Geophysical Research Abstracts
Vol. 21, EGU2019-18466, 2019
EGU General Assembly 2019


# PHUSICOS project: Nature Based Solutions to reduce risk in mountain landscapes

Bjørn Kalsnes (1), Vittoria Capobianco (2), Amy Oen (3), and Anders Solheim (4)

(1) NGI, Natural Hazards, Norway (bgk@ngi.no), (2) NGI, Natural Hazards, Norway (vittoria.capobianco@ngi.no), (3) NGI, Natural Hazards, Norway (amy.oen@ngi.no), (4) NGI, Natural Hazards, Norway (anders.solheim@ngi.no)

European awareness to natural based approaches for resilience to hydro-meteorological effects is still increasing. Many finished or ongoing projects at urban scale provide a large scale and fully replicable demonstration actions for the application of Nature-Based Solutions to address climate change impacts and improve the quality of life and urban resilience. However, in rural and mountainous regions, where hydro-meteorological risk is amplified, the occurrence of extreme weather events can lead to catastrophic consequences that can dramatically change the ecosystem with irreversible damages at catchment scale.

The main objective of the H2020 project PHUSICOS is to demonstrate that nature-based/nature-inspired solutions for reducing the risk of extreme weather events in particularly vulnerable areas such as rural mountain landscapes, are technically viable, cost-effective and implementable at regional scale. Furthermore, that they increase the ecological, social and economic resilience of local communities. To this aim, three large-scale demonstration sites have been selected respectively in Italy, France/Spain/Andorra and Norway as representative of hydro-meteorological hazards, vegetation, topography and infrastructure throughout rural and mountainous regions in Europe. The first demonstration projects will be implemented in 2019. Within the four-year duration of PHUSICOS the innovative key actions will be:
• create a participative process with a diverse range of stakeholders through a Living Lab approach with service innovation at the demonstration sites focusing on new ways of co-designing sustainable management services,
• design a comprehensive framework for comparative analysis and monitoring tools to evaluate the performance of various nature-based solutions,
• explore ways to enhance the effectiveness of the implementation of nature-based solutions in the context of governance innovation, the planning and policy mechanisms for sustainable use and management of land, water, and natural resources in rural areas and their impacts at the local and wider watershed scale,
• create a knowledge co-generation platform using learning arena innovation, including the use of serious game (or social simulation) approaches, to encourage knowledge exchange through the identification of possible nature-based solutions, co-development of scenarios and modelling their impacts at the demonstration sites, as well as training of local decision makers and contractors to implement innovative nature-based solutions.
• establish a comprehensive state-of-the-art evidence-base and data platform concerning nature-based solutions through product innovation, providing overview of tools and best practices tested at the demonstration sites in different contexts and suitable for replication and up-scaling towards future implementation.

In conclusion, the aim of PHUSICOS is to demonstrate that nature-based/nature-inspired solutions are suitable, technically viable, cost-effective and implementable at regional scale for reducing the risk of extreme weather events. Furthermore, they improve the human well-being and quality of life, as well as social economic resilience of local communities.