MOVING
MOuntain VAlorisation THROUGH INterconnectedness AND GREEN GROWTH

Maciço Noroeste

Vulnerability Matrix & Index

2024

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What will you find?

The MOVING (MOuntain Valorisation through INterconnectedness and Green growth) project stands at the forefront of climate resilience, aiming to fortify the sustainability of mountain areas against climate change. A key outcome of the project is the creation of tools that show susceptibility and vulnerability, ready to be used by both experts and the general audience[1].

This document synthesises crucial information for the **Maciço Noroeste Region,** particularly focusing on the Participatory Vulnerability Matrix and the Spatial Vulnerability Map.

Using a participatory approach, the Vulnerability Matrix allows to downscale relevant information to the local level, offering a detailed view of how drivers of change impact this territory. Understanding that areas within the Maciço Noroeste Region are not equally vulnerable to identical threats, the Spatial Vulnerability Index emerges as a critical tool. It showcases the varied susceptibility across the region, paving the way for more effective, targeted adaptation strategies.

Mountain Reference Region: Maciço Noroeste

Mountain Reference Landscape: Douro Superior

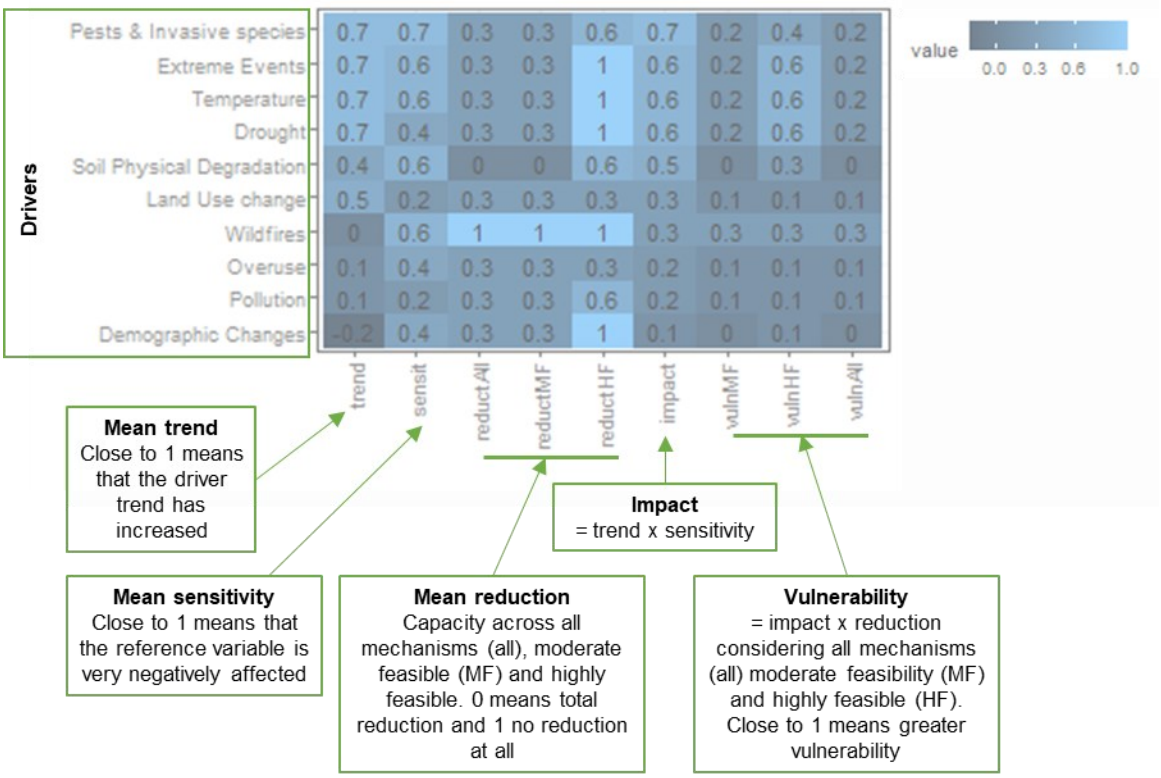
Value Chain: Douro Wine

Land-use system: Vineyards

Reference variable: Vineyard productivity and grape quality

[1] Extended outputs are accessible through the following documents: 'Land Use Systems and Land Cover Map in 23 Reference Regions' and 'Land use system vulnerability matrixes and vulnerability maps for the 23 reference regions'

