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Institut de Recherche pour le Développement FRANCE
French National Research Institute for Sustainable Development

Soil-Agrosystem-Hydrosystem Interaction Laboratory
UMR LISAH - Montpellier, France

Tenure-track position in Landscape Agronomy in developing countries At the rank of associate researcher

Position description: French chairs of junior professors are proposed to researchers in the first part of their career, with a strong potential to lead research programs and to participate in national, European or international projects. The position is based on a fixed-term contract for a 5-years period, before tenure as IRD senior researcher (permanent position) by examination. The successful applicant is awarded with a teaching service in the Montpellier University (MUSE) curricula (approximately 30 hours of lectures or hands-on), and benefits from financial support to carry out his research project (including PhD and postdoctoral grants). Net salary ranges between 2700 and 3200 euros depending upon experience, including social security coverage and retirement pension contributions; it is completed by a family supplement that varies with child number.

Topic: Analysis and bio-decisional modeling of farmers decisions in rainfed agroecosystems under climate change for sustainable management of soil and water resources

Keywords: agronomy, landscape, soil, water, sustainability, biodiversification

Scientific issues and challenges: The transition to sustainable and resilient agricultural systems requires a multi-stakeholder co-design of diversified agricultural landscapes that integrate the farmer logics about crop allocations and practices under environmental, organizational and economic constraints. This is at core of the antagonisms between SDGs 2, 6, 14 and 15 that are exacerbated in southern Mediterranean and tropical rainfed agroecosystems. The position aims to tackle this issue within the LISAH laboratory, by relying on the IRD partnership network, within the MUSE framework including the UNESCO ICIREWARD center on water issues. It contributes to the promotion of scientific research based on an equitable partnership with developing countries.

Research activities: Within the framework of landscape agronomy (geography - agronomy interface), the project aims to study the influences of farmer individual and collective bio-decisional logics about the territory spatiotemporal patterns that impact soil conservation, rainwater efficiency and contamination mitigation. It relies on case studies in India (groundwater - Joint Research Laboratory CEFIRSE / Environmental Observatory MTROPICS), in Tunisia (surface water - International Laboratory NAILA / Environmental Observatory OMERE), or West Indies (agricultural reconversions on polluted soils / Environmental Observatory OPALE). It focuses on understanding the logics of the spatiotemporal distribution of cropping systems and infrastructures at the nested scales of plot, farm and landscape. It identifies the social, economic, technical and environmental drivers at these scales, using an approach that combines surveys and observations (agro-hydrological observatories, national spatial data infrastructures). It integrates these drivers into bio-decisional models to formalize territorial scenarios of agricultural transitions in relation to resource management. These bio-decisional models are coupled to biophysical functioning models within modeling platforms, in order to evaluate the impacts of scenarios on soil / water resources and agricultural production, via collaborations within and outside the laboratory.

Teaching activities: Teaching duties consist of designing and delivering learning sequences in systemic agronomy at the landscape scale (geo-agronomy), in relation to resource management (water, soil), within the framework of prospective studies on the effect of global changes (volume of about 30 hours of lectures per year). These sequences are developed at the master and PhD levels within the Montpellier University (MUSE). The project develops lectures and student projects on identification and formalization of famer logics within a systemic, territorial and global change framework. It participates in various Montpellier master programs (e.g., Water Sciences, IDIL). He also contributes to doctoral sequences of the GAIA Doctoral School, and to international field schools offered by the Montpellier University (MUSE) and its international partners.

Grants: The successful applicant benefits from (1) 200 k€ by ANR (including 120 k€ of payroll - doctoral students, post docs, IT contractual- the remaining is assigned to project functioning), (2) 180 k€ by IRD (including a 3-year PhD contract and 30 k€ for long term missions in developing countries), and (3) 100 k€ by MUSE (1 year postdoctoral contract, project equipment).

Application conditions: Any candidate must hold a PhD or equivalent degree and have produced outstanding research. The proposed project must be original and ambitious, in line with societal and scientific issues in developing countries. It must contribute to the structuring of several communities (international joint laboratories, international observatories, MUSE), and must be able to catch additional budget in complement to initial financial support.

Contact for application

Contact LISAH lab: umr-lisah-direction@supagro.fr (Prof. Jean-Stéphane Bailly, Dr Frederic Jacob)
Timetable:

- Deadline for laboratory contact: 01/02/2022
- Deadline for submitting the application: 21/02/2022
- Interviews: third week of march 2022