NORMAN

Network of reference laboratories and related organisations for monitoring and bio-monitoring of emerging environmental substances

Joint Programme of Activities 2010

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I. Mission of the NORMAN Network

I.1.The need for action

Emerging pollutants are the object of increasing concern among scientists, regulators and the public.

Emerging substances can be defined as substances that are currently not included in routine monitoring programmes at the European level and which may be candidates for future regulation, depending on research on their (eco)toxicity, potential health effects, public perception and on monitoring data regarding their occurrence in the various environmental compartments. Emerging pollutants often originate from consumer products and by-products used every day in homes and farms, or by business and industry.

Government, regulatory bodies and industry need the most relevant and reliable scientific evidence when making policy decisions in the field of environmental protection.

I.2.The major objectives

Stakeholder needs will be better met if these three objectives are achieved:

1. Improve the exchange of information on the substances currently being identified as emerging pollutants, in order to identify what information is currently missing or required in terms of monitoring and assessment of their associated risks.

2. Harmonise the methods used for the analysis of their occurrence in the environment and for the assessment of their effects, in order to make it possible for the decision-making authorities to compare and interpret the data.

3. Ensure that, as soon as an emerging substance is identified as a pollutant of concern – thereby requiring regular monitoring – there should be sufficient capability across the EU for measuring it at the routine level.

I.3.The key actions

The major objectives will most efficiently be achieved by:

- Inventorying and assessing the quality of the available information on emerging substances (their occurrence, fate and transport and their effects) as a first step for prioritisation of the most relevant emerging contaminants;
- Assessing and further developing validated analytical procedures for characterisation of contaminated waters, soils, sediments and biota by emerging substances;
- Developing specific techniques for evaluating the mode of action, the effects and risks associated to emerging substances;
- Developing reference materials, standards and organising inter-laboratory studies;
- Providing guidance to laboratories and other bodies (planners, regulators, universities, etc);
- Organising events for exchange of information among scientists, managers and policy-makers and development of a common understanding on priority topics.

I.4.The role of the NORMAN Network

NORMAN partners already provide a vast quantity of scientific results for the European research area and are involved in large European Integrated Projects, thereby providing new methodologies for time- and cost-effective Europe-wide assessment of environmental status.

NORMAN's purpose, rather than simply passively collating information, is to focus the efforts of all participants in this field, in Europe and in the wider world. Its ultimate aim is to increase their capabilities, responsiveness and efficiency to the point at which they become, collectively, the global one-stop shop for all issues raised by emerging substances.

The NORMAN partners have developed this first Joint Programme of Activities (JPA) for 2009-2011, which addresses some of the highest priority topics in the field of emerging substances and aims to meet the objectives listed above.

II. NORMAN JPA for 2009-2011 (updated)

II.1.European priorities

The need to look beyond the traditional / conventional target pollutants, when assessing the risks of chemicals to human health and to ecosystems, is now generally recognised as a priority issue in all policy areas at both the European level and the national level in the various European countries.

As part of the implementation of the European Environment and Health Strategy and its Action Plan (COM(2004)416) national competent authorities in the various countries give increasingly higher priority to the need to look at emerging substances and improve the current systems for identifying and addressing new risks to health as they emerge.

In the water compartment, the regular revision of the list of Priority Substances under the Water Framework Directive (WFD; 2000/60/EC) requires a systematic assessment of emerging substances as candidate future priority substances. An efficient exchange of information about these substances (level of occurrence in the environment, fate and transport, effects, reliability and comparability of the data, etc.) is increasingly recognised as a key step in order to facilitate the risk assessment and prioritisation process by the European Commission.

Member States are currently in the process of identifying the substances that are relevant at river basin level (i.e. pollutants which are likely to cause a large number of water bodies within the river basin district to fail the objective of 'good ecological status'). The identification of these substances in the various countries is a hot topic with many implications, including economic ones.

Besides the WFD, other programmes (e.g. OSPAR for the marine environment) are identifying new candidate emerging substances and regularly reviewing their priority lists as scientific knowledge advances.

Overall the main challenge is to implement tools and approaches to identify the likely causes of ecological impairment (i.e. impact at the level of populations and ecosystems) and in particular, to establish links between chemical and ecological status. A better understanding of these causal links and the implementation of early warning systems is the only way to apply effective corrective measures and predict potential impacts, thereby avoiding a waste of resources.

As regards the air compartment and in particular indoor air, research was focused on lead, asbestos and radon initially (in the 70s and 80s) and on volatile organic compounds (VOCs) in the 1990s. In the past few years, research has been focused on semi-volatile organic

compounds (SVOCs), heavier compounds that can be measured both in the indoor air and in house dust. They include many types of compounds from a variety of indoor sources (insecticides, flame retardants, plasticisers…). Interest in the measurement of these compounds indoors is growing, since they are often detected in homes, they are persistent, their metabolites are measured in human blood and urine, and toxicology and epidemiology tend to prove that some of them may be toxic to the human reproductive system and human development. They are therefore considered as indoor emerging substances.

Chemicals are beyond any doubt one of the main stressors threatening the soil ecosystem. A proposal for a Soil Directive received insufficient support at first. But now preparations are underway for a modified proposal in which soil quality will be an important issue.