1. Participatory Vulnerability Matrix



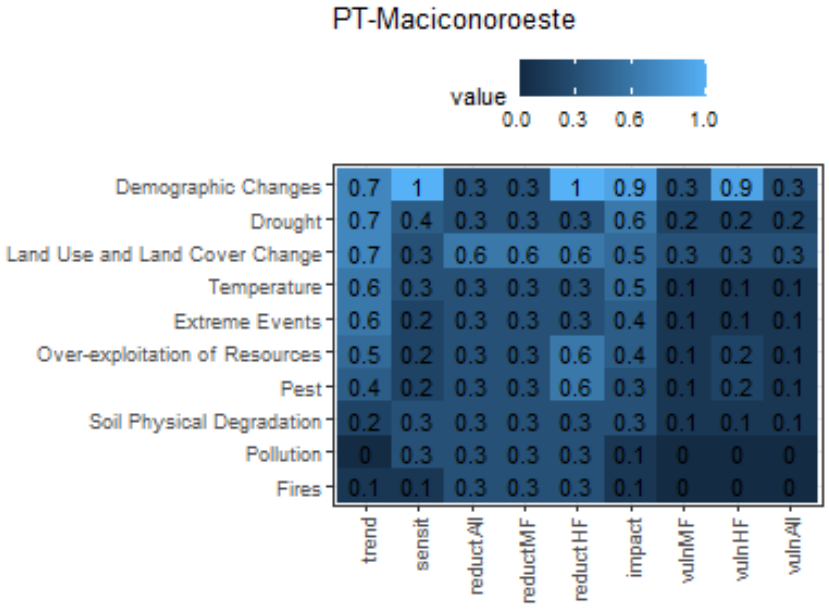


Figure 1. Vulnerability Matrix for the Maciço Noroeste MRL (below) and how to read it (above). Source: MOVING H2020

The high impact value for demographic changes stands out as one of the highest obtained in the study, far ahead of the second one, which would be drought. The adaptive capacity mechanisms generally have a medium reduction capacity and high viability, except for demographic changes, overexploitation of resources and pest, where the mechanisms with the highest viability have a lower impact reduction capacity, which means that in a scenario where only the most viable mechanisms are applied, the vulnerability would be 0.2, in contrast to 0.1 if all the mechanisms or the mechanisms with medium viability were applied.

1.1. List of adaptative mechanisms suggested by consulted stakeholders

- Respect for vocationalist in the choice of vine varieties
- Planting vines in areas of higher altitude
- Soil management through minimum tillage
- Increased organic matter in soil, compost or other local sources of organic matter
- Availability of irrigation in case of need
- Create a special regime for seasonal agricultural workers and university students (without implications for other social benefits)
- Encouraging mixed cropping (including grazing)
- Regulation of the expansion of vineyards – avoid monoculture.

2. Spatial Vulnerability Index

Vulnerability drivers:

- Changes in temperature
- Demographic changes

Spatial explicit factors:

- Internet connectivity quality
- Distance to schools and health centres

Table 1. Spatial Vulnerability Index for vineyards in the Maciço Noroeste MRL.

Spatial Vulnerability Index			Spatial Explicit Factor 1		
			Internet connection quality		
			Not available	*Bad*	*Good*
Spatial Explicit Factor 2	*Distance to schools and health centres (km)*	*[0-5]*	**4**	**3**	**1**
		]5-15]	**4**	**3**	**2**
		]15-max]	**5**	**4**	**3**

Vulnerability levels: 1 – very low, 2 – low, 3 – medium, 4- high, 5 – very high.
Source: MOVING H2020