

Proposals for NORMAN Joint Programme of Activities 2026

Title	NORMAN WG-1 Prioritisation
Type of activity	Working Group activities
Leader	Valeria Dulio (INERIS), Peter von der Ohe (UBA), Nikiforos Alygizakis (EI)
Topic / activities	<p>Background / Justification for the proposed activity:</p> <p>Better chemical management in line with the goals of the EU Chemicals Strategy and Zero Pollution Action Plan strongly relies on early identification and control of hazards and pressures through efficient monitoring and knowledge of the properties and use patterns of chemicals. Given the high number of chemicals present in our environment, prioritisation of chemical contaminants is highly demanded by regulators and decision-makers in order to identify and justify the most urgent actions necessary to achieve these goals.</p> <p>The tasks of WG-1 aim to:</p> <ul style="list-style-type: none"> ▪ Ensure that all relevant information for assessment of chemical risks is maintained and regularly updated in a timely manner; ▪ Integrate and exploit this information to identify lists of chemicals in need of priority actions (each priority list corresponds to an action); ▪ Continuously upgrade the prioritisation scheme (integration of innovative techniques) to enhance the value of the prioritization work and ensure a more reliable and meaningful interpretation of the results, particularly for the early identification of warning signals. <p>Description of the proposed activities and expected outcomes for 2026 (and beyond):</p> <p>Task 1: Support the prioritisation work of the Commission services at European level and provide comment on relevant consultation documents (PARC, EWS, where relevant) (ALL)</p> <p>NORMAN participates as a stakeholder in the WG Chemicals of DG ENV and intends to further contribute to the activities related with the review of the list of WFD Priority Substances and the Watch List (now as part of the OSOA Regulation, agreed in June 2025 and the planned Common Data Platform on Chemicals (CDPC) managed by ECHA).</p> <p>NORMAN WG-1 is also committed to collaborate actively with PARC partnership on the following prioritisation-related topics, e.g.</p> <ul style="list-style-type: none"> ▪ <i>Early Warning System for Europe (EWS)</i>: NORMAN already contributes by providing signals obtained from retrospective suspect screening of HRMS data (DSFP) and target monitoring data (EMPODAT), using indicators customised for the identification of early warning signals. NORMAN can also contribute with experimental and predicted data of hazardous properties as well as identification of potential risks and observed impacts from research papers and other public sources (see Task 10). <p>Task 2: Collection of raw data and prediction of toxicity and physico-chemical properties in support of prioritisation (UBA / EI / NKUA / DERAC / INERIS) (permanent activity to be pursued in 2026)</p> <p>WG-1 will work at the prediction of physico-chemical and fate & transport parameters (i.e. BCF, Koc) for B and M classification of all SUSDAT compounds based on ToxAI model.</p> <p>For the P classification, WG-1 will work at the development of a quantitative model for persistence, based on a set of 8000 reported degradation half-lives for the OECD 302 tests. The model will allow to predict the DT50 in water and soil for all compounds in SUSDAT that are covered by the model domain (this activity was suggested in 2025 and will be performed 2026).</p> <p>As regards ecotoxicity, in 2025 experimental ecotoxicity data from model training sets were collected and made available for uploading in the ECOTOX module. Based on these training sets, new models were developed for 12 fish species, 2 crustaceans and one insect species for acute effects. The data uploading of the associated predictions in the ECOTOX module will be completed in the first half of 2026.</p> <p>In addition to the above, the development of new models for chronic effects in fish, daphnia and algae for aquatic species started in 2025. The predictions will be available in the ECOTOX module in 2026.</p> <p>For all predicted data, considerations about the applicability domain and reliability scores are already included as part of the metadata / DCTs in the Hazard properties module. It is therefore proposed to derive a common Generalised Application Domain for NORMAN models in WG-1, following the OECD principles on QSAR models. Experts in modelling and machine learning will be invited to work together to reach consensus on the predictive models to be used.</p> <p>Task 3: Collection of existing hazard classifications and quality targets (e.g. PNECs) and derivation of new ones based on prediction models in support of prioritisation (UBA / NKUA / EcotoxCentre / DERAC / EI) (permanent activity to be pursued in 2026)</p>

The collection and compilation of regulatory quality targets for various matrices, including re-use, soil and marine waters, will be pursued in 2026 (see also WG-5, WG-7 and WG-8).

