

Internship

Design, implementation and programming of a socio-economic model to evaluate ecosystem services

THE ORGANISATION

ACTeon is a French-based human size (20 staff) research and consultancy company, active in the field of EU environmental policy. It is specialised in the “soft” components of environmental management and policy, i.e. social values & perceptions, economic values - including values of ecosystem’s services, the search for adequate incentives (knowledge, processes, economic instruments) to steer change in behaviour, prospective and policy (ex-ante and ex-post) evaluation, governance & institutions, and mediation & communication. ACTeon is providing support to policy development and implementation in the field of water, marine resources, biodiversity, climate change and adaptation, agriculture and the environment, renewable energy, etc. The geographic focus of activities includes France, Europe (other European countries & EU level initiatives), the Mediterranean Sea and the Caucasus regions. For more information: www.acteon-environment.eu.

THE POSITION

ACTeon is looking for an **Intern** to support its team with the design, implementation and programming of a socio-economic model that quantifies and monetizes the impact of land-use change on ecosystem services.

The internship is part of the EU-funded research project LANDSUPPORT (www.landsupport.eu). The objective of LANDSUPPORT is to build a web-based geoSpatial Decision Support System (S-DSS). The S-DSS aims to support decisions concerning: 1. sustainable agriculture and forestry, 2. trade-offs between land-uses, and 3. the implementation of European land-use policies and UN SDG’s. The objective will be achieved by integrating databases and models that simulate agriculture, forestry, land degradation and other environmental issues.

A socioeconomic module, capable to simulate changes in ecosystem services and their values, is one of the modeling engines constituting the S-DSS. Economic quantification of ESs attempts to measure human welfare derived from ESs and is one way to communicate the importance of ESs. The strength of economic quantification is that it conveys the importance of ESs directly in terms of human welfare and uses a common unit of account, allowing the analysis of trade-offs of multi-dimensional costs and benefits. The design, implementation and programming of the socio-economic model are the subject of the internship.

So, the objective is to develop a socio-economic module that allows the spatial economic valuation of changes in ecosystem services due to land-use change that is driven by future developments (climate change, socio-economic change) and agro-environmental policies. The socio-economic model will be a connection between scenarios and management decisions that: 1. affect the biophysical environment, 2. change the supply of ESs and, 3. Impact the economic values ESs. For this purpose, different types of models that are currently being developed in LANDSUPPORT should be connected/integrated. These connections should be considered in the development of the socio-economic module.

Given the dependence on bio-physical models, the evaluation of changes in the provision of ESs and their values is strongly related to other tasks and work packages in LANDSUPPORT. For this purpose, the intern will work in close collaboration with Acteon's staff and external project partners.

The main tasks that are relevant to the position include:

- **Contributing to the design of a socio-economic model** including the development of a conceptual model, the design of model details, and the formulation of data requirements;
- **Implementing (programming) the model** in an appropriate modeling language (Python, Java, C++);
- **Organizing data flows** between the output of bio-physical models, the quantification of ESs and the socio-economic module;
- **Contributing to the model integration** to the web-based platform;
- **Visualizing results.** The model will translate maps of changes in the supply of ESs to changes in values, using marginal values per unit of ecosystem service provided. The output of the socio-economic model will be maps of potential economic values.
- **Reporting on model design**

THE INTERNSHIP QUALIFICATIONS

- **Master student in**
 - **Computer engineering/computational analysis** with a demonstrated interest in economics and ecology;
 - **Ecological economics** with strong modeling and programming skills;
- **Strong modeling skills**, and experience with at least one of the **programming languages Python, Java, C++**;
- **Excellent knowledge of GIS**;
- **Proactive and independent**, with ability to work **autonomously**;
- Excellent **English (written and oral)** communication skills (A second language, is seen as an advantage);
- Applicants must be **currently enrolled in a University**.

ADMINISTRATIVE & WORKING ARRANGEMENTS

The internship will take place at ACTeon's Colmar office (France – 30 minutes by public transport from Strasbourg or Basel). The intern will receive the regular internship allowance of as defined by French law. The internship is of 6 month duration, with an expected starting date in February/March 2019.

How to apply?

You can apply up until 31 January 2019 by sending your application (including a cover letter and a CV) to:

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