In order to illustrate the propagation of GEO benefits in the areas of Forestry, Biodiversity and Drought, system dynamics modeling and simulation methodology was used to develop the FeliX (Full of Economic-Environment Linkages and Integration dX/dt) model.

The FeliX model provides a systems perspective, where the underlying social, economic, and environmental components of the Earth system are interconnected and constitute a complex dynamic system. A change in one area results in changes in other areas – for instance, use of food crops as a source of energy may increase food prices and deforestation rates through land use change. Being a dynamic model it captures change of certain phenomena (e.g. depletion of natural resources, carbon dioxide emissions) or impact of certain policies (e.g. afforestation, emission reductions) over time. Constructed as such, the model allows for analysis of particular policies, actions and interventions in both the short and long term.

The FeliX model was initially calibrated to historical data for the 20th century, constituting a simplified representation of the Earth system. The Business as Usual run for the 21st century was constructed based on projections of historical data. Additionally, three GEO scenarios were constructed: Forests, Biodiversity and Drought. The Base Run scenario is then compared to the GEO scenarios, the difference indicating the potential impact of GEO across the SBAs. Results demonstrate the significant impacts of combined GEO scenarios over the Base Run in several sectors, e.g. increased savings of water resources, limitations to deforestation and decreasing amounts of agricultural land required.