Building on the approach used in the 'Hazard Properties' module for automated PBMT classification, the current **PNEC derivation module will be enhanced** to enable **automated calculation of the Lowest PNEC**. This upgrade will incorporate new data entries – particularly predictions based on chronic effect data – and apply the most appropriate (often lower) assessment factors. These improvements will be highly appreciated by regulatory bodies that rely on NORMAN's prioritisation results.

In addition, the upgrade will support the derivation of **more robust marine PNEC values** by integrating chronic data, thereby strengthening prioritisation of compounds in the **marine aquatic environment**. This work will be carried out in collaboration with WG-8 and addresses tasks delayed from previous JPAs.

PNECs for mammals: PBPK models have been developed in 2025 to derive PNECs expressed as internal tissue concentrations (starting with liver as a reference matrix). They will be applied to all compounds in SUSDAT to support the prioritisation of substances in biota in the terrestrial and marine environment.

WG-1 will continue to **promote and coordinate the participation of Ecotoxicity Experts to derive and approve (i.e. vote for) new or revised Lowest PNEC values** for substances of the SusDat list, with a specific focus on substances that were highly prioritised in EU projects using the NORMAN Prioritisation Framework. The aim is to progressively replace predicted PNEC values for substances prioritised in Cat 3 and 5, by experimentally-based PNEC values.

Task 4: Consolidation of the Phys-Chem and Hazard properties module and integration in the NORMAN Database System and Prioritisation Tool (UBA, INERIS, EI in collaboration with WG-1 partners)

The "Phys-Chem and Hazard" module, first introduced in November 2024 has been refined with group feedback in 2025.

The module includes the following key components: Phys-Chem (experimental and predicted data collection); Fate & Transport (experimental and predicted data collection); PBMT derivation; PBMT classification; CMR and ED classification (still under development)

The current structure was approved by participants at the WG-1 meeting (2 July 2025). The classification system ensures transparency and reliability:

- Automated classification follows the established criteria defined in the CLP regulation, but adds new sub-classes (e.g. Suspect B) to better support screening and prioritisation.
- For predicted data, both the applicability domain and the model-defined reliability score are considered when determining the final classification.
- Expert oversight is maintained, allowing manual validation and control over the data.

Plans for 2026:

The module and its associated features will be finalised to enable full operational use within the Prioritisation Tool. A new functionality will be introduced to allow uploading of experimental data (e.g., a new BCF study) to refine hazard classifications. This enhancement will give experts the ability to review and adjust automated classifications generated from model predictions.

The module's data will be continuously enriched with new data and model predictions:

- Updated JANUS data integration is underway.
- The results of new models like PEPPER (Eawag) are expected to be added soon.

WG-1 will develop guidance for decision-makers on selecting appropriate PMT/PBT classification methods from tools created by other research groups for PBMT classification (see JPA Proposal). The guidance will cover:

- NILU/NIVA PikMe app – incorporating enhanced CompTox data and predictive models (e.g., OPERA)
- IVL Hazard Profiling Tool – providing comprehensive hazard assessment capabilities
- RIVM PMT/PBT Assessment Tool – supporting evaluation of persistence, mobility, and toxicity.

This initiative aims to ensure consistent and informed selection of classification approaches across regulatory and research contexts.

The improvement of the features of this module will be coordinated by UBA and INERIS in consultation with the WG-1 partners and the programming and uploading of data will be performed by EI.

Task 5: Compilation of data / information regarding 'Use categories' and 'Chemical Functional Use' for all SusDat compounds (LCSB, supported by INERIS / UBA / EI)

The aim is to integrate information on the use(s) of the compounds in the NDS to ensure that each substance in SusDat is accompanied with information about uses and functional categories. This information is crucial for exploitation of priority substance lists and should be directly linked and searchable from the Substance Factsheets, SusDat and the Prioritisation tool. The first stage will be coupled with database upgrades behind the scenes of NORMAN-SLE, so that information from existing NORMAN-SLE lists can be integrated within SusDat (see NORMAN-SLE JPA). In a separate activity, a student will work

on an interactive chat-bot to help users explore use information for compounds, using the open corpus of use information in PubChem, CompTox and regulatory documents as a basis. This will provide users with an interactive experience, which will be easier for navigating the complex use information for many compounds. Major categories will be stored within SusDat as possible. The integration of "use" information within WG1 is closely related with the NORMAN-SLE/SusDat integration.