The new legislation on chemicals in Europe, REACH, requires producers and users of chemicals to show that their products are safe for human health and the environment. This requires, amongst others, that all information on chemicals should be made available and that a thorough risk assessment should be carried out according to the basic philosophy of REACH.

II.2.Objectives of the NORMAN JPA 2009-2011 with focus on activities to be carried out in 2010

The NORMAN network is designed to meet the challenges now posed by emerging substances. It will operate via the organisation of a number of activities, including expert group meetings, workshops, databases and methods validation exercises.

The objectives in this Joint Programme of Activities reflect the current priorities at the European and MS level.

Our goal for 2009-2011 is to stimulate the discussion and build a more structured common approach for the identification of 'emerging' compounds and risk assessment of emerging substances, including all aspects related to the use of chemical and biological integrated approaches for the identification of 'relevant pollutants'. Today we still lack the capacity to capture those substances, which are really emerging in a European context and to distinguish them from those 'believed' to be emerging.

The selection of the proposed actions is made with the following criteria in mind:
- there is a need to keep the public authorities clearly informed about the state of progress of the research activity (i.e. what we have achieved and what more we can expect to achieve). This will entail bringing together experts to arrive to a common understanding on identified topics;
- there are synergies to be derived from a co-operative effort (e.g. interlaboratory studies on 'difficult matrices' where it would be asking too much of a single country and there is a need for international co-operation among laboratories);
- a topic is identified as emerging and Working Groups need to be set up at the earliest moment.

In the light of those considerations and the identified policy needs, we have set the following priorities for this **2010 JPA**.

Actions

1. Provide a system for prioritisation to identify which substances deserve higher priority for further investigations based on agreed criteria, such as their (eco)toxicity, persistence, bioaccumulation, spatial and temporal distribution, occurrence levels, use, etc.

A Working Group on **'Prioritisation of emerging substances'** was set up in 2009 for the development of a set of criteria allowing for prioritisation of emerging substances and their allocation to clearly pre-defined categories (e.g. substances for which info is not yet sufficient, substances for which there is evidence of hazard but analytical performance is not yet satisfactory) along with a yearly update of the NORMAN list of emerging substances in close cooperation with all NORMAN partners. The work started in 2009 with the preparation of a questionnaire for the upgrading of the current NORMAN list of emerging substances and with a first round of data collection. The work will continue with the development of the prioritisation methodology.

In order to improve data sharing on emerging substances, which is a fundamental step for prioritisation, NORMAN will organise a "**Data exchange" workshop** in **2010**, where IT experts will indicate how to (i) improve/automate update of the NORMAN databases (e.g. via XML protocols) and (ii) propose a design of user-friendly interface(s) allowing for bringing NORMAN data to the end-users and public.

2. Closely follow the progress of research on identification of the toxicants that are causing the observed effects and bridge the gap between chemical and ecological status, and prepare a common position to be transferred to policy-makers and environmental managers.

A workshop on **'River Basin Specific Pollutants: Selection and Monitoring in EU Member States'** with special focus on emerging pollutants, will be organised, addressing the MSs' needs in their strategies for the identification and monitoring of the relevant pollutants of concern. NOTE that this workshop was originally planned to take place in 2009. However, due to logistic / administrative problems it was decided to postpone it to June 2010.

The metabolisation of the target substances (i.e. the metabolites / degradation products that should actually be monitored for the different categories of substances) is a hot topic when discussing emerging contaminants and their associated risks. Metabolites or degradation products may be more toxic or persistent than the parent compounds. **NORMAN organised a workshop** on the topic of **metabolites** ("Mixtures and metabolites of chemicals of emerging concern", Amsterdam, 18-19 Nov 2010). The **TransCon2010 Conference** organised by EAWAG **in September 2010** will give the opportunity for a follow-up of the debate from the previous workshop.

Following the work started by the NORMAN **Expert Group meeting** on **"Toxicity profiling (*in vitro*, *in vivo* assays, and omics): the state of the art and the perspectives**" **in 2009** to define what is today the position of the leading experts on this specific topic (Position Paper to be published in 2010) a new **Working Group** on **"Field-relevance-based approaches for hazardous pollutant identification"** will be organised in 2010. This WG wants to support the current prioritisation processes based on monitoring and modelling by providing a field-relevance-based approach to identify hazardous compounds using effect-directed analysis (EDA).

3. Define and standardise the interpretation of the results of monitoring with bioassays. When using bioassays, what we can and cannot say about our water quality and how decision-makers can use the results of these tools (e.g. in future implementation under the WFD).

Closely linked with the above-mentioned activities on effect-directed analysis and prioritisation of emerging substances, the **Working Group** on **"The value of bioassays in monitoring programmes: strategies for interpretation of results"** set up in 2009, will continue its activities in 2010**. NOTE** that the deliverables of this WG will be used as a direct input to DG ENV - Working Group E on Chemical Aspects – see task 3 and deliverable 3.2c "Reports on the use of alternative effect-based (biomarker, bioassays) monitoring tools" (Work Programme 2010-2012 - WFD Common Implementation Strategy - Working Group E)**.**

4. Harmonise work in the area of passive sampling, and bring together the disparate research groups to develop sound validation procedures for all aspects of the use of passive sampling devices, including laboratory calibration, handling, field deployment, chemical analysis or toxicological analysis and data interpretation.

