



European Union Network for the Implementation
and Enforcement of Environmental Law

SERVICE ADVERT FOR CONSULTANT IN THE FRAMEWORK OF IMPEL TACKLING ILLEGAL GROUNDWATER DRILLING AND ABSTRACTIONS (TIGDA) PROJECT INVITATION TO TENDER

The **European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL)** is an international non-profit association of environmental authorities of the European Union Member States, acceding and candidate countries of the EU, EEA and EFTA countries. The association is registered in Belgium and its legal seat is in Brussels. Currently, IMPEL has 57 members from 37 countries and its working language is English.

The Network's **objective** is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. It promotes the exchange of information and experience and the development of environmental legislation. IMPEL has developed into a widely known organisation in the environment field and is mentioned in several EU legislative and policy documents.

In order to achieve its objectives, IMPEL funds specific projects. For 2022 to 2024 the network funds the project Tackling illegal groundwater drilling and abstractions (TIGDA) (<https://www.impel.eu/en/projects/tackling-illegal-groundwater-drilling-and-abstractions-tigda>).

This project aims to share knowledge and good practices on how to manage groundwater drilling and abstractions. This would include specific permitting conditions, accreditations as well as enforcement tools and methods in place in different member states to reduce illegal drilling and groundwater (over)abstraction thus helping in attaining a good quantitative and qualitative state of groundwater bodies.

Under TIGDA project there is a work package for 'Earth Observation Techniques for the Detection of Illegal Groundwater Activities'.

This work package aims to review the different types of earth observation methods and data that can be used for the detection of illegal groundwater activities. Within the work package there is the need to provide a written report with recommendations for earth observation methods and data against the scale of illegal groundwater activity.

The project budget includes consultancy cost for the above-mentioned required service of €15000 (including VAT).

Consequently IMPEL, for the needs of the "Earth Observation Techniques for the Detection of Illegal Groundwater Activities" work package, is looking for a **service provider** to work, for an expected 25 average working days in total from 1 September 2023 to 1 September 2024, to fulfil the above-mentioned needs (see the following section for further details on the deliverables and key services).

Service specification

The Service required includes the following key services and deliverables:



Project Outline

The IMPEL TIGDA project team are identifying different methods and techniques for the detection of illegal groundwater activities. From a 2022 survey of TIGDA members it is noted that there is a wide range of detection methods, from surveillance, reporting by public/neighbours through to absence of detection methods. In addition, the scale of the illegal groundwater activity ranges from field irrigation through to domestic wells in urban areas.

From the presentation on drone surveillance in Lisbon (Portugal) the project team were made aware that detection is not evidence in itself and is better described as precursor information for subsequent compliance and enforcement visits by the regulatory authority.

Note: within the scope of this project the definition of “illegal groundwater activity” will cover any combination and types of illegal drilling or illegal abstraction. Within this definition will also be activities that could result in the direct input of pollutants to groundwater, for example discharges to wells, boreholes or soakaways.

Aim of the Work Package

The aim of this work package is to review the different types of earth observation methods and data that can be used for the detection of illegal activities. Earth observation methods and data include (but not limited to):

- Satellite imagery
- Aerial reconnaissance by aeroplane or helicopter
- Drones

The use of earth observation methods must also be linked to the scale of the illegal groundwater activity, including:

- Irrigated crops
- Industrial use
- Dewatering – construction
- Dewatering – mineral extraction
- Domestic use – abstraction
- Domestic Use – sewage discharge
- Soakaways for trade effluent

Limitations and Exclusions

To facilitate the use of the project outcomes within the IMPEL community there are various limitations and exclusions within this project:

- Earth observation method and techniques are for detecting the location and scale of the illegal groundwater activity or activities.
- Quantification of abstraction volumes is excluded from the project
- Earth observation method must be commercially available and accessible across the EU and wider IMPEL community.
- Earth observation data must be free or relatively low cost for the regulatory authority to use across multiple detection programmes.

For clarity, the IMPEL TIGDA are aware of other detection methods for illegal groundwater activities, such as drill rig registration and tracking. This work package is only focused on the detection from the different types of earth observation.



Scope of Work Package

It is estimated that 25 average working days in total is required to deliver the project. The project will start on 1 September 2023 and must be completed, including delivery of the final report, by 1 September 2024. However, the number of working days per task will not be specified within the scope of the work package as the timeline for delivery of each task will be agreed at commencement.

The service proposal will detail the payment schedule that will be associated with delivery of each task. The consultant may combine tasks in the programme schedule as long as the overall project deliverables stated in this scope are completed.

Task 1 – Project Commencement

- Agree and clarify scope of the project
- Agree timeline for completion of each task

Task 2 – Literature Review

- Identification of earth observation methods which would be accessible and useable within the EU
- Identification of different providers, including free to use or commercial, for earth observation data
- Limitations of earth observation methods. This will include physical (such as cloud cover or wind speed), resolution and spectral imagery.
- Regulatory limitations in the use of different methods and data, for example EU General Data Protection Regulation (GDPR).
- Report from the literature review.