Work done in 2025: groundwork for NORMAN-SLE upgrades has been done and finalization is in progress. *Plans for 2026:* The student worker for 2025 was delayed and will start to work on the chat-bot in January. The budget approved for 2025 will be used for the 2026 work proposed here.

Task 6: Prioritisation framework: follow-up activities to integrate and test the new workflow as part of the Prioritisation Tool in the NDS (EI, INERIS, UBA, ALL) (ongoing activity to be pursued in 2026)

Thanks to the developed backend infrastructure (DSFP API and data schemas) in 2025, it was possible to start the implementation of the workflow outlined in the prioritisation paper, leveraging both suspect screening and target monitoring data for substance prioritisation. A prototype of the new prioritisation tool was under development at the end of 2025.

Plans for 2026: Complete the development of the prioritisation tool. The tool will be applied on the datasets of the JDS5 monitoring campaign.

Task 7: Improvement of the features of the prioritisation tool (programming activities) (ALL) (EI, INERIS, UBA, UFZ, NKUA, OVAM, DERAC, LCSB, KWR)

A prototype of the visualisation tool was developed in 2024 (<https://norman-data.eu/Priportal>), but follow-up work has not progressed in 2025 due to time constraints and engagement in other tasks of WP1. The objectives of the task remain the same and will be pursued in 2026.

Task 8: Prioritisation of substances from 5th Joint Danube Survey 5 (collaboration with ICPDR) (INERIS, UBA and EI in collaboration with WG-1 partners) (postponed from JPA 2025)

This task will use as basis the JDS5 data generated in 2025 which are expected to be available and stored in the NDS by early 2026.

Prioritisation of contaminants in the Danube River Basin with the following specific objectives:

- Identification of River Basin Specific Pollutants (update)
- Proposal for a candidate Watch List
- Changes / Progress observed from the previous Surveys

The work will be based on the extended NORMAN Prioritisation Framework using target and suspect screening data. Moreover, the improved PNECs (additional endpoints and species) will be applied.

Task 9: Testing state of the environment indicators in the Danube River Basin (NORMAN collaboration with 5th Joint Danube Survey) (UBA, INERIS, EI and ALL) (postponed from JPA 2025)

This task will use as basis the JDS5 data generated in 2025 which are expected to be available and stored in the NDS by early 2026.

The aim is to integrate the risks of individual substances at specific sites into an overall assessment (i.e. mixture toxicity) by mapping the concurrent presence of chemical contaminants across various compartments in Europe. For example, determining "how many compounds exceed the lowest PNEC at each site" or assessing "the total mixture risk at each site." These approaches could serve as new chemical indicators to measure progress in environmental quality, e.g. as a result of remediation measures and inform policy decisions (cf. pesticides indicator of the EEA) about the trends. This would allow NORMAN to, e.g., support the Zero pollution monitoring report of the EEA. Moreover, analysis of datasets regarding the minimum (most toxic compounds) compared to the total effect (mixture risk) might allow to derive an indication of a retrospective mixture allocation factor (MAF) in support of the COM EGD initiative.

Task 10: NORMAN contribution to Early Warning System (UBA, EI, INERIS, KWR, OVAM, EAWAG, SLU, NKUA, NIVA, UFZ) (postponed from JPA 2025)

NORMAN has been working actively for many years on the topic of an EWS concept, with NormaNEWS, DSFP, prioritisation scheme by action category, etc. and we believe that NORMAN can significantly contribute to the on-going collective efforts together with PARC in building an EWS for EU.

NORMAN already contributes by providing signals obtained from retrospective suspect screening of HRMS data (DSFP) and target monitoring data (EMPODAT), using indicators customised for the identification of early warning signals.

With this proposal, WG-1 intends to develop a concept to support a European EWS by creating automated signals based on non-target and target screening data for compounds in the NDS, as well as through the development of a DCT to compile additional evidence from research papers and other public sources regarding emerging hazards (e.g. new effects), sources (e.g. new products), increasing exposure (e.g. first or increasing detection in DSFP) or observed impacts.

