

Sea Level Rise: Consequences and adaptive scenarios

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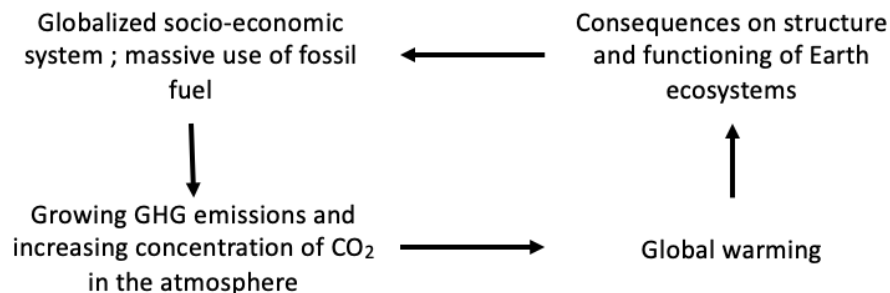
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How can we build scenarios to face the sea level rise (SLR) issue? The task is immense, in large part because coastal areas concentrate the main infrastructures of the global economic system and because decision making in such complex systems is particularly challenging.

However, thirty years have passed since the signing of the United Nations Framework Convention on Climate Change and as early as the end of the 1990s, we had already the main elements in hand to understand the climate change threat (figure below).



The impacts of SLR on coastal socio-ecosystems were already anticipated and today, coastal regions are running out of time. The March 22 session of the Académie d'Agriculture de France highlighted three main challenges for the protection of coastal areas against sea level rise.

The first one is to build and implement policies for coastal protection. For this, foresight scenarios exercises, in which gathering knowledge and technical solutions are key elements, are paramount. However, it is decisive that public bodies in charge have the adequate political, budgetary, and human resources to implement policies and, particularly – but not only - in developing countries, those means are still rarely available at the same time.

The second is the improvement of knowledge of geophysical processes. The workshop showed that the inertia of geophysical processes is central: the effects measured and identified today might seem sustainable, but the effect of CO₂ concentration in the atmosphere and the warming of oceanic water masses will not stop immediately with the halt or the strong decrease of GreenHouse Gas (GHG) emissions.

The last one is the need for knowledge and experiences of local ecological and territorial engineering. Management and implementation of local solutions raise issues and reveal contradictions. Difficult decisions are to be made at the economic, social, technical, and ecological levels.

With sound scenarios, robust knowledge, and efficient local socio-ecological projects, we may hope to make the coastline safer. But we need to remember that the less satisfactory the GHG emission trajectories, the more resources will be needed to adapt coastal regions to inevitable changes. At all levels, stakeholders must find an acceptable framework to share the costs associated to coastal protection from SLR.