The application of passive samplers opens new perspectives in the design of monitoring programmes and ecotoxicological assessments. Passive samplers show a great potential in the identification of emerging pollutants (e.g. in combination with bioassays-directed chemical analysis), in the assessment of their bioavailability and bioaccumulation as well as in the *in situ* measurement of time-weighted average concentrations over extended periods. The state of the art and the performance achieved in the use of passive samplers for emerging chemicals, in particular for polar compounds, were the object of an **Expert Group meeting** organised in 2009 (Prague, 26 May 2009 - jointly with the "3rd Intern. Passive Sampling Workshop and Symposium - IPSW 2009) with a Position Paper which will be published in 2010. This activity will continue in **2010** with the **preparation of an intercalibration study** on passive sampling of emerging pollutants (execution in 2011).

5. Inform environmental managers and policy-makers about the possible benefits deriving from the implementation of environmental specimen banks (ESB) as tools for the retrospective monitoring of emerging pollutants.

This method involves collecting and storing biota samples from freshwater, marine and terrestrial environments.
The application of direct effects assessment on ESB samples is an ideal tool in identifying effects of emerging substances.
ESB also offers the following advantages for exposure assessment:

- concentration trends can be identified by analyses of appropriate biota samples from different levels of the trophic system allowing the identification of emerging pollutants;
- even small temporal changes or slight regional differences of concentrations become obvious due to standardised samples;
- the monitoring data can be used as a basis for the justification of political measures (e.g. banning of pollutants with accumulation potential);
- monitoring results allow the assessment of results of political measures taken in the past (e.g. use restrictions for TBT).

The topic of **environmental specimen banks** is the subject of regular science notes in the **Scientific Watch bulletin**. Moreover in **2010** a **workshop** addressed to **European ESBs** and NORMAN laboratories will be organised with the aim of exploring the potential for collaborative activities between NORMAN laboratories and ESBs.

6. Find synergies in collaboration, so as to reduce the use of resources for harmonisation and validation of analytical methods.

In 2009 NORMAN identified **pharmaceuticals** and **PFC** as two topics that are already at quite an advanced stage ('mature emerging substances') but that justify a collaborative effort. In the case of pharmaceuticals this means harmonising routine laboratory methods for handling substances identified as relevant, with a view to including these substances in future monitoring programmes.

In the case of PFC, matters are less advanced: the choice is determined by the need to have reliable data to support research results on the risks associated with these contaminants – the exposure, fate and availability of which are still poorly understood.

In the light of the resources available one interlaboratory exercise was organised in 2009 on "Perfluorinated Compounds in Water, Fish and Sludge".

In 2010, thanks to the contribution from IWW, an **interlaboratory study** (for proficiency testing) on **metabolites of pesticides in drinking water** will be part of NORMAN activities for 2010. Expected results: method-specific evaluation, plus overview of the performance and suitability of the different methods applied – organised by IWW with NORMAN participation.

In addition to the above, NORMAN continues the negotiation activity started during the NORMAN project at CEN (European Standardisation body) for the drafting of a **new working document for method validation (future CEN Technical Specification)** which will be entirely based on the NORMAN Validation Framework.

7. Address emerging issues at the earliest possible stage.

For **engineered nanoparticles (ENP)**: exposure, fate & availability are poorly understood. An important issue in ENP literature is that exposure is not known. Currently, no methods are available to quantitatively detect ENP levels in the environment. Further, there are currently no ENPs in the environment. So, the primary question is: What future ENP levels can be anticipated, based on production volumes & fate processes? An **Expert Group meeting** on engineered nanoparticles in water is proposed for **2010**, to address, amongst others, issues related to analytical techniques for nanoparticles in the environmental matrices, the fate of engineered nanoparticles in the aquatic environment and wastewater treatment technologies, interaction with inorganic and organic pollutants as well as potential ecotoxicological effects on biota.

Knowledge on emissions and emissions reduction potential is essential for risk assessment of environmental pollutants. Despite that, there is an obvious scarcity of EU-wide structured activities and databases for the systematic collection of emission factors for the most important regulated- and emerging pollutants.
NORMAN will therefore set up a **Working Group on "Emissions"** for which a draft mandate has already been prepared in 2009. The work of this WG will focus on the collection of data on emission sources, emission factors and availability / applicability of possible measures / clean-up technologies needed for risk assessment of key pollutants that represent a long-term health and / or environmental issue. The data will be fed into a (Decision Support System, e.g. one developed in SOCOPSE) designed to help environmental managers at various levels in the selection of cost-effective (combination of) measures to reduce emission of these pollutants.

II.3.Summary of the items of the 2010 JPA

II.3.1 ***Annual Workshops (AW)***

Four workshops are on the list of the NORMAN Joint Programme of Activities for 2010

Task	**Workshop**					
Topic	**Emerging pollutants and implementation of the WFD**					
Code	AW-1					
Title	*WFD Chemical Status Workshop - River Basin Specific Pollutants: Selection and Monitoring in EU Member States*					
Short description	*This workshop, organised as a follow-up of the Stresa conference in 2006 - 'Emerging environmental pollutants: key issues and challenges' - will be tailored to the needs of MS for a harmonised selection and monitoring of river basin specific pollutants in the WFD context and with a special focus on emerging contaminants. It will provide a platform for presenting, discussing and streamlining approaches, taking into account also ongoing discussions about monitoring matrix selection and measurement technologies.*					
Date	10-11 June 2010 (Stresa, Italy)					
Leader	JRC					
Participants for organisation	INERIS	RIVM	IVL	IVM	WUR	EI
Contribution of NORMAN	Resources for the organisation of this event and invitation of speakers and participants are provided by JRC-IES (in-kind contribution). Institutes participating in the organisation of the event provide contribution as person-months (with their own resources).					

