

NORMAN network  
 Recommendations for research topics for inclusion under FP7 Cooperation Specific Programme –  
 Theme 6 Environment (including climate change) - Draft Roadmap 2007-2013

| AREA   | Proposal for topic title and topic text   | Short justification<br>Necessity of the project in 2010 /<br>political background / drivers   | Partner countries /<br>institutions  | Contact person |
|--|---|---|--|----------------|
| Sub-activity:<br>6.1.2<br>Environment<br>and health<br><br>Area:<br><i>Methods and<br/>           decision support<br/>           tools for<br/>           environmental<br/>           health risk<br/>           analysis and<br/>           policy<br/>           development<br/>           (area to be<br/>           covered in<br/>           2010)</i> | <p><b>Environmental and human exposure pathways of emerging substances</b></p> <p>Many emerging substances behave differently in the environment than the “classical” contaminants (e.g. DDT, PCBs), and predictive exposure and effects models used for risk assessment are lacking. For human exposure assessment of emerging substances the relevance of exposure sources (drinking water, indoor and outdoor dust, air, food, food packaging) remains to be elucidated. Identification of the most relevant sources and pathways of human exposure of e.g. decabromodiphenyl ether, triclosan, siloxanes and perfluorinated compound (PFC), is needed.</p> <p>Bioavailability and biotransformation of chemicals are key parameters in this research. Bioavailability and biotransformation of chemicals depend on complex processes of interactions between abiotic and biotic compartments. For example, sediment and water characteristics such as, dissolved organic matter, or black carbon content as well as the freely dissolved concentrations determine the availability of substances, and</p> | <p>This project will provide substantial input to exposure models used in risk assessment of new and existing chemicals, and will support the improvement of the risk assessment of emerging chemicals (e.g. REACH). It will improve our understanding of exposure pathways and source to human and wildlife.</p> | <ul style="list-style-type: none"> <li>-INERIS, <b>France</b> (Dr. Valeria Dulio)</li> <li>-RIVM, <b>The Netherlands</b> (Dr. Willy Peijnenburg)</li> <li>-Vrije Universiteit Amsterdam, <b>The Netherlands</b>, (Dr. Pim Leonards)</li> <li>-UFZ, <b>Leipzig</b>, Germany (Dr. W. Brack)</li> <li>-Stockholm University, Stockholm, Sweden (Prof. dr. M. McLachlan</li> <li>- IDAEA-CSIC, <b>Spain</b> (Prof. Damia Barcelo)</li> <li>-UBA, Berlin, <b>Germany</b> (Dr. P. Lepom)</li> <li>- IAREN, <b>Portugal</b> (Prof. Maria de Fatima Alpendurada)</li> <li>- Eawag, <b>Switzerland</b>, (Prof. Juliane Hollender)</li> <li>-INCDTIM, <b>Romania</b> (Dr. Zaharie Moldovan)</li> <li>-IVL <b>Sweden</b> (Dr Eva Brorström-Lundén)</li> <li>- Finnish Environment Institute, <b>Finland</b> (Dr Pirjo Sainio)</li> <li>-Wageningen IMARES,</li> </ul> |                |

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|  | the biotransformation capacity. Research should provide tools for predicting bioavailability of emerging pollutants as key parameters to elucidate exposure pathways to organisms in the environment.   |  | <p><b>The Netherlands</b> (Dr Michiel Kotterman)<br/> - NERI-AU, <b>Denmark</b> (Dr. Katrin Vorkamp, Dr. Philipp Meyer, Dr. Marianne Thomsen, Dr. Rossana Bossi).<br/> CNR-IRSA, <b>Italy</b> (Dr Stefano Polesello)<br/> -EBD SUT, <b>Poland</b>, (Sebastian Zabczynski)<br/> - Fraunhofer IME, <b>Germany</b> (Dr. Heinz Ruedel, Dr. Martin Mueller)<br/> -State General Lab<br/> <b>Cyprus</b> (Dr A. Katsonouri, Dr St. Michaelidou)<br/> -University of Cyprus, <b>Cyprus</b> (Dr. D. Kassinos<br/> Prof. C. Deltas)</p> |                |
| Sub-activity 6.3.3. Technology assessment, verification and testing<br><br>Area: | <p><b>Development of tools to predict transformation products of emerging contaminants</b><br/> Transformation products (TPs) and metabolites of emerging contaminants can be formed during the use of a product or during the release into the environment. Up to now most transformation products of emerging</p> | This project will provide novel tools and methodologies for the identification of possible transformation products released or formed during the life cycle of substances or products. It will provide valuable information for the Sustainable Consumption and Production Action Plan, and the implementation of REACH. | <p>-INERIS, <b>France</b> (Dr. Valeria Dulio)<br/> -RIVM, <b>The Netherlands</b> (Dr. Willy Peijnenburg)<br/> -Vrije Universiteit Amsterdam, <b>The Netherlands</b>, (Dr. Timo Hamers)<br/> -IVL <b>Sweden</b> (Dr Eva Brorström-Lundén)</p>  |                |