	<p>These signals should be compiled and stored in a new EWS module. For the first time, an online form will allow experts to register their findings in a harmonized way. These “signals” can then be analysed by experts (for specific topics), or by the next generation of large language models (LLM), also known as General Artificial Intelligence (GAI). Even if the next generation models are not yet able to link the multiple lines of evidence from the various signals submitted, NORMAN should start to compile the information needed to be ready once the GAI is.</p> <p>Task 11: Collaboration with other WGs to support prioritisation of contaminants in new compartments</p> <ul style="list-style-type: none"> ▪ Prioritisation of contaminants in soil (WG-1 and WG-7): (see JPA proposal by WG-7). ▪ Prioritisation of contaminants in the marine environment (WG-1 and WG-8): (see JPA proposal by WG-8) ▪ Prioritisation of contaminants in re-used matrices (WG-1 and WG-5) <p>Added value / Link with other NORMAN activities and / or other projects</p> <ul style="list-style-type: none"> ▪ Support the programme of activities of the PARC partnership, with particular focus on inventory of existing data and common knowledge on chemicals in order to identify gaps in data and anticipate future trends. ▪ Support to implementation of the Early Warning System for Europe ▪ Support to Commission services for the review of the list of WFD Priority Substances, the Watch List for surface water and the Watch List for groundwater, Watch list for the Soil Monitoring law. ▪ Support other Member States or River Basin authorities if requested. ▪ Links with WG-8; Support prioritisation of CECs as Sea Specific Contaminants in the marine environment (OSPAR, HELCOM, MED POL, Black Sea Commission). ▪ Links with WG-5 for identification of priority contaminants in treated wastewater intended for reuse ▪ Links with WG-7 on Soil and the Terrestrial environment for prioritisation activities. ▪ Link with the NTS CWG, in particular as regards DSFP, SLE and the definition of a mechanism for updating the NORMAN List of emerging substances as top priority substances of SusDat. ▪ NORMAN MassBank: prioritisation of relevant compounds whose mass spectra are not yet included in this online repository. ▪ Interlinking with the entire NORMAN Database System.
Participants	INERIS, EI, UBA, Ecotoxcentre, NKUA, LCSB, OVAM, UFZ, KWR, DERAC (All WG-1 are welcome)
Proposed contribution	<p>in-kind</p> <p>In-kind contribution is foreseen in all proposed activities as a complement to NORMAN funding.</p> <p>INERIS: coordination activities; contribution in dataset validation for modelling, conceptualisation of the prioritisation scheme, interface / visualisation; use categories for substances;</p> <p>UBA: coordination activities, with a focus on Ecotox and machine learning Expert Group; compilation of datasets and their validation for modelling, conceptualisation of the prioritisation scheme, interface / visualisation; DCT development, use categories for substances;</p> <p>EI: programming of the database modules, running the predictions for SusDat compounds; running of suspect screening workflow (DSFP) for prioritisation case studies;</p> <p>NKUA: model prediction and programming</p> <p>LCSB: use categories for substances; preparation of meetings, communication with other data sources</p> <p>Ecotoxcentre: contribution in compilation of existing PNECs and validation of datasets for the ECOTOX module;</p> <p>DERAC: compilation of existing PNECs and connection with WG-5 for prioritisation of substances in matrices of interest for “re-use”;</p> <p>OVAM: synergies with WG-7 for conceptualisation and alignment of the prioritisation scheme for soil.</p>
Ition	<p>Total net budget under JPA 2026: to be defined. (15,000 of which 9,000€ postponed from 2025)</p> <p>Task 2:</p> <ul style="list-style-type: none"> • Prediction of physico-chemical properties (i.e. BCF + Koc) for B and M classification of all SUSDAT compounds based on ToxAI model (1,000€) (NKUA, UBA and EI) • Development of a quantitative model for persistence, based on a set of 4,000 reported degradation half-live measurements for the OECD 302 tests, and predictions for all SUSDAT compounds. (3000€) (NKUA, UBA and EI) • Development of a Generalised Applicability Domain and reliability score for NORMAN models (1,000€) (NKUA, UBA, UFZ and EI) <p>Task 3:</p> <ul style="list-style-type: none"> • The PNEC derivation sub-module should be upgraded to allow for the automated derivation of the Lowest PNECs if new ecotox data becomes available (1,000€) (UBA, EcotoxCentre and EI) • PBPK models will be applied to SUSDAT compounds to derive PNECs expressed as internal tissue concentrations (in kind) <p>Task 5:</p> <ul style="list-style-type: none"> • Compilation of data / information regarding ‘Use categories’ and ‘Chemical Functional Use’ for all SusDat compounds (9,000€) (LCSB)

