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Food-energy-water nexus.

Strategies for the peri-urban areas in the age of climate change

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Abstract

Over the last few years, the new concept of the food-energy-water Nexus has become one of the most interesting and promising references in the analysis and in the identification of environmental strategies both at global and local level. Among the different approaches that rely on this concept, this book considers the Nexus not only as a relevant issue for environmental sustainability, but also in relation to the concepts of resilience towards environmental changes and natural disasters. In this respect, the book considers three main issues: the nexus in periurban areas; the effective management of the nexus as a mean to create resilience towards environmental changes and to climate change; and the effective management of the nexus in risk mitigation policies.

The development and protection of these factors requires an integrated management of the major resources that characterize the metabolism of a city. Furthermore, it requires a stronger coordination between the stakeholders who weight differently the services that are relevant to them in an urban environment. Moreover, any strategy aimed at achieving both sustainability and resilience must integrate efforts towards environmental protection, adaptation to and prevention of climate change and disaster risks mitigation. A more sustainable city is one that offers the best combination of environmentally compatible production and exploitation of energy and food, and optimizes cycles of water use and-reuse, leading to an overall reduction of carbon dioxide emissions. In the meantime, a better management of the nexus can significantly contribute to the adaptation to climate change. The nexus is also implied in disaster risk reduction, basically in all phases of the so-called disaster cycle, from the pre-event mitigation to recovery and reconstruction.

Considering the nexus in such a broad perspective requires a large effort of integration, first between disciplines and scientific and technical approaches and second between policies. The need to integrate approaches, methods and tools specific to different disciplines that deal with food-energy-water has been already pinpointed by researchers and scholars. However, an even larger effort must be put in the management of the nexus in climate change adaptation and in disaster risk mitigation, that until now have been considered rather separately from environmental policies in general.