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| <i>Risk assessment and intelligent testing of chemicals (2010)</i> | substances have never been identified and their toxicity is unknown. Tools should be developed ( <i>in silico</i> , <i>in vitro</i> , <i>in vivo</i> ) to predict the formation of TPs and metabolites for groups of emerging pollutants, including fate and toxicity of these compounds. The development of validated models and analytical methods (e.g. LC-ToF-MS) which can be used for regulation (e.g. REACH) is an important aspect. |  | <ul style="list-style-type: none"> <li>- Finnish Environment Institute, <b>Finland</b> (Dr Pirjo Sainio)</li> <li>- Wageningen IMARES / Wageningen University Toxicology, <b>The Netherlands</b> (Prof Tinka Murk)</li> <li>- CSIC, <b>Spain</b>, (Prof. Dr. Damia Barcelo)</li> <li>- IAREN, <b>Portugal</b> (Prof. Maria de Fatima Alpendurada)</li> <li>- NERI-AU, <b>Denmark</b>,</li> <li>- CNR-IRSA, <b>Italy</b> (Sara Valsecchi and Stefano Polesello)</li> <li>- Fraunhofer IME, <b>Germany</b> (Dr. Heinz Ruedel, Dr. Martin Mueller)</li> <li>- IWW, <b>Germany</b> (Dr. David Schwesig)</li> <li>- Environment Canada, <b>Canada</b> (Dr. Paul Yang)</li> <li>- Eawag, <b>Switzerland</b>, (Prof. Juliane Hollender)</li> </ul> |                |
| Sub-activity:<br>6.1.2<br>Environment and health<br><br>Area:      | <b>pan-European screening program for the identification and hazard characterisation of emerging chemicals</b><br>Due to the increasing number of reports on unregulated substances in the environment, identification, hazard characterisation and   | The project will develop tools and methodologies to identify and characterise the hazard of chemicals that are released and formed in the European environment. Hazard characterisation combined with prioritisation and ranking of these emerging | <ul style="list-style-type: none"> <li>- INERIS, <b>France</b> (Dr. Valeria Dulio)</li> <li>- Vrije Universiteit Amsterdam, <b>The Netherlands</b>, (Dr. Pim Leonards)</li> <li>- IVL <b>Sweden</b> (Dr Eva</li> </ul>  |                |

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| <p><i>Environmental Health effects of toxic substances, with due attention to persisting scientific uncertainties</i> (area to be covered in 2011 and beyond)</p> | <p>prioritisation of these compounds is needed in order to identify the emerging substances that exhibit the highest risk in the European environment. Currently, existing hazard and risk assessment strategies of emerging substances suffer from a lack of accurate information about point sources, occurrence, routes of exposure, fate, and their effects on organisms. Research shall provide 1) integrated chemical and biological novel approaches to characterise the hazard of these substances, and mixtures hereof, and 2) novel sampling and analytical tools for improved water quality assessment (e.g. passive samplers, chemometrics etc.).</p> <p>The development / validation of these approaches shall include research to help operational interpretation of the results. For example, the definition of a physiological range of values for biomarkers appears as an important challenge to increase the use of biomarkers as management tools. Moreover, these approaches shall include transformation products/metabolites of emerging substances, as knowledge on their occurrence and toxicity is very limited. The results of this research shall provide the basis for the identification of potential emerging substances (or their metabolites) that need to be added to current monitoring programmes</p> | <p>substances will provide substantial input to OSPAR, Marine and Water Framework Directives to reduce the stress of chemicals to water bodies and ecosystem. The project will also contribute to the Ecosystem approach as exposure and effects of mixtures will be addressed.</p> | <p>Brorström-Lundén)<br/>-INCDTIM, Romania (Dr. Zaharie Moldovan)<br/>- Finnish Environment Institute, <b>Finland</b> (Dr Pirjo Sainio)<br/>-Wageningen IMARES / Wageningen University Toxicology, <b>The Netherlands</b> (Prof Tinka Murk)<br/>- CNR-IRSA, <b>Italy</b> (Dr Stefano Polesello)<br/>- IAREN, <b>Portugal</b> (Prof. Maria de Fatima Alpendurada)<br/>-EBD SUT, <b>Poland</b>, (Sebastian Zabczynski)<br/>- Fraunhofer IME, <b>Germany</b> (Dr. Heinz Ruedel, Dr. Martin Mueller)<br/>-IWW, <b>Germany</b> (Dr. David Schwesig)<br/>-State General Lab <b>Cyprus</b> (Dr A. Katsonouri, Dr St. Michaelidou)<br/>-University of Cyprus, <b>Cyprus</b> (Dr. D. Kassinos Prof. C. Deltas)<br/>- Eawag, <b>Switzerland</b>, (Prof. Juliane Hollender)</p> |                |

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|             | and priority substance lists (e.g. WFD,<br>OSPAR). |  |   |                       |