Task	**Workshop**					
Topic	**Environmental specimen banking (ESB) and emerging substances**					
Code	AW-2					
Title	*Still to be decided*					
Short description	*Workshop with the participation of the EU ESBs (SE, ES, 2xFR, FI, NO, IT, DE) and the NORMAN organisations. NORMAN will present its ideas on monitoring campaigns, the NORMAN priority emerging substances and the databases. Final objective: Exploration of the potential for collaborative activities between NORMAN laboratories and ESBs (e.g. organisation of EU-wide monitoring campaigns involving ESBs).*					
Date	Planned first half 2010					
Leader	UBA					
Participants for organisation	Fh-IME					
Contribution of NORMAN	Resources for the organisation of this event are provided by UBA (in-kind contribution). Institutes participating in the organisation of the event provide contribution as person-months (with their own resources).					

Task	**Workshop**
Topic	**Improving information systems / Databases**
Code	AW-3
Title	*Still to be decided*

Short description	*In several EU MS national databases on regulated and emerging substances are being developed. Data collection and data sharing on emerging substances is a fundamental step for prioritisation. This proposal is for the organisation of a "Data exchange" workshop in Dessau, Germany, where IT experts should indicate how to (i) improve/automate update of the NORMAN databases (e.g. via XML protocols) and (ii) propose a design of user-friendly interface(s) allowing for bringing NORMAN data to the end-users and public.*
Date	Planned Autumn 2010
Leader	UBA
Participants for organisation	EI
Contribution of NORMAN	Contribution from NORMAN association: planned 5000€ (for UBA) for the organisation of the event and invitation of speakers. The rest of the budget is provided by UBA with their own resources. Additional institutes willing to participate in the organisation of the event provide contribution as person-months (with their own resources).

Task	**Workshop**
Topic	**Emerging substances metabolites and degradation products**
Code	AW-4
Title	*Environmental transformation of organic compounds: Towards a joint perspective on the importance of transformation products as environmental contaminants*
Short description	*The TransCon2010 Conference is organised by EAWAG http://www.eawag.ch/medien/veranstaltungen/events/transcon2010/index_EN Further to agreement with EAWAG after the NORMAN General Assembly meeting, this conference is proposed as a follow-up to the NORMAN workshop on "Mixtures and metabolites of chemicals of emerging concern" (Amsterdam, 18-19 Nov 2010). The NORMAN network is part of the honorary sponsors of the conference and NORMAN members have been encouraged preparing contributions to the scientific programme.*
Date	12-17 September
Leader	EAWAG
Participants for organisation	
Contribution of NORMAN	Resources for the organisation of this event are provided by EAWAG (in-kind contribution). Institutes participating in the organisation of the event provide contribution as person-months (with their own resources).

II.3.2 Expert Group meetings (EG)

Expert Group meetings are intended as 2-3 days highly-focused meetings with participation limited to 10 -15 invited leading experts in the field. The results and conclusions of each Expert Group meeting will lead to a Position paper summarising the position of the NORMAN experts on the topic (dissemination via the web).

One Expert Group meeting will be organised in 2010.

Task	**Expert Group Meeting**
Topic	**Nanoparticles in water**
Code	EG-1
Title	*Still to be decided*
Short	*EG meeting addressing, amongst others, issues related to analytical techniques for*

description	*nanoparticles in the environmental matrices, the fate of engineered nanoparticles in the aquatic environment and wastewater treatment technologies, interaction with inorganic and organic pollutants as well as potential ecotoxicological effects on biota. The expert group meeting should further provide information over the newly designed nanoparticles for the near future, in order to assess the future research in that field. The Expert Group meeting will take place in Koblenz in Autumn 2010.*
Leader	BfG
Participants for organisation	Still to be confirmed
Contribution of NORMAN	Contribution from NORMAN association: 3000€ (amount to be managed by BfG as leader of the organisation of this activity). The rest of the budget is provided by BfG with their own resources. Additional institutes willing to participate in the organisation of the event provide contribution as person-months (with their own resources).

II.3.3 Working groups (WG)

Task	**Working groups**
Title	**Prioritisation of emerging substances**
Code	WG-1
Topic / activities	*Follow-up of the activities started in 2009* ***Background:*** *The list of emerging substances defined by NORMAN is rather extensive and being regularly updated for new compounds. There is an obvious need to identify which substances deserve higher priority for further investigations based on agreed criteria, such as their (eco)toxicity, persistence, bioaccumulation, spatial and temporal widespread, occurrence levels, use, etc. Despite often missing data for proper risk assessment a rational strategy for prioritisation should be established.* ***Status at the end of 2009:*** *1. Mandate of the WG approved (April 2009)* *2. Preparation of a QUESTIONNAIRE designed to:* *- support the upgrade of the NORMAN list of emerging substances (based on expert judgement from NORMAN members, starting from the current list of emerging substances);* *- check availability of information about occurrence, usage, EQS/PNEC, hazard for the substances confirmed as emerging substances (Access database).* *3. Dissemination of the questionnaire to the NORMAN members in July 2009.* *4. Preparation of a Discussion Paper with proposals for the NORMAN methodology for prioritisation of emerging substances, including a set of criteria allowing for allocation of the emerging substances to clearly pre-defined categories and subsequent prioritisation (to be discussed in a meeting to be organised in early 2010).* ***Activities to be carried out in 2010:*** *- Questionnaire: evaluation of the feedback received and actions to be put in place to complete the data collection and to upgrade the list of NORMAN emerging substances.* *- Improvement of the first draft scheme for categorisation of substances by action-category and subsequent prioritisation.* *- Continuation of the data collection process and data validation.* *- Testing of the prioritisation methodology on the list of NORMAN emerging substances.* *- Finalisation of the prioritisation methodology.*

