

An interview with Mrs Rose DETAILLE,

Managing Director of ISSeP

What are ISSeP's four key areas of expertise?

ISSeP has four main missions: monitoring the quality of the Walloon environment (i.e. water, air, soil, sediments and waste), preventing risk and pollution, acting as the Walloon reference laboratory, and research and technological development. It draws on the scientific expertise of 300 agents in domains like field sampling, laboratory analysis, numerical modelling, geostatistical analysis, and Earth observation. Environmental monitoring activities cover the ambient air quality network, emissions control at 53 industrial facilities, physicochemical, microbiological and ecotoxicological surveys of surface and groundwater as well as sediments, and monitoring of contaminated sites and landfills. Risk and pollution prevention studies involve, for instance, the simulation of forecasting models and the assessment of accidental and chronic risks, the assessment of impacts on ecosystems and of human health exposure through biomonitoring projects and geostatistical approaches, as well as the monitoring of land use change using Earth observation methods. As you can see, ISSeP covers a wide range of activities related to protecting the quality of the environment and human health!

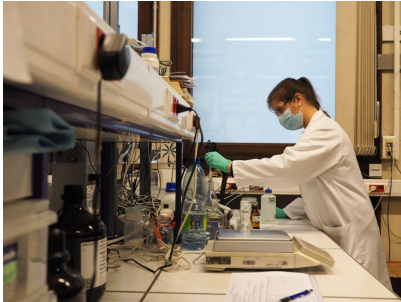


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What are the major European partnerships you are currently involved in?

We are actively involved in PARC, a European partnership aimed at developing a risk assessment framework for next-generation chemicals in order to better protect health

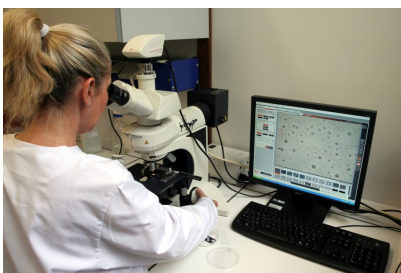
and the environment, using a 'One Health' approach. Several ISSeP units are contributing to this effort, including a biomonitoring study being carried out on the Walloon population. The data obtained in Wallonia will be integrated into the European database, which brings together all the biomonitoring results from each partner.



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The JAMRAI-2 project is also of great interest. The aim of this Horizon Europe project is to combat antimicrobial resistance through joint and coordinated action across Europe. This is already the second edition of this joint initiative, involving 120 partners across 30 countries. European institutions (ECDC, EFSA) and global organisations (WHO, IASO, OECD, UNEP, FAO) are contributing their expertise to enrich the discussions and ensure alignment with existing initiatives. At ISSeP, we are managing one of the 10 work packages: this involves gathering information from countries on existing environmental monitoring systems, testing joint monitoring at European level through a pilot project, and conducting an exploratory study on the use of disinfectants and fungicides in various sectors.

Finally, the floods of July 2021 in Belgium and Germany highlighted the vulnerability of these regions, as well as the increased risks to the population associated with climate change. Hence the importance of having Earth observation data to better manage flood-related crises. This led to the launch of the FLOWS project, funded by BELSPO (Belgian Federal Science Policy) in collaboration with VITO, IGN, UGent, UNamur and DLR in Germany.



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Could you give us some examples of ongoing R&D projects with international partners?

We are participating in the Interreg SATSDIFACTION project, which aims to improve the effectiveness of regional policy instruments by facilitating a better understanding and use of satellite data. As part of this, ISSeP is focusing on the Water Code in collaboration with SPW-ARNE. The experience of the July 2021 floods reveals, on the one hand, that image classification techniques enable flooded areas to be detected in near real time, without being affected by cloud cover, and, on the other hand, that optical data are useful for assessing damage after the flood. Initial findings highlight that the integration of machine learning (ML) and deep learning (DL) tools could optimise crisis management and post-crisis phases.

The HOM’AIR project is an INTERREG Greater Region project aimed at overcoming cross-border obstacles to improve the monitoring of indoor air quality. ISSeP is involved in Module 1 of the project, which aims to establish a common approach to air quality monitoring. This module focuses on taking into account the different regulations of the partner countries, establishing a common protocol, selecting buildings for the project, conducting a full-scale test of the protocol and rolling it out across 40 buildings (in Wallonia, France, Germany and Luxembourg), analysing the data and communicating the results.



The HOM’AIR project. © ISSeP

Another example, in the field of phytomanagement, involves a partnership with Novobiom, a specialist in mycoremediation and a member of the European INNO4CFIs project, and the University of Liège, which coordinates the IIS WASTE2BIO initiative. The aim is to study a phytoremediation technique on a former site of sediment contaminated

with heavy metals. ISSeP plays a key role in selecting the plant species to be planted, defining the experimental design and site monitoring, analysing the results, and contributing to the development of new expertise in phytomanagement.



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Could you give us some examples of research projects funded from your own resources?

We have just approved eight new studies funded from our own resources, bringing our total to 32 projects, in addition to around 20 projects in partnership with European organisations. Among these, AQUAPLAST is assessing the contamination and effects of microplastics in the Meuse, ARQUESUP aims to improve the monitoring of surface water using passive integrative samplers, ADAPTITUDE is developing climate adaptation solutions based on Earth observation data for small and medium-sized towns in Wallonia, GEOLENSA is developing geospatial statistics to study the links between the environment and health using human biomonitoring data, SANOPLAST focuses on assessing health risks for soils amended with plastic-contaminated compost, SHIN(Y)ING aims to increase the sharing of air quality data, SENAPRivA seeks to quantify non-food exposure among residents living near agricultural areas, whilst PROJECT 1601 will model dispersion from industrial chimneys.



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How does ISSeP contribute to Wallonia’s social, economic and ecological transition?

By producing robust and reliable data on air, water and soil quality, ISSeP helps to anticipate risks such as flooding, emerging pollution and the effects of climate change. Our expertise informs the decisions of the authorities, whilst promoting the development of sustainable solutions that can lead to the emergence of new economic activities.

For example, air quality data from our monitoring network is available at www.wallonair.be, which serves as the benchmark for air quality information in the Walloon Region. This website provides citizens, scientists and local authorities with continuous monitoring of pollutants regulated by the EU. At a policy level, it enables the effectiveness of measures taken to reduce air pollution to be assessed. Recently, www.wallonair.be has incorporated the publication of measurements from the micro-stations of the Microcapteurs project in Walloon municipalities, complementing the reference data measured by the ISSeP's air monitoring networks. The website is continuously updated.



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The ISSeP also has a social impact: by involving citizens in citizen science projects, we naturally raise their awareness of sound environmental management. Furthermore, by identifying areas at risk, we strengthen prevention measures, which helps to reduce inequalities in the face of environmental crises.

In conclusion, whilst we may be discreet, we are no less essential. As scientific stakeholders, we are a cornerstone of the transition in Wallonia, transforming knowledge into a catalyst for action.



ISSeP – Scientific Institute of Public Service: Supporting Wallonia’s green transition



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