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Giasone: a method to assess sustainability of georesources cultivation

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The concept of georesources, within the framework of the new environmental strategies of the European Union's (EU) Green Deal, has gained an expanded perspective, beyond the traditional approach linked to the mining industry. Georesources are defined as natural resources or elements of the landscape, physical space, and territory, to which economic, environmental, or social value is attributed. This definition encompasses raw materials, water resources, soil conservation, as well as intangible elements such as geoheritage, natural landscape, and ecosystem balance.

The concept of sustainability integrates with a technical principle that promotes the improvement of land conditions in natural, ecological, social, economic, and cultural terms. This perspective acknowledges that the European territory is the result of millennia of transformations by humans, with activities such as agriculture, land exploitation, and the use of natural resources that have altered environments.

The EU action plan aims to promote sustainability as a central element of economic growth, guiding capital flows towards a more sustainable economy. A priority is to define a classification of sustainability for georesources cultivation, based on technical-scientific and industrial standards, to which the sustainability of investments in the sector can be referred.

The Green Deal aims to address challenges related to climate change by promoting a new economy based on sustainable development, ecosystem protection, biodiversity conservation, and climate change mitigation. EU economic strategies are oriented towards assigning 'value' to environmental aspects, stimulating innovation and competitiveness in a dynamic market.

The concept of environmental value extends to various areas such as energy efficiency, renewable energy, sustainable agriculture, green mobility, and new technologies. This includes the creation of green jobs to ensure a fair transition to a new sustainable economy and reduced inequalities.

In the context of georesources, traditionally associated with the exploitation of non-renewable and renewable resources, an analytical approach is proposed to assess sustainability not only in the extractive field but also in the context of land planning within a broader geographic context.

For the quantitative assessment of the value of georesources in the policies outlined in the Green Deal, a parametric method based on the integrated analysis of the following themes is proposed: Geography, Hydrography, Environment, Sociology, Nature, and Economics to characterize the intrinsic value of georesources.

The use of GIS as a multidisciplinary analysis tool for integrating environmental and socio-economic data allows for a dynamic approach in identifying the intricate relationships of various themes, simplifying the representation of land status.

For each area identified through the comparison of indicators, a "georesource sustainability" index - the GIASONE index - is calculated by a weighted sum of the indices related to each theme. The use of the parametric method also allows for the comparison of different scenarios under varying environmental and socioeconomic conditions, useful for planning decisions.