

The Walloon Public Service Science Institute (ISSeP)

A Unique Expertise in the Service of Environment and Public Health

A true sentinel of the environment for 25 years, the Walloon Public Service Science Institute (ISSeP) uses 3 tools to fulfill its task: a body of experts, a certain number of laboratories and specialized equipment. An overview of a leader in metrology and active contributor to European research.

ISSeP relies on the expertise of some 300 agents (one third working on the ground, another third in the laboratory, and the last third on the analysis of results); 3 laboratories and an array of field equipment, specialized analysis equipment, and test benches. Covering the whole of Wallonia, ISSeP organizes its activities around 4 major axes: measurement and data collection; assessment of potential and future risks; research and technological development; and the reference laboratory, which is entrusted by the Walloon Government to check the competences and available means of private operators applying for approval. Currently, there are 28 approved laboratories in Wallonia.



Benedicte Heindrichs,
general manager

"waste" and "water." ISSeP welcomed with pride this new feather in its cap. Besides, ISSeP created a new cell for Earth observation in 2016 : this booming infrastructure enables the Institute to deliver satellite data on water, ground, air and risk prevention with a higher level of precision in terms of location and in time terms. Thanks to this cell, ISSeP remains at the cutting edge as a sentinel of the environment and data manager. It has also led to 5 collaboration agreements and ISSeP's participation in 2 federal research projects.

© ISSeP

ISSeP has also gleaned recognition for its fire laboratory, the only one in Belgium with its "Room Corner test" which focuses on the fire behavior of various materials and their compliance with legal requirements, and performs post-

accidents' analyses on behalf of justice. Likewise, ISSeP can rely upon its laboratory dedicated to nanoparticles and nanomaterials : it helps industrialists formulate an appropriate policy with regards to production, storage and transfer, while performing analyses of flammability and explosiveness of nanoparticles for validation of new products.

A leader in metrology

As a successor to the Institute of Mining (INM created in 1902), ISSeP relies on 40 years of experience in the surveillance of air quality. Today, the Institute intervenes on all environmental matrices. Its unique skills have led it to collect, analyze, and interpret samples of air, ground, sediments and even waste products. It runs 30 sites for the measurement of air quality, and it deeply involves itself with issues of water quality: it performs a yearly mean of 1,800 samples and 350,000 measurements in surface waters.

ISSeP's reference laboratory earned the ISO 17025 certification for its quality management system. In 2016 it extended its accreditation to ISO 17043, after 3 years of hard work to join the very exclusive circle of six Belgian operators (and the first one in Wallonia) empowered to organize inter-comparison experiments between accredited laboratories for the domains

A dynamic research

ISSeP's research activities are in full spring : with 11 projects on own funds and as many projects on external funds, they can take advantage of a budget reaching 1.7 million Euros in 2018. All these projects are related to 4 major areas for further research: human exposure to traffic-related pollution, sustainable development, metrology expertise at European level and civil security in the framework of cross-border cooperation.



Preparation of volatile chlorinated samples



Volatile compounds

Technology Innovation





Hot oxidation analysis in groundwater and swimming pools

© ISSeP



PROJET ICOS - Ecosystem station of Lonzee (BE-Lon), one of the three first labelled ICOS Class 2 stations in Europe

© ISSeP

A research project on own funds launched for 3 years, OIE (Outdoor and Indoor Exposure) targets the accurate identification of air pollution due to traffic in ambient air and indoor air. The successor of successful project ExTraCar (Population Exposure to Traffic and Black Carbon) combines 3 additional pollutants (nitrogen oxide, fine particles, ozone) with black carbon and uses two tools (black carbon analyzers and multi-sensor platforms) in order to establish a digital modeling of the population's exposure to this pollution. Moreover, OIE involves the participation of citizens, with a call for volunteers launched in winter 2018, and relies on 6 partners.

ISSeP is also involved in 2 research projects as regards sustainable development. WALLPHY (2017-2020) concerns the implementation of phytostabilisation experiments in Wallonia where many sites fail to be valued because of their being polluted. The Walloon Minister for the Environment Carlo Di Antonio therefore entrusted ISSeP with the mission of developing new technologies to degrade pollutants in situ. This 3-year long applied research project is designed to achieve 3 goals: improving knowledge to broaden the valorization offer; assess the performance of phytotechnologies; and contribute to sustainable development through a reflection on the use of biomass. Trees will be planted on the three selected sites and ISSeP will evaluate the impact of such plantations on the ground. About 1.2 million Euros will be allocated to this very concrete project.

An INTERREG project (2016-2020), VALSE focuses on the sediments present in the streams, now regarded as waste, with a view to check the feasibility of valorization of this material through two works, namely a bike path and a landscaped hillock. In both cases ISSeP will ensure that there is no unfavorable impact on the environment. Interestingly, the results of this research gathering 9 partners (among which INERIS in France, universities, and the waterways of France and Wallonia) can be exploited for the establishment of a cycle economy.

In the field of metrology, ISSeP takes part in 2 projects that enable it to integrate permanent European networks of measurement. ICOS-WB (Integrated Carbon Observation System in the Wallonia-Brussels Federation) aims at proposing super sites combining different kinds of measurement at the same place; one of ISSeP's air quality measurement stations

will be widened for the nonce. Similarly, ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network) will make the most of ISSeP's knowhow in data management as regards air quality.

For its part, "ALARM: for a borderless security" is an INTERREG 5 project phased between 2016 and 2020. Enjoying a budget of 2.8 million Euros, it aims at working out a new generation of risk mapping at the scale of the pool of life made up of Hainaut and the Lille metropolitan area. Technological, environmental and accidental risks will be identified together with resources such as fire stations and their staff, technical and material support. ISSeP brings its expertise in database design and organization to this future platform of information exchange.

Services to companies

ISSeP has also developed an offer of services to companies based on its different areas of expertise. Those services encompass asbestos detection, the measurement of electromagnetic fields, the detection of legionella in swimming pools and the measurement of industrial emissions in the context of air quality related to urban development.

A single objective links all these activities for ISSeP: to stay at the cutting-edge for all the environmental matrices and its specialty areas. This nexus implies the cooperation with academic and industrial partners and the development of own research programs. With the constantly renewed will to validate the processes and verify the environmental and health impact of new products and industrial processes. In other words, a genuine, public service mission!



ISSeP

Liège Headquarters
Rue Chéra, 200 - B-4000 Liège
Tel.: +32 (0)4 229 83 11
Fax: +32 (0)4 252 46 65
Email: direction@issep.be
<http://www.issep.be>