultural or Aquaculture Activities and placed into the "Site" limits of the "Holding" in which these materials have been produced are covered by the scope (e.g. Milk raw tanks). "Facilities" related to Activities of marketing and transformation of raw materials into elaborated products in an industrial way would be under the scope of other themes (PF, US, BU), similar case occurs for those activities carried out on the Holding - Site but not directly related to Agricultural or Aquaculture activities as they have been described and without a relevant impact on the environment (e.g. hosting of persons or recreational activities), .

All the "facilities" where animals are bred or kept for uses not directly related to Agriculture or Aquaculture activities would be under the scope if existing datasets related to agricultural or aquaculture include them because of their purposes (e.g. for the purpose of "epidemiological control of animal diseases" equestrian centers may be included).

All physical instruments and constructions that are part of the rural landscape but not legally related to specific agricultural or aquaculture holdings (related party - operator) could be included under the scope but always constraining the information to them as required on Data Specifications..

All the geographical entities delimiting areas in which holdings are grouped by different criteria shall be under the scope of other themes (AM, HH, SU) (e.g. relaying areas, infected zones or compartment, irrigation areas,...).

The extended part of the model includes delimited portions of land or water ("plots") in which agricultural (including animal farming) and/or aquaculture labours are carried out. The scope was extended to this class beyond the scope of the term "facility" in order to cover "Data Set" dealing with information about actions over delimited extensions of territory (inland or on water) related to Agricultural and Aquaculture activities and under the direct supervision or responsibility of a "Holding" that are subjected by law to special permission, monitoring or management. The intention is to cover the potential lack of other scopes like Land Use or Land Cover in which the figure of the "Related Party - Operator" is not considered.

### **Scope, use examples:**

Agricultural and Aquaculture Holdings (*Activity Complex* Extension as described in Doc 2.10 "INSPIRE Base Models") as human activities taking place over the territory, are directly related to the environment in which they are located (land, water and air); in that context, they are subject to diverse legislation (from Local to European).

As Economical Activities, they are subjected to a wide range of common legislation derived from their operations (waste, e-prtr, seveso, water,...). Use case and examples based on this could be for instance the definition of Waste Management Plans or the delimitation of areas of special care or susceptibility related to different risk sources (e.g. Nuclear radioactivity or chemical emissions).

As source of food for consumption, all these holdings are also subjected to a wide range of sanitary legislation and animal care and management (traceability, animal health, cattle registry,...). (e.g. control of animal diseases, cattle registration of movements, ...)

As activities taking place directly over the environment, extracting and consuming resources from it (land, water) they are also subjected to legislation that control the use of resources and the use of certain kind of substances (Nitrates, Irrigation, Manure, ...).

### **Important feature types and attributes:**

Agricultural and Aquaculture facilities, Holdings, independently of their use, may have an exact and fixed location (point, line, area).

Holding location may exist as coordinates or indirectly through the address, property (cadastral information) or buildings. Use of GIS or web services may join their databases and databases offering possibilities for indirect referencing.

Objects (things or constructions) can be spatially expressed as points or polygons depending on the scale. Lineal facilities can be expressed as networks (arc-node).

Plots must be described as polygons (surfaces).

**Definition:**

(INSPIRE, 2007) Farming equipment and production facilities (including irrigation systems, greenhouses and stables). [Directive 2007/2/EC]

**Description:**

The theme "*Agricultural and Aquaculture Facilities*" concerns the description of all the physical instruments and constructions with permanent or semi-permanent emplacement (inland or outland) that are related to agricultural and aquaculture activities.

Agriculture refers to the set of process and activities consisting in cultivating soils, producing crops and rearing animals; it includes harvesting, milking, breeding animals, keeping animals for farming purposes, and, according to Council Regulation 73/2009, maintaining the land in good agricultural and environmental condition. Agricultural facilities include facilities ranging from entire holdings to installations such as irrigation systems, drainage systems, greenhouses, stables, barns, silos and tanks.

Aquaculture covers activities and techniques related to the production, breeding and treatment of fish, molluscs, seaweed and other kinds of aquatic resources (vegetables or animal). Aquaculture facilities only include permanent or semi-permanent systems or constructions for breeding, treatment and raising of organisms. Aquaculture facilities may exist both in marine waters, inland water environments and as terrestrial production systems.

