The role of forests for well-being improvement: advances from psycho-physiological analysis and technologies (FOR.WELL)

The research aims to furnish innovative insights into the role of forests in improving people's health and well-being. The project will integrate current scientific knowledge, highlighting how green infrastructures are relevant for improving individuals' well-being. The proposal will investigate the most important forest variables influencing the status of people through an in-depth analysis of tree species composition, stem density, greenness indexes, and lighting level, as well as people's preferences and willingness to pay (WTP) for them. Well-being variation among different forests will be recorded from psychological and physiological viewpoints.

Psychological analysis will be performed through interviews to elicit the emotional status of people. Physiological parameters will be focused on cardiovascular as well as neurological trends. Psycho-physiological indicators will be computed during the exposition of forest stimuli in virtual and on-site environments. Virtual reality favors the replicability of interviews in a laboratory setting, allowing for constant stimuli. The on-site investigation will grant an evaluation of the dose-response effect. Statistical analysis will be carried out to outline a significant relationship between mental/physical status and external stimuli. People's preferences and WTP for attributes that can be provided in forests for increasing people's health and well-being will be assessed using the discrete choice experiment (DCE) method.

The project results will be used to implement guidelines for private and public forest owners to guarantee the management of their properties focused on the valorization of well-being improvement, encountering people's preferences to expand the number of recipients of health benefits. Integrating results with the socio-economic, climatic, geomorphological, and logistic characteristics of forests will facilitate the implementation of a standardized method to quantify forests suitability in the investigated cultural ecosystem services. This aspect can favor realizing a "Forest for health" label to be integrated into guidelines for enhancing territorial marketing activities. Actions for stress recovery and attention restoration in the forest can be, in fact, innovative in the national contest. They can contribute to the valorization of peri-urban as well as inner areas.

The project is divided into seven work packages (WPs):

- WP1: project starting, literature review, and localization of forests to be investigated;
- WP2: stimuli registration, the definition of the psychological questionnaire, and sample recruitment;
- WP3: preparation of stimuli and presentation in interviews;
- WP4: statistical analysis and forest modeling;

- WP5: assessment of preferences and willingness to pay (WTP) for health and well-being-related attributes in forests;
- WP6: socio-cultural evaluation of ecosystem services;
- WP7: dissemination of results.

The part of the project conducted by the Department of Economics and Management is related to contributing to Work Package 1 (literature review and selection of forests to be investigated), Work Package 2 (recording of stimuli, definition of the psychological questionnaire, and recruitment of the sample), Work Package 3 (preparation of stimuli and presentation in interviews), and Work Package 5 (implementation of a survey to evaluate preferences and willingness to pay for forest characteristics that influence people's health status and well-being).

The activity carried out by the research fellow will mainly concern:

1) WP1: A literature review on the psychological evaluation of emotions and perceptions related to the forest landscape; support in defining the alpine area under investigation and selecting forest variables

2) WP2: Support in recording the forest variables, preparation of the questionnaire for detecting emotions resulting from exposure to forest variables, recruitment of a sample of students for WP3

3) WP3: Support in the presentation of forest variables through virtual reality to a sample of students at the University of Trento

4) WP5: Participation in implementing a survey to evaluate preferences and willingness to pay for forest characteristics that influence people's health status and well-being.