Leader	INERIS
Participants in the WG	UFZ, EI, EAWAG, IVL, RIVM, Fh-IME, TGM, IWW, BRGM, MUMM, Cemagref, VEOLIA Environment
Contribution of NORMAN	Contribution from NORMAN association for the leader of the WG and task leaders in the core group: planned 5000€ (amount to be managed by INERIS as leader of the organisation of this activity). Organisations participating in WG provide contribution as person-months (with their own resources). Reimbursement of travelling costs for participation in meetings (possible).

Task	**Working groups**
Title	**The value of bioassays in monitoring programmes: strategies for interpretation of results**
Code	WG-2
Topic / activities	*Follow-up of the activities started in 2009* ***Background:*** *Technical developments in the past decades have yielded an enormous array of different bioassay and biomarker methods, which are now available to measure effects of toxicants in water. With the occurrence of new substances in the environment, also more specific bioassay and biomarker methods were developed towards specific groups of compounds (e.g. estrogens).* *Besides the wide range of available technical methods, many different strategies are used to interpret and/or integrate the results from these measurements. To bring the application of the bioassay and biomarker methods a step further, and illustrate the value of these methods to policy- and decision makers, this working group aims to evaluate the different interpretation strategies used for bioassay and biomarker results. Furthermore attention is paid to the applicability of these strategies for measuring water quality and more importantly for forming water management policy.* ***Status at the end of 2009:*** *1. Mandate of the WG available on the website* *2. First meeting on 8 October 2009 to discuss the preparation of a Position Paper, including:* - *Inventory of test strategies using bioassays and biomarkers, critical analysis of strategies for the interpretation of results and their evaluation.* - *List of projects that use bioassays or biomarkers (to EMPOMAP database).* - *List of monitoring activities using bioassays or biomarkers (to EMPODAT database).* *3. Preparation of a poster presented at the NORMAN Workshop on "Mixtures and metabolites of substances of emerging concern" (Amsterdam, 18-19 November 2009).* ***Activities to be carried out in 2010:*** - *Finalisation of the Position Paper. With this Paper NORMAN will provide direct input to DG ENV - Working Group E on Chemical Aspects – see task 3 and deliverable 3.2c "Reports on the use of alternative effect-based (biomarker, bioassays) monitoring tools" (Work Programme 2010-2012 - WFD Common Implementation Strategy - Working Group E).* - *Upgrading of the modules for collection of data on bioassays and biomarkers in the NORMAN databases.* - *List of projects that use bioassays or biomarkers (to be uploaded in the EMPOMAP database).* - *List of current monitoring activities using bioassays or biomarkers (data to be uploaded in the NORMAN EMPODAT database). In this list the WG will showcase success stories: projects where chemical, but mainly ecological and bioassay data is collected and integrated. This could serve as a basis for a validation step in the future.*

Leader	INERIS /RIVM
Participants in WG	AD eco advice, NIVA, CEFAS, RECETOX, Deltares, IVM, EAWAG, ISS (final list still to be confirmed)
Contribution of NORMAN	Contribution from NORMAN association for the leaders of the WG: planned 5000€ (amount to be managed by INERIS and RIVM as leaders of the organisation of this activity). Organisations participating in WG provide contribution as person-months (with their own resources). Reimbursement of travelling costs for participation in meetings (possible).

Task	**Working groups**
Title	**Field-relevance-based approaches for hazardous pollutant identification**
Code	WG-3
Topic / activities	*New Working Group* ***Background:*** *There is increasing evidence of toxic stress in European river basins that results in the disappearance of sensitive species and this is only partly covered by chemical status under the WFD and priority pollutant monitoring. The challenge posed by complexity of contamination is addressed by DG Environment in an ongoing prioritisation process based on monitoring and modelling. The WG wants to support this process by providing a field-relevance-based approach to identify hazardous compounds using effect-directed analysis (EDA). This may also be a crucial methodology in investigative monitoring and will provide an additional line of evidence for prioritisation.* ***Scope and activities:*** *The activities of this Working Group will include:* *1. Compiling existing EDA methodologies and making the resulting compilation accessible to scientists and end-users.* *2. Promoting and monitoring scientific progress in EDA and related techniques that help to identify emerging compounds with relevance to ecological status and environmental health in general.* *3. Bringing together European experts in EDA to exchange knowledge, methods and data by workshops, database exchange and scientific collaboration. There will be a specific focus on the establishment of a common library for LC-MS^n spectra and retention data.* *4. Promoting and supporting the application of EDA in investigative monitoring by water agencies, consultants and water managers.* *5. Providing WG-1 (on prioritisation) with candidate compounds and recommendations from field-relevance-based toxicant identification.* *6. Providing a link for WG-2 (on biological tools) to chemical monitoring and compound prioritisation.* ***Workplan for 2010:*** *- Compiling existing tools and knowledge on EDA in an issue of The Handbook of Environmental Chemistry (Springer). The chapters will be compiled and internally reviewed by summer 2010 and published early 2011. The book will involve major European and American experts in EDA and Toxicity Identification Evaluation (TIE).* *- Publishing an integrated paper on the identification and prioritisation of toxicants primarily based on the experience of MODELKEY* *- Establishing the collaboration of European groups applying modern LC-MS^n techniques with the aim of building up a common database of spectra and retention information and developing efficient tools for the characterisation and identification the structures of unknowns (upgrading of the already existing module in the EMPOMASS database).* *- Preparing a workshop on EDA (to be held in the first half of 2011) to discuss the latest developments in major fields of EDA including biotests, considering bioavailability, fractionation, structure elucidation and confirmation and to*

