

Scientific Institute of Public Service - ISSeP

New skills and analytical methods to support the circular economy and better control environmental crises

Interview with Ir. Rose DETAILLE,
Managing director of ISSeP

What are the missions of ISSeP?

The Institute fulfils a number of missions:

- Monitoring of the environment (water, air, soil, sediments, waste),
- The development of analytical methods in order to characterise today and tomorrow's pollutants,
- Assessment of potential and future health and environmental risks,
- Research and technological development in order to anticipate regulatory evolution,
- Certification of products and agreement of laboratories,
- And finally database management.

These things combine to enable ISSeP to guide the Walloon Region in taking the right political decisions in environmental matters.



for 5 age groups: new-borns, children aged 3 to 4 and 6 to 11, adolescents and adults (aged 20 to 39). The results showed that exposure levels found in Wallonia are in line with those found in other European countries and that pesticides used today are widely present in our bodies. The effects of policies to raise awareness, reduce and/or ban substances are noticeable but do not totally/directly eliminate exposure.

Targeted biomonitoring studies have also been initiated. The BioBro project should make it possible to determine whether residents living in the vicinity of metal shredding facilities are more impacted with the pollutants they emit (PCDDs, PCBs, PBDEs, metals) than the general population and thus to assess the need for additional measures to reduce their dispersion in the environment. The Biosol project

aims to establish relationships between the total content of a metal pollutant in the soil, its bioavailability and the level of contamination of the populations living on contaminated soil. Two other studies are planned in the near future: one to determine the overexposure to pesticides of farmers who handle/spread them and of residents living on the edge of fields; the other will consist of integrating the European human biomonitoring programme aimed at measuring the impregnation of the European population with chemical pollutants (including PFAS). This latter project will be conducted in the framework of the Horizon Europe PARC project (Partnership for the Assessment of Risks from Chemicals), a group of 200 partners moving towards a new generation of risk assessment for chemical substances in the context of the "Zero pollution" ambition announced in the European Green Deal. This is a very important recognition of our Institute's expertise and a major opportunity for international collaboration.

What is your assessment of your activity in 2022?

As an environmental sentinel, we continued to monitor the impact of the July 2021 floods for much of 2022 to assess how the environment recovered after such an event and to check the effect of long-term decommissioning of some infrastructure. We also developed our indoor air expertise to help flood victims and carried out over 100 visits to flooded homes and schools where mould and hydrocarbon pollution were suspected. This led to closer partnerships with SAMI and Sciensano. In addition, we started the construction of three additional stations (Charleroi, Liège, Namur) in the telemetric network in order to better characterise ambient air quality in urban environments and especially road traffic emissions.

Several human biomonitoring projects are underway. As part of the Walloon biomonitoring campaigns, reference impregnation values for metals, pesticides, bisphenols, PAHs, POPs and PCBs were determined



In the context of the progressive implementation of the 5G emission standard, our 5GINC project aims to develop a method for quantifying the level of emission in the field and to extend the study of the effects of electromagnetic radiation on health to the frequencies used by 5G by including the study of the syndrome of hypersensitivity to electromagnetic fields. This project will clarify and complete the first conclusions established in the framework of the ENVI-EHS project (absence of correlation between exposure to waves and symptoms associated with hypersensitivity to electromagnetic fields) which has just been completed.

Another highlight is the INTELLO project, which aims to provide ISSeP with new and recognised expertise in the research and development of AI tools such as deep learning, data mining or machine learning, particularly in the fields of Earth Observation, Air Quality or Environmental Health. Finally, ISSeP has become a member of the Agence Universitaire de la Francophonie (AUF), which brings together more than 1,000 universities, grandes écoles, university networks and scientific research centres in 119 countries. Within this framework, we will start a new project dealing with the valorisation and inventory of natural medicinal resources in Rwanda through the use of satellite images in collaboration with the University of Liège.

What interregional collaborations have you developed?

As the Walloon reference laboratory for air, water and soil, ISSeP is in regular contact with its Flemish counterparts at VITO. Important work was carried out in 2022 on the interregional harmonisation of the method guide. As a member of the Walloon Mobility Task Force, ISSeP is in regular contact with Brussels and Flanders, in order to harmonise policies on low emission zones, but also on the different means used to control vehicle emissions. In partnership with GOCA, we have worked on the introduction of equipment to check the integrity of particle filters during the periodic inspection of vehicles. As a sector operator, ISSeP assists NBN in all technical aspects of European (CEN) and international (ISO) air quality standardisation.

We also run several interregional collaboration projects : BIREM (Belgian Interregional Environmental Monitoring) working group, which facilitates the exchange of information and identifies technical contact persons for each (group of) methods and each region, and 3 Interreg projects, namely TranStat (which aims to provide a platform for cross-border data comparison), RISCC (which aims to standardise tools and practices for the management of underground cavities) and Transfair (which aims to develop harmonised information and communication tools to encourage citizens to act to improve air quality).



What are the main research challenges for ISSeP in the coming years?

As environmental sentinel, ISSeP generates and manages a huge amount of environmental data. We aim to increase the exploitation of this environmental data and share it with administrations, citizens and private players through the development of smart interfaces and new decision-making tools. As the Walloon reference laboratory, the development of new analysis methods for new priority substances and consequent training of approved laboratories will be a major challenge. Risk assessment practices need to evolve as new chemicals are discovered and regulations change, and we need to take into account the combined exposure to mixtures of chemicals throughout life. This will be achieved in part through participation in the PARC project. Considering the impacts of the transition to a circular economy and anticipating climate change impacts on the environment quality will be major challenges too. Finally, we intend to increase our international recognition through scientific publication and participation in research projects. ISSeP aims to support the SPW (the Walloon administration) during and after crises via real public service missions!



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