EGU2020-18512
https://doi.org/10.5194/egusphere-egu2020-18512
EGU General Assembly 2020


# Investigating the effects of land use change on ecosystem services: the Basilicata region (Italy) case study

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By the end of this century effects of land-use change on ecosystem services are expected to be more significant than other world-wide transformation processes such as climate change, altering atmospheric concentrations of greenhouse gases or distribution of invasive alien species.

In recent years, scientific literature has been embellished with numerous land-use models that aim to explore the behaviour of land use systems under changing environmental conditions and different territorial transformations explaining the different dynamics that contribute to it, and to formulate scenario analyses to be followed up by development strategies.

In addition, it should be noted that a dimension of the nexus between planning and sustainability that is important but still too little explored, is the assessment of territorial changes and development dynamics through the alterations analysis induced on processes, functions and complex systems.

While land-use models can help investigate the effects of a combination of drivers at different scales, ecosystem services approach can help in better understand the trade-offs between different development scenarios making explicit the relations that every variation induces within the relationship between man and territory and among different environmental components.

In this framework is set the present work that aims to integrate scenario analysis of the Basilicata region (Italy) development with assessments of alterations induced on the capacity to deliver ecosystem services. Although this region is very poorly populated and characterised by low settlement density, it is not immune to the global phenomenon of land take associated with high territorial fragmentation.

The building stock increase due to real development dynamics and relative demographic increase typical of the post-war period, was followed by a further built up environment growth - in contrast with the demographic trend - and a significant land take due to massive construction of renewable energy production plants.

Changing model have been applied to identify and classify the driving forces for land use changes and predict future development scenarios.

In order to contribute to the development of decision support systems, scenarios resulting from

the implementation of different policies are analyzed with the ecosystem services approach.