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Improving urban ecosystems resilience at a city level

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The sustainability of urban communities is at risk in a global change context, where environmental problems and the constraints posed by a limited access to key raw materials, energy and sanitation will cause profound changes on the way we interact with the natural environment.
Major changes are expected on processes magnitude and connectivity at various scales, with profound impacts on the environmental and well-being problems posed by the packing of high density of people in restricted areas, that have to be dealt with. The conventional approach is to find technological solutions that are often expensive and inefficient, especially in what concerns the use of energy and raw materials, limiting long term sustainability and urban ecosystems' resilience, and consequent impacts on the quality of life and health of urban populations.
To improve city resilience in face of global change threats (climatic change, growing world population, land use change, lower energy availability, reduced mobility as a result of fossil fuels stringency and costs), we need to develop a nested approach binding together various greening actions and management of green infrastructures at various scales (i.e. household, neighbourhood, city and urban/wildland interface).
This paper presents the conceptual strategy being developed at the Coimbra City (Centre of Portugal) to increase the resilience of urban ecosystems, using them to reduce natural risk occurrence (such as flash floods), the promotion of human health and increasing city resilience towards an improve food self sufficiency.
We present a discussion and evaluation of the different solutions designed and implemented to improve the overall urban sustainability at different scales of intervention, from the household solutions to more structural solutions such as the recover of riparian forests or the preservation and improvement of green corridors.
Of paramount importance to improve urban ecosystem resilience is the development of new governance solutions, based on more participatory approaches, to set objectives and develop action plans at the local level.