



Global Least-cost User-friendly CLEWs Open-Source Exploratory (GLUCOSE) Model

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A changing climate will force us to consider broad resource management questions. Land, energy and water are some of our most precious resources. The systems that provide them are highly interlinked, vulnerable and contribute to climate change. The UN recognizes the need for integrated assessment of the food-water-energy nexus in international negotiations; highlighted by the inclusion of the Climate, Land-use, Energy and Water (CLEW) nexus in the upcoming Global Sustainable Development Report. This effort provides a toolkit to assist in the formulation of climate change mitigation and adaptation strategies. Building on initial CLEW assessments, we propose the formulation of a fully integrated CLEW modelling tool to enable resource assessments, a global CLEW model, and focusing on scenarios with particular relevance to the climate change and sustainable development discourse. The aim of the overall effort is to create a transparent tool to act as a simplified testing ground for policies and allow the visualisation and assessment of different policy pathways in regards to sustainable development on a global scale. This tool will allow for the identification of potential trade-offs and synergies between sectors in CLEWs and material industry. It should be highlighted that we refrain from implying that this model will be characterized by a high predictive capacity; on the contrary, its main purpose is to provide an initial set of communicable insights and indications to facilitate decision-making on potential plans and strategies.