



Doctoral Candidate (DC8) – Dynamic energy budget models as the basis for extrapolation of adverse effects from the individual to the population level

About QTOX

Chemical risk assessment typically involves extrapolation of effects observed *in-vitro* and *in-vivo* under laboratory conditions to predictions of effects at the ecosystem level. This is a very challenging task and current extrapolation models have limitations, notably due to a number of ecological processes that are disregarded by the models and the paucity of data for parameterisation and validation. QTOX (www.qtox.eu) will develop mechanistic knowledge and data-efficient modelling tools to bridge the gap between standard toxicity data (typically acute effects of single chemicals) and ecologically relevant endpoints arising from chronic, time variable exposures to chemical mixtures. The results will be achieved through an interdisciplinary and intersectoral research and training program in which 10 doctoral candidates will characterise the mechanistic processes describing the successive events from exposure to ecosystem-level effects and develop models for extrapolation of adverse effects across levels of biological organization under environmentally realistic conditions. Notably, the effects of chemical mixtures, dynamic exposure conditions, and their interaction with climate change scenarios will be characterised in a series of mesocosm experiments at three sites in central and southern Europe. The mesocosm work will serve as a uniting training element and a rich source of data for testing and validating the modelling framework. QTOX will produce an open access toolbox for quantitative extrapolations in ecotoxicology and a cohort of researchers equipped with the knowledge and skills necessary to implement and develop rigorous approaches for predicting adverse effects of chemicals.

About Ghent University

The [University of Ghent](http://www.ugent.be) (UGent) is a pluralistic university open to all, regardless of ideological, political, cultural or social background. Our credo is 'Dare to Think'. In 2017, Ghent University celebrated its 200th anniversary. As a top 100 university with more than 49,000 students and 15,000 staff members, we are one of the largest universities in the Dutch language area, located in Flanders, Belgium. Each year more and more international students choose Ghent University for their study. About 7000 foreign students (14% of the total student population), including exchange students, study at Ghent University. Ghent University also hosts about 5000 PhD students, of whom about 50% had a non-Belgian nationality.

Tasks description

This DC position will be hosted by the Ghent University Environmental Toxicology Unit ([GhEnToxLab](http://www.ghent.be/ghent-tox-lab))

In this position, you will:

- Perform *in-vivo* invertebrate toxicity experiments with heavy metals, organic micropollutants and mixtures to identify relevant impairments of the energy household of the organisms via different physiological modes of action (pMoA).
- Establish quantitative models to predict chemical effects on energy budgets and effects at the level of invertebrate populations (e.g. *Daphnia*, snails).
- Extrapolate effects in individuals to the more ecologically-meaningful level of populations.
- Build a bridge between cost-effective *in-vitro* experiments and relevant population level endpoints for invertebrates.
- Build population models that can be integrated in the ecosystem and food-web models developed by others in the project
- Write project reports for your local and network supervisors on a regular basis
- Enrol in the UGent Doctoral School and comply with the doctoral training requirements.
- Participate actively in the QTOX training, dissemination, communication, and valorisation program.
- Prepare a doctoral thesis, and publish scientific articles related to the research project.

Furthermore, the selected candidate will take part in the following planned secondments:

- Academic secondment: University of Antwerp, Belgium (2 weeks) and University of Valencia, Spain (2 weeks)
- Industrial secondment: ARCHE Consulting, Belgium (6 months)

Profile & requirements

- Applicants must hold a master's degree or equivalent in the field of environmental science, environmental engineering, bioscience engineering, chemical engineering, ecology, biology, mathematics, bioinformatics, chemistry, ecotoxicology, environmental technology.
- Applicants must have a solid knowledge of ecotoxicology.



- Transcripts of the master's degree must be available by the date of the recruitment.
- Applicants should have obtained outstanding academic results.
- Applicants must have an ability to understand and express themselves in both written and spoken English to a level that is sufficiently high for them to derive the full benefit from the network training.
- Applicants must be eligible to enrol on a PhD programme at the host institution (or at a designated university, in case the host institution is a non-academic organisation).
- Applicants must have the necessary academic skills and background to make the success of a doctoral degree.
- Applicants can be of any nationality but must comply with the Horizon Europe MSCA eligibility criteria:
 - **HORIZON MSCA Mobility Rule:** researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organisation for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays and time spent by the researcher as part of a procedure for obtaining refugee status under the Geneva Convention are not taken into account.
 - **HORIZON MSCA eligibility criteria:** supported researchers must be doctoral candidates, i.e. not already in possession of a doctoral degree at the date of the recruitment. Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will not be considered eligible.

Benefits

- The selected candidate will be employed by the host organisation for **36 months**. Academic secondment: University of Antwerp, Belgium (2 weeks) and University of Valencia, Spain (2 weeks)
- Non-academic secondment: ARCHE Consulting (6 months)
- **The start date will be as of January 1st, 2023**
- Doctoral candidates are offered a competitive remuneration based on the MSCA allowances in line with the [MSCA WP 2021-2022](#). Ghent University has received an EU grant to recruit a Doctoral Candidate (DC), consisting of a monthly Living Allowance of € 3.400; monthly Mobility Allowance of € 600; and monthly Family Allowance of € 660 (only if applicable). Please note that all compulsory national labour taxes (social security, etc.) to be borne by the employer and employee shall be deducted from the abovementioned amounts. Furthermore, funding managed by the supervisor will be available for technical and personal skills training and participation in conferences.
- The opportunity to be part of an MSCA Doctoral Network: the selected candidate will benefit from the designed training programme offered by the host organisation and the QTOX consortium.
- The selected candidate will participate in international secondments to other organisations within the QTOX network.

Please, find additional information in the [Horizon Europe Work Programme MSCA](#) from p.75 onwards.

Application

- Interested candidates are invited to apply for this position by submitting the application form: <https://www.uantwerpen.be/en/projects/quantitative-extrapolation-ecotoxicology/job-openings/application/>
- The closing date for applications is **November 13th, 2022**.
- The selection committee will review all the applications upon the application deadline.
- The recruitment process of QTOX is in line with the principles set out in the [European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers](#).
- Ukrainian researchers are eligible to benefit from the Science4Refugees initiative without the need of holding the refugee status.

Additional information

For additional information about the research project and this individual position, please contact:

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