	provide case studies showing how to apply these tools.
Leader	UFZ
Participants in WG	Still to be defined
Contribution of NORMAN	Contribution from NORMAN association for the leader of the WG: planned 6000€ (amount to be managed by UFZ as leader of the organisation of this activity). Organisations participating in WG provide contribution as person-months (with their own resources). Reimbursement of travelling costs for participation in meetings (possible).

Task	**Working groups**
Title	**Emissions**
Code	WG-4
Topic / activities	*New Working Group* ***Background:*** *Knowledge on emission and emission reduction potential is key for risk assessment of environmental pollutants. Different workshops and research projects operating in the area of water, chemicals management (REACh), industrial pollution (IPPC) have underlined the scarcity of EU-wide structured activities and databases for the systematic collection of emission factors for the most important regulated and emerging pollutants.* ***Scope and activities:*** *A proposal for the mandate of this WG is already available. The work of this WG will focus on emissions and emission reduction potential needed for risk assessment of key pollutants. It will involve review of existing sources of information and development of a database (integrated with the already existing NORMAN databases) for the systematic collection of emission factors for selected substances. The collected activity data and emission factors will be used to generate emission data (discharges) and allow for emission projections under various emission control scenarios. The data will be fed into Decision Support System (DSS; e.g. one developed in SOCOPSE) designed to help environmental managers at various levels to select cost-effective combinations of measures to reduce emission of sets of pollutants. Work will be focused on substances (still to be selected) that represent a long-term health and/or environmental issue.* *The work should be carried out in close cooperation with the DG ENV WG-E (see Task 2: Support on the implementation of the EQSD and chemical pollution aspects of the WFD – Activity on Emissions - Work Programme 2010-2012 - WFD Common Implementation Strategy).* *The programme of activities of this WG for 2010 is still to be confirmed (after start-up meeting of the core group leaders).*
Leader	INERIS / IVL / EI
Participants in WG	List to be confirmed
Contribution of NORMAN	Contribution from NORMAN association for the leaders of the WG: planned 1000€ for start-up of the activities (to be revised, if necessary, depending on the programme of activities approved for 2010). Organisations participating in WG provide contribution as person-months (with their own resources). Reimbursement of travelling costs for participation in meetings (possible).

II.3.4 Interlaboratory tests (IL)

Topics	**Pesticides metabolites**
Code	IL-1 (confirmed)
Title	PT on metabolites of pesticides in drinking water
Short description	*Interlaboratory study (for proficiency testing) on metabolites of pesticides in drinking water. The exercise is organised by IWW as a co-operation partner of the AQS Baden-Württemberg in Stuttgart (announcement and registration of participating laboratories already done in January 2010).* *Although it will not be possible to carry this study out as a strict method validation study at V3 level, due to the variation in methods that are currently in use for these substances, the extension of the exercise at the EU level (higher number of participating laboratories) will allow a method-specific evaluation of results, which will make this more interesting from a QA/QC point of view. No funding is claimed from the NORMAN network for this activity, given that the cost of the ILS will be covered by a participants' fee.* *List of metabolites (to be confirmed):* - *Chloridazon (Desphenylchloridazon „Metabolite B"; Methyl-Desphenylchloridazon „Metabolite B1")* - *Chlorthalonil (R 417888 / Vis-01 /M12 „Chlorthalonil-Sulfonic acid")* - *Dimethachlor (CGA 50266 „Dimethachlor acid; CGA 354742 „Dimethachlor-Sulfonic acid"; CGA 369873)* - *Metazachlor (BH 479-4 „Metazachlor acid"; BH 479-8 „Metazachlor-Sulfonic acid")* - *S-Metolachlor (CGA 51202 /CGA 351916 „S-Metolachlor acid"; CGA 380168/CGA 354743 „S-Metolachlor-Sulfonic acid")* - *Dimethenamid-P (M27)* - *Trifloxystrobin (NOA 413161)* - *Tritosulfuron BASF (BH 635-4 / 635M01)* - *Tolylfluanid (DMS - N,N-Dimethylsulfamid)*
Leader	IWW
Participants in the IL	
Contribution of NORMAN	Resources for the organisation of this PT are provided by IWW (in-kind contribution). Laboratories participating in the PT will need to pay a participation fee.

