

Proposals for NORMAN Joint Programme of Activities 2026

Title	Hazardous chemicals at the environment - public health interface Combining Wastewater-Based Epidemiology and indoor dust analysis for comprehensive evaluation of chemical exposure risks in indoor environment.
Type of activity	
Leader	Barbara Kasprzyk-Hordern, Lisa Emily Melymuk, Sara Castiglioni, Werner Brack
Topic / activities	<p>Background / Justification for the proposed activity: Wastewater represents a fingerprint of a city's metabolism. It is a complex mixture of substances of biological and chemical origin including indoor environment community stressors such as hazardous chemicals and their human transformation products. The quantitative measurement of these substances continuously pooled by the water system can provide evidence of community-wide exposure to these chemicals. While wastewater is a source for environmental pollution in NORMAN, the extension of wastewater screening as a proxy for domestic exposure (e.g. from indoor environment) will provide a valuable benefit for the identification and prioritisation of hazardous chemicals, which is a major focus of NORMAN. This approach also helps to better link the efforts of the WG on indoor environments to the water related activities in NORMAN and provides relevant data for NORMAN databases. Water-based chemical mining (also known as WBE – Wastewater Based Epidemiology) utilizing metabolic biomarkers of exposure and effects that are produced collectively by studied populations and ultimately end up in urban water, provides a timely complimentary tool to traditional biomonitoring approaches. Similarly, chemicals emitted indoors are present in indoor air and dust, which is yet another, important matrix enabling chemical exposure studies.</p> <p>This proposal aims to look at exposure to hazardous chemicals at the environment-public health interface, in the context of One health philosophy. As a starting point, we will combine the investigation of indoor environments (DUST) and human community exposure via wastewater analysis (WBE) to provide a new, holistic framework for comprehensive understanding of human exposure risks to hazardous chemical mixtures in indoor environments. This will be done via an integration of three key ongoing activities in Europe:</p> <ul style="list-style-type: none"> - WBE pan-European monitoring program planned in 2024 in PARC (4.3_E01 → Mining chemical information in wastewater for human community and environmental exposure assessment), - SCORE network activities focused on annual WBE monitoring campaigns, - Norman WG-6 on Indoor environments and ambient air <p>This activity was started in 2024/5 project. We have progressed our objectives (and work within PARC) and clarified needs. We have undertaken a review of literature to analyse existing WBE, DUST datasets with an aim of signposting commonalities in tested chemical targets as well as geographies covered. We have built a core group focussed on writing an outline of a paper on interfacing environmental and public health monitoring of hazardous chemicals.</p> <p>We would like to extend to 2026 with the following objectives:</p> <ol style="list-style-type: none"> 1. To write and submit a paper on interfacing environmental and public health monitoring of hazardous chemicals. 2. To identify case studies for the assessment of hazardous chemicals exposure at the environment-human health interface. 3. To develop a study design for a future monitoring programme. <p>Added value / Link with other NORMAN activities and / or other projects</p> <p>We will facilitate direct links with WG-6 activities. WBE provides yet another dimension to already existing activities focussed on environmental exposure, as well as the development of new mass spectrometry tools and data visualisation. We will deliver an extensive dataset of cumulative chemical exposure at the community level.</p>
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Proposed contribution	in-kind Via PARC activities: pan-European WBE study, including extensive datasets produced as a results of PARC monitoring, access to samples/monitoring sites.



	Via SCORE, know-how on WBE pan-European monitoring and interlab
Contribution needed from NORMAN Association ¹	5000 Euros for the organisation of 1-day workshop

¹ Please, provide here a transparent justification of the requested resources and of the in-kind contribution, thereby distinguishing between the costs associated with “person-months” for the organisation, the “travelling costs” for invited speakers and the costs for the logistics (e.g. meals, room rental etc.)