Catching, hunting or collection of natural resources (vegetables or animal) on their natural environment is not considered as an agricultural activity, unless it is supported by relevant physical instruments and constructions. Similarly, forestry is not considered as an agricultural activity, with the exception of tree nurseries.

Entry in the INSPIRE registry: <http://inspire.ec.europa.eu/theme/af/>

## 2.3 Normative References

[Directive 2007/2/EC] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE)

[ISO 19107] EN ISO 19107:2005, Geographic Information – Spatial Schema

[ISO 19108] EN ISO 19108:2005, Geographic Information – Temporal Schema

[ISO 19108-c] ISO 19108:2002/Cor 1:2006, Geographic Information – Temporal Schema, Technical Corrigendum 1

[ISO 19111] EN ISO 19111:2007 Geographic information - Spatial referencing by coordinates (ISO 19111:2007)

- [ISO 19113] EN ISO 19113:2005, Geographic Information – Quality principles
- [ISO 19115] EN ISO 19115:2005, Geographic information – Metadata (ISO 19115:2003)
- [ISO 19118] EN ISO 19118:2006, Geographic information – Encoding (ISO 19118:2005)
- [ISO 19123] EN ISO 19123:2007, Geographic Information – Schema for coverage geometry and functions
- [ISO 19125-1] EN ISO 19125-1:2004, Geographic Information – Simple feature access – Part 1: Common architecture
- [ISO 19135] EN ISO 19135:2007 Geographic information – Procedures for item registration (ISO 19135:2005)
- [ISO 19138] ISO/TS 19138:2006, Geographic Information – Data quality measures
- [ISO 19139] ISO/TS 19139:2007, Geographic information – Metadata – XML schema implementation
- [ISO 19157] ISO/DIS 19157, Geographic information – Data quality
- [OGC 06-103r4] Implementation Specification for Geographic Information - Simple feature access – Part 1: Common Architecture v1.2.1
- NOTE This is an updated version of "EN ISO 19125-1:2004, Geographic information – Simple feature access – Part 1: Common architecture".
- [Regulation 1205/2008/EC] Regulation 1205/2008/EC implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata
- [Regulation 976/2009/EC] Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services
- [Regulation 1089/2010/EC] Commission Regulation (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services
- [Regulation 1893/2006] Regulation (EC) no 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains.

## 2.4 Terms and definitions

General terms and definitions helpful for understanding the INSPIRE data specification documents are defined in the INSPIRE Glossary<sup>13</sup>.

Specifically, for the theme *Agricultural and Aquaculture Facilities*, the following terms are defined:

<sup>13</sup> The INSPIRE Glossary is available from <http://inspire-registry.jrc.ec.europa.eu/registers/GLOSSARY>

### **(1) Activity Complex**

It refers to a single unit, both technically and economically, which has a single management and which undertakes classified economic activities

In Agriculture and Aquaculture the Holding class is an extension of Activity Complex.

### **(2) Agriculture**

It refers to the set of process and activities consisting in cultivating soils, producing crops and rearing animals; it includes harvesting, milking, breeding animals and keeping animals for farming purposes. According to Council Regulation 73/2009 maintaining the land in good agricultural and environmental condition shall be considered as an agricultural activity.

### **(3) Livestock**

Refers to animals being bred and/or raised for use or profit (covered by the activities defined under NACE codes A.1.4. and A.1.5).

### **(4) Aquaculture:**

Set of activities and techniques related to the production, breeding and treatment of fish, molluscs, seaweed and other kinds of aquatic resources (vegetables or animal).

Farming systems are diverse:

- Freshwater, brackish water or saltwater environment.
- For on-growing, hatcheries and nurseries.
- In cages, tanks, ponds, enclosures and pens, re-circulation systems, mollusks on bottom, molluscs off bottom.

### **(5) Utility**

Object (thing or construction), simple or complex (integrated by parts or pieces), that is useful for a specific use.

