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Biosphere Reserves: Sustainable territories, Resilient communities – A conceptual model for the assessment of ecosystem services

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Biosphere Reserves (BR) are territories recognized by UNESCO for their natural and cultural heritage and their role in promoting solutions to harmonize biodiversity conservation with the sustainable use of natural resources. Further, BRs are identified as “learning places for sustainable development”, emphasizing their importance to achieve the UN Sustainable Development Goals. However, Portuguese BRs lack recognition from society as well as from the local, regional or national entities as privileged instruments and areas for valuing and developing the territory.

To enhance the relevance and visibility of the BRs in society and among stakeholders, we designed a project based on the assessment of ecosystem services (ES), as they play fundamental roles in the mitigation and adaptation to climate change, and on the sustainability of the communities and their territories. Our project seeks to structure and foster collective dynamics in these social-ecological systems, respecting the autonomy and diversity of context and heritage that characterizes the Portuguese BRs. Our work is based on a conceptual model with three fundamental pillars. First, we will identify available geographical and biological information and combine it with remote sensing data (Landsat and Sentinel) to map the current and potential ES provided by Portuguese BRs. Second, in each BR, we will implement participatory multi-actor methodologies and focal groups to select the key ES to promote sustainable development and valorisation of natural endogenous resources. To do so, we will use a holistic assessment of the ecological, economic and social values of the different ES, as well as of their role in mitigating and adapting to climate change and environmental change. Finally, we will train local stakeholders on the valuing, promotion and sustainable production and consumption of ES, as to help these communities implementing the Sustainable Development Plans that will be prepared for each BR and in accordance with the UN's Agenda 2030.

Through complementary initiatives and a comprehensive and networked programmatic action, “Biosphere Reserves: Sustainable territories, Resilient communities” seeks to add value to Portuguese BRs, increasing their resilience and sustainability, and to promote their unique territories and heritage, while showcasing them as model areas for the sustainable development.