Task 3 - Identification of Earth Observation Methods and Data for Detection of Illegal Groundwater Activities

- From Task 2, the identification of earth observation methods and data detailed on Task 2 will be cross-referenced against the scale of the illegal groundwater activity, including:
 - Irrigated crops
 - Industrial use
 - Dewatering – construction
 - Dewatering – mineral extraction
 - Domestic use – abstraction
 - Domestic Use – sewage discharge
 - Soakaways for trade effluent
- Report summarising the outcomes of Task 3

Task 4 – Obtaining and Processing of Earth Observation Data

- Where earth observation data is acquired through a third party provider
 - The cost of data acquisition (including single or multiple data acquisition)
 - The accessibility of the earth observation data
 - The frequency of raw data availability
- Where specialist equipment is needed for the capture of earth observation data
 - Type of equipment needed, including accessories (for example thermal cameras)



- Typical purchase cost of equipment
- Skill and competence to use the equipment, including statutory certification
- For processing requirements from raw data to a useable product, identify
 - Hardware requirements, for example computer processing specification
 - Software needed to analyse the raw data to a useable product
 - Skill and competence requirement to process the data
 - Typical costs for the hardware, software and any specialist training
- In detecting and localising the illegal groundwater activity, develop an evidential scale for each earth observation type and illegal groundwater activity against to support the regulatory authority, such as:
 - Level 1 (awareness): only suitable for filtering in potential illegal groundwater activity abstraction. Will help understand if more detailed inspections techniques are required.
 - Level 2 (advanced): ability to map clearly the location of illegal groundwater activities.
 - Level 3 (specialist): ability to clearly indicate the clusters and scale of illegal groundwater activities for prioritisation by the regulatory authority
 - Level 4 (expert): ability to provide sufficient evidential data to automatically fine without local inspections
- Report summarising the outcomes of Task 4

Note: “useable product” means the processed output will have sufficient resolution and accuracy to support compliance or enforcement action by the regulatory authority. While it may be unlikely the useable product will be used within an enforcement case file it should have sufficient resolution as if it could be used in such a way.

Task 5 – Recommendations for Earth Observation Methods and Data Against Scale of Illegal groundwater activity

- With consideration to Tasks 2 to Task 4 summarise the list of earth observation methods which can be used for the different scales of illegal groundwater activity.
- Within the summary list the data acquisition costs, equipment and IT costs, maintenance costs, resolution of detection and accessibility
- Make recommendations for the earth observation method and data suitable for each of the different scales of illegal groundwater activity. This will balance cost, accessibility, evidential scale and the resolution of the processed data.
- Report summarising the outcomes of Task 5

Task 6 – Final Reporting

- Collate all task reporting into the one final report
- Redact/remove any commercially sensitive data
- The final report will be written in English.
- [Optional based on budget] the final report will be translated into three other languages (to be agreed during the commencement meeting but could include French, Italian and Romanian)



Essential Requirements & Skills

1. High level of technical knowledge on the subject of earth observation techniques, with at least 10 years of applied experience in the field of remote sensing.
2. Interest in environmental protection and knowledge and practical experience of the use of earth observation techniques.
3. Ability to operate self-organised and effectively both independently and as a part of a team of service providers and IMPEL members, prioritise own workload and manage competing demands to ensure tasks are completed on time and to a high standard.
4. Excellent and demonstrable communication, reporting and presentation skills, including very good level of English, written and oral (at least European Passport level C1)
5. Experience of working internationally. Working with IMPEL, other European /International networks, projects, and/or the European Commission.

Conditions

A service contract, of €15000 (including VAT), will be awarded to the successful service provider for the service from 1 September 2023 to 1 September 2024. The service proposal will specify the payment schedule based on the final delivery of each task.

The services should be provided remotely from the provider's own place of work, liaising with the project leaders, the project team and all the project participants, as well as other project service providers.

The service provider is solely and exclusively responsible for all social security and tax obligations, including V.A.T. liabilities, at his place of work, related to the fees and any other compensation paid under this service contract and for the social security and tax obligations relating to its employees and representatives. IMPEL will provide the necessary information and proof on European VAT liabilities eventually covered at its legal seat.

The estimated time for this service is 25 working days in total but payment will be made for adequate services described for this contract term with the fixed mentioned price.

The service provider will be bound by IMPEL's confidentiality and conflict of interest agreement which should be signed along with the acceptance of the contract.

The Consultant will disclose and provide to IMPEL all intellectual property made, conceived, or created by it at any time during the performance of the agreement (whether alone or jointly with others), including recordings of events for internal dissemination and will not limit number of participants attending in any event organised under this tender.

All communication will take place in English. Changes will be communicated beforehand with the IMPEL project leaders and implemented only after written approval.

The service provider will report to the IMPEL Project Leaders.

The service provider, upon request of the Expert Team & Project Leaders, will take part to IMPEL meetings and workshops regarding this project. In this case, travelling expenses such as hotel, necessary meals and flight are paid by IMPEL. Reimbursement of costs will be in line with IMPEL rules and procedures.



Early Termination of the service contract

Earlier termination of the service contract may be initiated by IMPEL if:

1. the financial contributions foreseen for the project are not paid to IMPEL or
2. the quality and quantity of services rendered is not sufficient.

Adequate warning and consultation will be provided prior to the contract being terminated.

Application

The service providers should apply for this service, with a service proposal that includes their **curriculum Vitae** and a **short letter of motivation** (maximum two pages) explaining their experience and suitability for the service, within **21 days** from the publication of the invitation to tender on IMPEL website (5 May 2023) submitted to:

- info@impel.eu
- david.seccombe@environment-agency.gov.uk
- monica.crisan@impel.eu
- bart.pannemans@vlaanderen.be

Shortlisted service providers will be informed by 30 May 2023.

Teleconference (Skype/TEAMS) interviews with those shortlisted will be conducted in the following days.

For more information on the tendered service, please contact David Seccombe at david.seccombe@environment-agency.gov.uk.

5 May 2023