### **(6) Production**

From the economic point of view production is to create utility, being utility the capacity to generate satisfaction through a product, an economic service or an economic good.

### **(7) Installation:**

Set of physical elements, operating in a coordinated manner, that are requested to perform a particular activity.

Installations include:

- Storage and distribution facilities (gas, liquid, solid).
- Power facilities (Generating, distribution and transformation)
- Industrial Machines and Equipment (Industrial and Automated Processes)
- Irrigation Facilities (Storage, Uptake, Distribution, Dispersion).
- Animal confinement (Stables, Cages, Enclosures)
- Sanitary Facilities (Veterinary, Washing, ...)
- Facilities for people and administrative services (Offices, Costumes).
- Crop Acclimatization (Greenhouses, Plastic Structures).
- Transport Facilities (Rural Ways)

Each Installation has a geographical location.

### **(8) Plot**

Independent portion of land or water surface (clearly delimited e.g by fences, walls or boundary markers) including (or matching) on the limits of a Site, that is the support for a specific use directly related to the Agricultural or Aquaculture activities performed by the Holding.

### **(9) Area**

Portion of territory (Land Use - Urban Planning) in which it is possible to perform a legal implantation of Agricultural or Aquaculture Facilities. It's also a *quantity* expressing the *two-dimensional* size of a defined part of a *surface*, typically a region bounded by a closed *curve*.

### (10) Facility

A physical structure designed, built or installed to serve a specific function and areas of land or water where such structures are or may be located.