Topic	**Passive Samplers**
Code	IL-2
Title	Passive sampling of emerging pollutants: organisation of the intercalibration study on passive sampling of emerging pollutants to be executed in 2011.
Short description	*Activities to be performed in 2010:* *1. Setup of a steering group and an agreement of participants on target analytes* *2. Survey of the sampling sites* *A survey of the presence of compounds of interest needs to be performed to make sure the sampling site is suitable for purpose. Opportunities for sites in the Rhone in France or in the Czech Republic.* *3. Laboratory infrastructure* *Depending on the selected groups of compounds, some of the involved laboratories will need to setup and validate methods for instrumental analysis. Since the study will be focused on polar emerging compounds, LC/MS will be the method of choice in most cases.* *4. State of the art of the technology*

	The main objective will be showing the present variability in data by comparing results from various passive samplers. Passive samplers do not provide very accurate concentration estimates without the application of accurate in situ sampling rate values or the use of performance reference compounds (PRCs). The major problem of most of the recently used passive samplers for polar organic compounds is the difficulty to derive accurate in situ sampling rates. At the moment there is not enough published experimental evidence that the PRC concept is applicable with POCIS or similar samplers. As a result, the variability of data from various samplers that will be compared in the interlaboratory exercise may be higher than wished to be demonstrated. *Two meetings of the steering group will be organised in 2010: the first one to design and approve the study setup; the second one to assign organisation tasks to partners.*
Leader	VUVH
Participants for organisation	List to be confirmed
Contribution of NORMAN	Contribution from NORMAN association: planned 5000€ – amount to be managed by VUVH as leader of the organisation of this activity. Additional institutes willing to participate in the organisation of this activity provide contribution as person-months (with their own resources). Reimbursement of travelling costs for participation in meetings (possible).

Topic	**Common framework for methods validation – implementation in European Standardisation**
Code	QA/QC
Title	*Preparation of New Work Item Proposal for methods validation at CEN level*
Short description	*On-going activity at the European Standardisation body (CEN) to start with the drafting of a new working document for method validation (future CEN Technical Specification) which will be entirely based on the NORMAN validation framework. The work is part of in-kind contribution of IWW.*
Leader	IWW
Participants	No setting up of a WG as such. IWW will prepare the revised protocol and will circulate it for comments to interested members and in particular to the participants in the former Validation sub-project (NORMAN project).
Contribution of NORMAN	The work is part of in-kind contribution of IWW.

II.3.5 Scientific Watch Bulletin – NORMAN Bulletin on emerging substances (SWB)

This scientific watch aims to foster wider sharing of the results of scientific work and to improve the capacity of public authorities to manage risks caused by emerging pollutants by bringing to their attention the most innovative and significant scientific work in the field of emerging substances.

Each bulletin will bring together a number of ‘Current science notes’, compiled by teams in the NORMAN Network.

Each ‘Current science note’ will run to 2–3 pages and will contain three sections:
- a list of the publications or reviews in the subject area;
- a presentation bringing together the main points in the identified publications in a style easily understood by a non–specialist public;

- a short conclusion to the note suggesting, where appropriate, possible implications of these new discoveries: preventive measures, precautionary steps, research needs.

One issue of this bulletin is planned to be published in 2010.

The bulletin will be disseminated to the various interested parties - the scientific community, environment and health agencies and public authorities managing chemical contaminants - and will be made available on the NORMAN public website.

The topics proposed for the NORMAN Bulletin in 2010 are listed below.

Task	Scientific Watch Bulletin
Topics	Proposed topics (titles and contributors still to be confirmed): - Environmental Specimen Banks (Fh-IME) - PFCs - discussion of the outcomes of the NORMAN ILS (2009) (IVM) - New PFCs - Siloxanes - Nanoparticles - Organo phosphorous flame retardants (IVM) - Prioritisation methods applied to pharmaceuticals - Use of effects based monitoring methods for evaluation of risk of mixture of pollutants
Contribution by NORMAN	Planned contribution of NORMAN in 2010 (one issue of the bulletin): 500 € for each topic / leader, but it can be part of the in-kind contribution of a member, replacing part of the membership fee of the organisation.

II.3.6 NORMAN Databases

Work progress in 2009:
The three web-based databases (EMPOMAP, EMPODAT and EMPOMASS) have been fully re-programmed in 2009, and now operate under MySQL and Ajax with php script and html. The databases are now hosted on a dedicated server, i.e. the speed of the connection depends only on the settings of the internet connection of the user.

Log-in to databases has not changed; all users have been migrated with their user names and passwords, as well as all entries and data for each of the three databases.

New features in EMPOMAP:
- Linking of projects-experts-organisations is now automated – entry forms have additional fields allowing the user to make draft entries in the other two databases, which can later be edited by the user who created the original entry.

New in EMPODAT
- All data in the original database were migrated to the new site and new datasets were uploaded. There were more than 50,000 entries (occurrence data) in the database at the end of 2009;
- A special function for export of the data into Excel has been made available (for the NORMAN members only).

EMPOMASS
- Data from the original databases have been migrated; new datasets are in preparation.

Effort for 2010 will focus on:

1. Upgrade of the EMPOMASS database with focus on the accurate mass LC-MS^n module. Continuous filling up of the database with MS data and automation of the data processing. Support of the activities defined in the WG 3 mandate.
2. Filling out the bioassays module of the EMPODAT database.
3. Further development and filling up of the biomarkers module in the EMPODAT database.
4. Systematic collection of occurrence data into the EMPODAT database using as a primary source projects and reports listed in the EMPOMAP database.

