



Angers (France), Thursday 9th of March 2023

Call for Lecturer-Researchers from University of Banja Luka ERASMUS+ Exchange Program

PACAD Project: A short summary to situate the ERASMUS+ Exchange Program

PACAD project (Project to support change through sustainable beekeeping) proposes to address three distinct but complementary themes:

1. Interactions between populations of pollinating insects (*Apis mellifera* in the first place) and melliferous resources (availability/attractiveness) at the scale of a foraging area,
2. The sustainability of beekeeping operations within a given territory,
3. The implementation of change support systems (promotion of transitions towards more sustainable systems).

This project was born within ISTOM, College of International Agro-Development, which attaches great importance to field practice, systemics (to grasp complex realities) and multidisciplinary (co-construction of concrete responses by crossing the views of various disciplines). PACAD strives to mobilize both internal and external resources to link teaching, training, research and development action.

This project hypothesizes that mono-disciplinary approaches can converge towards the design of multi-disciplinary diagnostic tools to improve understanding of the complex notion of sustainability. It aims to build collectively, by crossing disciplinary views, education systems for sustainable development on the one hand, and to accompany the actors of a territory to change on the other hand, by taking as object the melliferous resources and as entry point the beekeeping and the pollinating insects.

The interest in dealing with the bee in the context of sustainability and support for change lies in the fact that it synthesizes the majority of the major current societal issues and provides information on many of the agrarian transformations underway in many regions of the world. Studying the situations of bees, in their interactions with the environment in particular, and the realities of those who keep them (beekeepers, in their practices and their relationships with the territory, the market and governance), offers an interesting angle for thinking about the very complex issue of sustainability. The collective construction of support systems adapted to local realities in response to these societal issues is therefore part of this reflection.

Goals of the ERASMUS+ Exchange Program

Within the framework of this project, an ERASMUS+ Exchange Program is planned. It includes the visit of three lecturer-researchers from the Faculty of Agriculture, University of Banja Luka. The lecturer-researchers will stay five days at ISTOM. Their activities will focus on:

- Participation and observation of the implementation of diagnostic studies through Serious Games developed by the project;
- A master class in front of the ISTOM students to present their research (see fields of expertise below);
- Participation to a workshop with PACAD's lecturer-researchers in order to establish common reflections on the research project;
- A reflexion to create a common active pedagogical approach;
- The planning of the follow-up of the activities during year 1 and the construction of the program for the reception (at ISTOM) of a student from the University of Banja Luka.

Proposed Program

The stay-period for the three lecturer-researchers is **from 14 to 17th of May 2023**.

The stay will take place in Angers (Western part of France).

The program schedule would be as follows:

May, Sunday 14th		Arrival to Angers
May, Monday 15th	<i>Morning (8h45-12h)</i>	Institutional Meetings and College visit
	<i>Afternoon (13h15-16h30)</i>	Serious game (2A)
	<i>End of the day (17h-18h30)</i>	Master Class (field of expertise 1)
May, Tuesday 16th	<i>Morning (8h45-12h)</i>	Serious game (2A) + Debriefing with students
	<i>Afternoon (13h15-16h30)</i>	Workshop Pedagogical Approach (Replication of a Serious game)
	<i>End of the day (17h-18h30)</i>	Master Class (field of expertise 2)
May, Wednesday 16th	<i>Morning (8h45-12h)</i>	Workshop PACAD ERASMUS+
	<i>Afternoon (13h15-16h30)</i>	Professional City-Tour (depending on interests)
	<i>End of the day (17h-18h30)</i>	Master Class (field of expertise 3)
May, Thursday 17th (public holiday)		Departure to Banja Luka

Please notice that, on Wednesday 16th (afternoon), visits will be organised, depending on lecturer-researchers' points of interest (city-tour, visit of a vineyard, meeting with ISTOM local partners, etc.).

Required Profiles of the Lecturer-Researchers from University of Banja Luka

According to the three specific topics studied in PACAD project (see above), the required profiles of the three lecturer-researchers would deal with the following fields of expertise:

- Field 1: *Plant, insect and environment interactions*. As an example of ISTOM topics studied in this field, let's mention those studied in the framework of PACAD project: monitoring the quantity of nectar produced over time and as a function of life conditions; direct and indirect competition between different pollinators; comparison of modelled attractiveness data with bee harvests, involving pollen and/or honey sampling; evaluation of the temporal disparity in the availability of melliferous resources in relation to honey flows; treatment of specific areas: hedgerows, orchards, roadsides, urban areas.
- Field 2: *Biostatistics and/or Geographic Information Systems*. In PACAD project (as an example), we try to combine different scales of analysis (from the melliferous resource to the landscape: hive, beekeeping farm, bee foraging area, territory) in order to understand the evolution of melliferous resources' availability along time, depending on spatial planning, biodiversity dynamics, rural politics, etc. We think that geographic and economic data base interpretation may be a useful tool to highlight landscape transformations and biodiversity dynamics.
- Field 3: *Rural Economics and Agricultural Development*. Linked to field 2 mentioned above, this field would bring the focus on nature/society's interactions, seeking to illustrate how human actions (public policies, spatial planning by local administration, farmers' practices, role of intermediate institutions like cooperatives, local markets and clusters, etc.) modify landscapes, ecosystems and biodiversity, (in the case of PACAD project) bee foraging areas and melliferous resources' availability along the year and among the areas.

These three fields of expertise will be useful both for giving a master class to ISTOM students (one by lecturer-researchers, between Monday 15th and Wednesday 17th) and for exchanging with the ISTOM lecturer-researchers involved in the PACAD project (Workshop PACAD, planned on Wednesday 16th morning).