



## Call for application: PhD fellowship in environmental humanities

“Living and farming in a polluted world: the case of periurban aquaculture in Hanoi, Vietnam”

A three-year doctoral fellowship is open in the research project CityFish — “Exploring aquaculture in cities: from water pollution to human health”. CityFish is a 4-year project funded by the French National Agency for Research (ANR) in 2024-2028.

### Context of the CityFish project

Aquaculture is one of the fastest-growing sectors in the global food system. In 2018, it produced 82 million tons of fish (FAO, 2020), accounting for half of the world’ fish production for human consumption. While aquaculture farms are mainly located on coastal and rural areas, several farms expand on urban and periurban regions, especially in Asia. These farms are particularly exposed to urban pollution, both biotic and abiotic. They are also expected to contribute to the management of pollutants through recycling urban waste, including wastewater (Bunting and Little, 2015). However, they also contribute to pollution, especially through the increasing use of antibiotics in fish farming (Cabello, 2006). This leads to the spread of antibiotic residues and antimicrobial resistance (AMR) in the environment, posing a threat to human, animal and environmental health. Consequently, **fish farms in Asia’s suburban areas illustrate the reality of living and producing in a “toxic world”** (Boudia & Jas, 2019) and are at the core of the **environment-food system-human health nexus**.

Antibiotic residues and microorganisms resistant to antibiotics (and resistance genes) contribute to this toxic world. **AMR is one of the top global public health threats** according to WHO, contributing to 5 million deaths per year worldwide. Vietnam is an epicenter for AMR, and in particular for multi-resistant bacteria. With a **One Health approach**, the CityFish project aims to document the drivers of antimicrobial resistance, focusing on the case of aquaculture in Hanoi: how do aquaculture farms, given their spatial and socio-technical diversity, contribute to AMR? To achieve this, the project will be based on an interdisciplinary approach combining qualitative methods, GIS, biogeochemical and microbiological analyses. The PhD research will contribute to the project by studying how aquaculture farmers manage, adapt and potentially contribute to the pollution of their environment. More generally it will study how they navigate living and producing in urban areas, framed as a “toxic world”.

### PhD research topic

Within the project, **the PhD research will focus on the analysis of aquaculture farming practices and the challenges that farmers’ face in an urban context**. Some of these challenges are related to the pollution to which fish farmers, their family and their fish are exposed, as these pollutions are considered as a threat for health and farm production (in quality and quantity). The research will closely document the circulation and uses of water; it will also investigate what farmers do and how they adapt to the several constraints of the urban environment, and how they manage their animals’ health. Doing so, **the research will address the “social lives”** (Appadurai, 1988) **of pollutants**, through water management and fish production.

While most research on AMR in livestock production focus on farms as sources of antimicrobial resistance and consider antimicrobial use (and misuse) as an individual responsibility, this PhD research will consider **antibiotics as an infrastructure of fish farming (Chandler, 2019) and farmers' practices as a component of the "antibiotics complex"** (in reference to the "pesticides complex" (Mansfield et al., 2024)). This "antibiotics complex" includes the antibiotics supply chain as well as the toxicity and pollution knowledge, the water management systems, etc.

The PhD student will first elaborate her/his theoretical and methodological framework drawing upon different fields of research and based on his/her own interest: social humanities, political ecology, actor network theory, critical food studies etc. The field research will involve conducting **in-depth qualitative interviews** with farmers in various areas within the Hanoi province, as well as with other stakeholders involved in fish health management and environmental monitoring. As a result, **it will require long-term fieldwork in Hanoi.**

### Working environment

The PhD student will be co-supervised by **Muriel Figuié**, senior researcher in sociology at **CIRAD, MoISA** (Montpellier Interdisciplinary center on Sustainable Agri-food systems), and **Gwenn Pulliat**, researcher at **CNRS, ART-Dev** (Actors Resources and Territories in Development).

The position is based in Montpellier (at UMR ART-Dev: <https://art-dev.cnrs.fr/>) with several months of fieldwork planned in Hanoi. ART-Dev is a multi-disciplinary research unit that focuses on social, spatial and economic dynamics that shape inhabited space and its uses. In Hanoi, the student will work with the partners of the project: the Faculty of Fisheries at the Vietnam National University of Agriculture (VNUA), the Laboratory of Environmental Chemistry at the Institute of Natural Product Chemistry (INPC) at the Vietnam Academy of Science and Technology (VAST) and the Department of Life Science at the University of Sciences and Technology of Hanoi (USTH).

### Requirements

- A Masters' degree either in social sciences: geography, sociology, anthropology..., or in agronomy, ecology, food studies... with a strong interest for social sciences and qualitative methods
- Strong interest in interdisciplinarity and One Health approaches
- Excellent writing skills
- Excellent proficiency in English is required
- Proficiency in French is preferred
- Previous experience in doing fieldwork is an additional asset.

### General information

Starting date: ideally Jan 1st 2025, open to discussion

Salary: 2135€/month (gross salary)

Contract: 36 months, full time.

Please send a **CV**, a **motivation letter** and the **contact of two referees** to [gwenn.pulliat@cnrs.fr](mailto:gwenn.pulliat@cnrs.fr) and [muriel.figuie@cirad.fr](mailto:muriel.figuie@cirad.fr) before **Nov 1<sup>st</sup> 2024**.

For more information, please do not hesitate to contact [gwenn.pulliat@cnrs.fr](mailto:gwenn.pulliat@cnrs.fr) in advance.

The selected candidates will be invited for an online interview, that will take place during the week of Nov. 11<sup>th</sup>.

## References

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- Bunting, S. W., & Little, D. C. (2015). Urban aquaculture for resilient food systems, in: *Cities and Agriculture*. Routledge.
- Cabello, F. C. (2006). Heavy use of prophylactic antibiotics in aquaculture: a growing problem for human and animal health and for the environment. *Environmental Microbiology*, 8(7), pp. 1137–1144.
- Chandler, Clare I. R. 2019. Current accounts of antimicrobial resistance: stabilisation, individualisation and antibiotics as infrastructure. *Palgrave Communications* 5: 53. doi: 10.1057/s41599-019-0263-4
- FAO. (2020). *The State of World Fisheries and Aquaculture 2020: Sustainability in action*. Rome, Italy: FAO. <https://www.fao.org/documents/card/en/c/ca9229en/>
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