II.4. Summary of proposals for the JPA-2010 and JPA-2011

This section outlines the proposals to be further considered for possible inclusion in the Joint Programme of Activities for 2011. These proposals have been drafted following the discussion with the NORMAN members and they will be further discussed during the course of 2010.

Topic	Proposal	Type of activity	Proposed by / leader
Siloxanes	Methylcyclosiloxanes in air, sediment, biota and their degradation products (silanols) in water. Proposal for a training course on trace analysis of siloxanes.	Training course for labs	ITM
Brominated flame retardants	Analysis of recent brominated flame retardants (HBCD, phosphate-based flame retardants).	Expert Group meeting + position paper	IVL
Organic phosphorous flame retardants	Validation of organic phosphorous flame retardants analysis at the level of expert laboratories (V2 level of validation according to the NORMAN validation protocol) in the environment. How well do we perform? What are the critical parameters?	ILS	IVM, BfG and Quasimeme
Pesticides	Pesticide analysis in the aquatic environment – Strategy and analytical considerations in order to cope with the ever increasing number of new compounds.	Expert Group meeting + Position Paper	IWW
Disinfection by-products	Haloacetic acids, MX, chloropicrine: their occurrence in drinking water depending on the water treatment protocol.	Expert Group meeting + Position Paper	
Microcystins	Microcystins in river water.		IAREN
REACh	The workshop would address the new requirements and challenges that REACH will place on the different actors working in the field of monitoring environmental contaminants (both chemically and biochemically), including research laboratories developing methods, national reference laboratories, private laboratories, and government laboratories.	Workshop	RIVM

III. Planning for the JPA 2010 (indicative deadlines)

	J	F	M	A	M	J	J	A	S	O	N	D
Steering Committee meetings				X			X			X		
General Assembly annual meeting 2010											X	
Collection of the proposals for next JPA												
Draft for next JPA							X					
Circulation of the draft												
Final JPA 2011											**X**	
Scientific Watch Bulletin											**X**	
Annual workshops												
AW-1						**X**						
AW-2					?							
AW-3										**X**		
AW-4									**X**			
Expert Group Meeting												
EG-1									**X**			
Working Groups												
WG-1 (deliverables, milestones **X**)		**X**										**X**
WG-2 (deliverable, milestones **X**)							**X**					**X**
WG-3 (deliverable, milestones **X**)												
WG-4 (deliverable, milestones **X**)									**X**	**X**		
Interlaboratory tests												
IL-1												
IL-2 (preparation of IL for 2011)												

IV. Effort for the 2010 JPA

The Steering Committee has approved a budget of 130000 € for 2010, based on expected income from membership fees of the Founding and Ordinary members. These resources will be allocated for scientific activities, coordination (including website) and regular updating and maintenance of the databases.

NOTE: The Joint Programme of Activities of the NORMAN Network is financed by the contributions of its enlarged membership (income from membership fees of the Founding and Ordinary members) and the in-kind contribution provided by the members, always with a view to maximising synergies between research teams in the field of emerging substances.

The list of approved scientific activities for 2010 is as follows:

Databases:

- Regular updating and maintenance of NORMAN Databases

Scientific activities:

- SWB - Scientific Watch Bulletin (1 issue)
- EG-1 - Expert Group meeting N°1 (Nanoparticles in water - BfG)
- AW-1- Workshop1 (River Basin Specific Pollutants: Selection and Monitoring in EU Member States - JRC)[1]
- AW-2 - Workshop2 (Environmental specimen banking (ESB) and emerging substances - UBA)[2]
- AW-3 – Workshop3 (Improving information systems / Data exchange – UBA / EI)
- AW-4 – Workshop4 (TransCon2010 Conference - EAWAG)[3]
- WG-1 - Working group N°1 (Prioritisation of emerging substances - INERIS)
- WG-2 - Working group N°2 (The value of bioassays in monitoring programmes: strategies for interpretation of results – INERIS / RIVM)
- WG-3 - Working group N°3 (Field-relevance-based approaches for hazardous pollutant identification - UFZ)
- WG-4 - Working group N°4 (Emissions - INERIS)
- IL-1 - QA/QC activities (PT on metabolites of pesticides in drinking water – IWW)[4]
- IL-2 – QA/QC activities (Passive sampling of emerging pollutants: organisation of the intercalibration study on passive sampling of emerging pollutants to be executed in 2011 – VUVH)
- Preparation of New Work Item Proposal for methods validation at CEN level, which will be entirely based on the NORMAN Validation Protocol (available on the NORMAN website and developed during the NORMAN project) (IWW).

The proposed budget will be revised by the Steering Committee in April 2010.

All approved scientific activities will be implemented, independently of the revision of the budget.

[1] Workshop organised by JRC (in-kind contribution) as part of NORMAN – JRC Collaboration Agreement

[2] Workshop organised by UBA (in-kind contribution)

[3] Conference organised by EAWAG (in-kind contribution) – NORMAN participates as honorary sponsor – no financial participation.

[4] Activity organised by IWW (extension at the international level of a national activity organized by IWW (no financial contribution from NORMAN)