

**RfP (project code LRI-ECO19)****Title:****Towards more ecologically realistic assessment of chemicals in the environment****Background**

Environmental/ecological assessment of the potential risks of chemicals released in the environment is an important aspect of current international regulations dealing with the sustainable management of chemicals (e.g. REACH, WFD, ...). To perform and support these assessments, tools and guidance have been developed by various organizations (e.g. EU Technical Guidance Document, 2003). These testing and risk assessment paradigms have provided a relatively simple, stepwise approach but are becoming increasingly seen as having limited capability for fully quantifying potential toxic effects on the structure and function of ecosystems (Forbes et al., 2009; Hommen et al., 2010). This conclusion was recently endorsed during a Special Session of the Society for Environmental Toxicology and Chemistry 'New Challenges for Ecological Risk Assessment' (Berlin, 2012). In this session the main conclusions of an opinion in preparation of the EU review committee SCHER (DG SANCO, Scientific Committee on Human and Environmental Risks) were presented and discussed and called for greater consideration of ecological structure and function in environmental risk assessment.

It is clear from the above, that currently methods and tools applied in regulatory contexts do not take in consideration recent scientific advances in environmental exposure and effects assessment. In general, the lack of environmental realism leads to high uncertainty in the actual consequences of chemical exposure on ecosystem structure and function. The major challenge for research in ecological/environmental risk assessment is the development of tools capable to increase the ecological realism of exposure and effect assessment, taking account of the properties of potentially exposed ecosystems and allowing both site-specific and regional risk assessment (De Laender et al., 2008).

**Objectives**

This project seeks to contribute towards addressing the short-comings of current (regulatory) environmental/ecological risk assessment practices through the development and integration of recent scientific findings and/or new research.

The project's objectives are to:

1. Develop new integrative approaches towards decision making based on quantitative assessment of the realistic ecological risk of chemicals released into the environment.
2. Using experimental studies, modeling or a combination of both address current deficiencies in exposure and/or effects assessment with emphasis on the quantification of risks and the associated uncertainties.

**Scope**

The scope of this project will consider recent scientific advances in ecosystem level environmental exposure and effects assessment. The research should consider, but not be limited to, some of the following issues causing high uncertainty: (1) the variability of environmental scenarios that affect both exposure, e.g. chemical fate and bioavailability, and effects of chemicals, (2) spatial and temporal variability in exposure and effects, (3) interactions between multiple stressor (chemical, physical, etc) that affect ecosystem health, (4) direct and indirect ecological interactions between the species in a community and (5) site specific vulnerability of ecosystems. A multi-disciplinary team approach is encouraged.

The final report shall contain an executive summary (2 pages max), a main part (max. 50 pages) and a detailed bibliography.

It is expected that the findings will be developed into a peer reviewed publication, following presentation at a suitable scientific conference.

**Cost and Timing**

Start in January 2013; duration 3 to 4 years

Budget in the order of € 500,000-700,000

**Partnering/Co-funding**

Applicants should provide an indication of additional partners and funding opportunities that can be appropriately leveraged as part of their proposal. Partners can include, but are not limited to industry, government/regulatory organizations, research institutes, etc. Statements from potential partners should be included in the proposal package.

**References**

De Laender, F., De Schamphelaere, K.A.C., Vanrolleghem, P.A., Janssen, C.R., 2008. Validation of an ecosystem modelling approach as a tool for ecological effect assessments. *Chemosphere* 71, 529-54

Forbes V.E., Hommen U., Thorbek P., Heimbach F., Van den Brink P., Wogram J., Thulke H.H., Grimm V. 2009. Ecological models in support of regulatory risk assessments of pesticides: developing a strategy for the future. *Integrated Environmental Assessment and Management* 5:167-172

Hommen U., Baveco J.M., Galic J.N., van den Brink P.J. 2010. Potential Application of Ecological Models in the European Environmental Risk Assessment of Chemicals I: Review of Protection Goals in EU Directives and Regulations. *Integrated Environmental Assessment and Management*, 6, 325–337

**DEADLINE FOR SUBMISSIONS: August 31, 2012**

Please see [www.cefic-lri.org](http://www.cefic-lri.org) for the project proposal form and further guidance for grant applications.