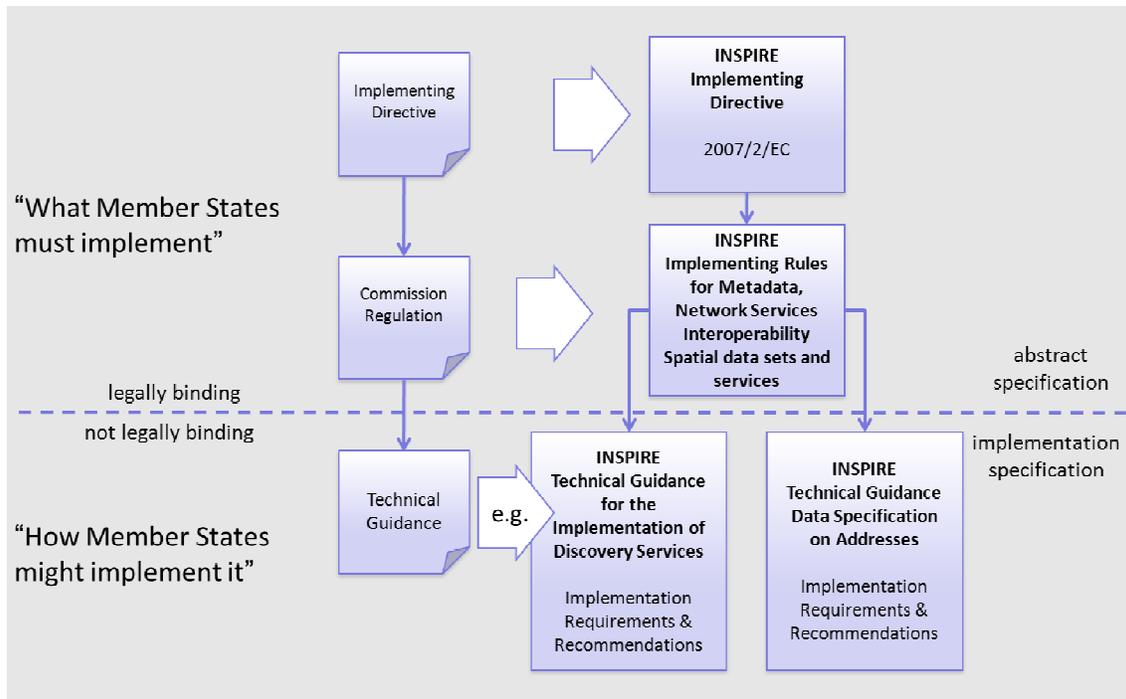
## 2.5 Symbols and abbreviations

ATS	Abstract Test Suite
CLP	Classification, labelling and packaging of substances and mixtures
EC	European Commission
EEA	European Environmental Agency
E-PRTR	European - Pollutant Release and Transfer Register
ETRS89	European Terrestrial Reference System 1989
ETRS89-LAEA	Lambert Azimuthal Equal Area
EVRS	European Vertical Reference System
EWC	European Waste Catalogue
FAO	Food and Agricultural Organization of the United Nations.
GCM	General Conceptual Model
GML	Geography Markup Language
IPPC	Integrated pollution prevention and control
IR	Implementing Rule
ISDSS	Interoperability of Spatial Data Sets and Services
ISO	International Organization for Standardization
ITRS	International Terrestrial Reference System
LAT	Lowest Astronomical Tide
LMO	Legally Mandated Organisation
NACE	Statistical Classification of Economical Activities in Europe.
SDIC	Spatial Data Interest Community
TG	Technical Guidance
UML	Unified Modeling Language
UTC	Coordinated Universal Time
XML	EXtensible Markup Language

## 2.6 How the Technical Guidelines map to the Implementing Rules

The schematic diagram in Figure 1 gives an overview of the relationships between the INSPIRE legal acts (the INSPIRE Directive and Implementing Rules) and the INSPIRE Technical Guidelines. The INSPIRE Directive and Implementing Rules include legally binding requirements that describe, usually on an abstract level, *what* Member States must implement.

In contrast, the Technical Guidelines define *how* Member States might implement the requirements included in the INSPIRE Implementing Rules. As such, they may include non-binding technical requirements that must be satisfied if a Member State data provider chooses to conform to the Technical Guidelines. Implementing these Technical Guidelines will maximise the interoperability of INSPIRE spatial data sets.



**Figure 1 - Relationship between INSPIRE Implementing Rules and Technical Guidelines**

## 2.6.1 Requirements

The purpose of these Technical Guidelines (Data specifications on *Agricultural and Aquaculture Facilities*) is to provide practical guidance for implementation that is guided by, and satisfies, the (legally binding) requirements included for the spatial data theme *Agricultural and Aquaculture Facilities* in the Regulation (Implementing Rules) on interoperability of spatial data sets and services. These requirements are highlighted in this document as follows:

**IR Requirement**  
Article / Annex / Section no.  
**Title / Heading**

This style is used for requirements contained in the Implementing Rules on interoperability of spatial data sets and services (Commission Regulation (EU) No 1089/2010).

For each of these IR requirements, these Technical Guidelines contain additional explanations and examples.

NOTE The Abstract Test Suite (ATS) in Annex A contains conformance tests that directly check conformance with these IR requirements.

Furthermore, these Technical Guidelines may propose a specific technical implementation for satisfying an IR requirement. In such cases, these Technical Guidelines may contain additional technical requirements that need to be met in order to be conformant with the corresponding IR requirement *when using this proposed implementation*. These technical requirements are highlighted as follows:

**TG Requirement X** This style is used for requirements for a specific technical solution proposed in these Technical Guidelines for an IR requirement.

NOTE 1 Conformance of a data set with the TG requirement(s) included in the ATS implies conformance with the corresponding IR requirement(s).

NOTE 2 In addition to the requirements included in the Implementing Rules on interoperability of spatial data sets and services, the INSPIRE Directive includes further legally binding obligations that put additional requirements on data providers. For example, Art. 10(2) requires that Member States shall, where appropriate, decide by mutual consent on the depiction and position of geographical features whose location spans the frontier between two or more Member States. General guidance for how to meet these obligations is provided in the INSPIRE framework documents.

## 2.6.2 Recommendations

In addition to IR and TG requirements, these Technical Guidelines may also include a number of recommendations for facilitating implementation or for further and coherent development of an interoperable infrastructure.

**Recommendation X** Recommendations are shown using this style.

NOTE The implementation of recommendations is not mandatory. Compliance with these Technical Guidelines or the legal obligation does not depend on the fulfilment of the recommendations.

## 2.6.3 Conformance

Annex A includes the abstract test suite for checking conformance with the requirements included in these Technical Guidelines and the corresponding parts of the Implementing Rules (Commission Regulation (EU) No 1089/2010).