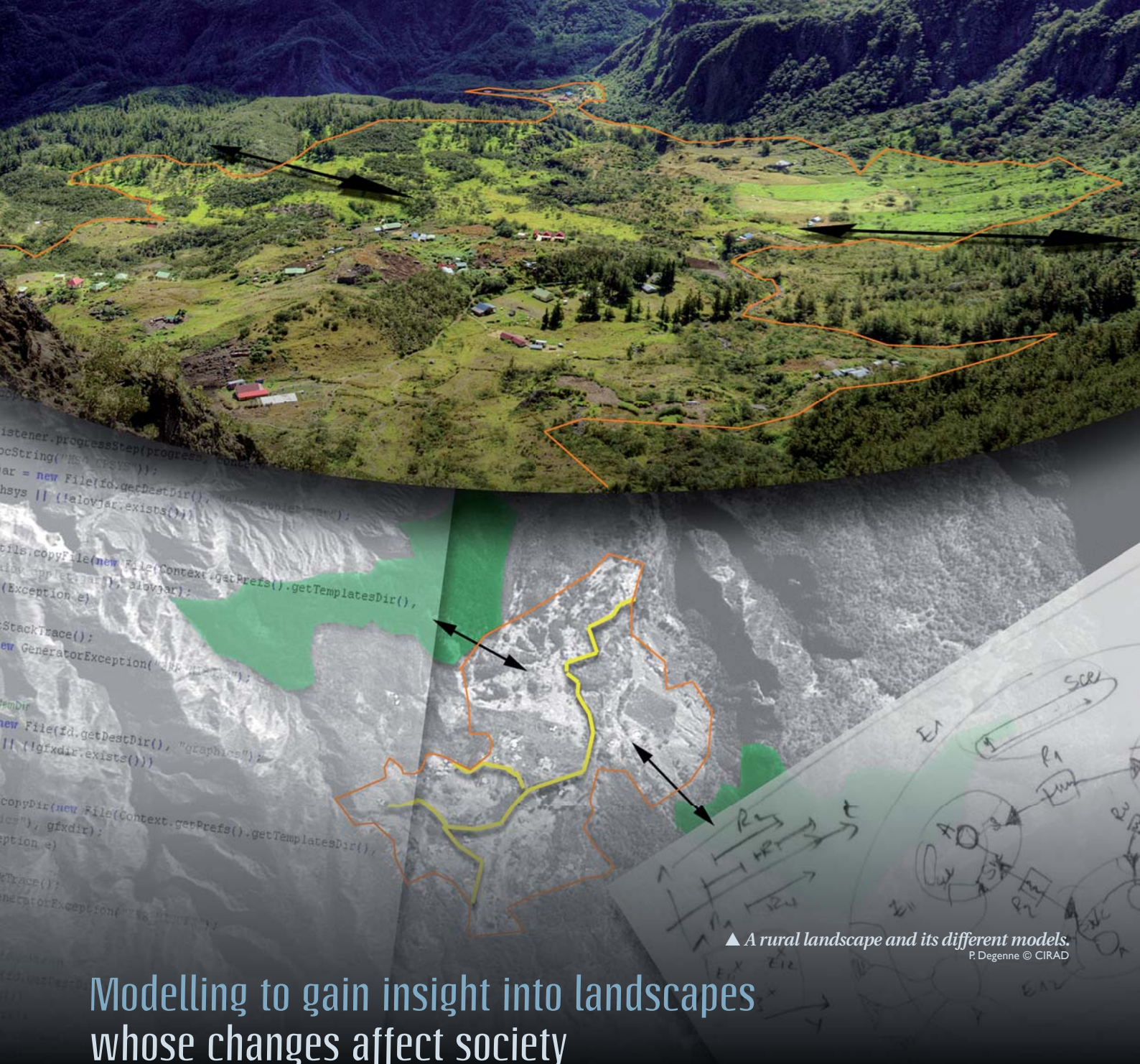




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▲ A rural landscape and its different models.
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Modelling to gain insight into landscapes whose changes affect society

Studies of many important issues that society faces today are based on a modelling approach. Insight is required prior to action—whether it concerns the emergence and spread of diseases associated with new environmental conditions, rapid transformations in urban areas, or the degradation of natural ecosystems and biodiversity loss. For a given issue: What are the key elements that make up the landscape? How do they interact? How does the landscape function and evolve as a system? As such systems can usually not be experimentally investigated in the field, studies often rely on computerized modelling, despite the inherent problems of spatial representation, time management and multiple spatial and temporal scales.

New tools are sought to solve these problems, such as a language specifically developed for modelling landscapes and for simulating their dynamics. The language elements should help scientists to accurately describe the composition of landscapes, to express the relations between their components, to specify how they evolve in time and to generate simulations according

to different experimental scenarios (e.g. a change in land-use legislation). In addition to the language, by this approach landscape elements, called ‘primitives’, can be compiled in libraries. Users have access to these libraries and are able to assemble the primitives required for modelling a given landscape.

This research is being conducted within the framework of the Spatial, Temporal and Multi-scale Primitives for Modelling Dynamic Landscapes (STAMP) project (2008-2010) supported by the French Research Agency’s *Programme Blanc* (i.e. open to all disciplines). Researchers from UMR TETIS and AMAP, the *Institut National de Recherche en Informatique et en Automatique* (INRIA) and the University of Marne-la-Vallée, along with scientists from a range of disciplines (epidemiology, agronomy, ecology, etc.) are jointly involved in this project.

Contacts: Pascal Degenne, pascal.degenne@cirad.fr & Danny Lo Seen danny.lo_seen@cirad.fr