

SENSITIVITY AND UNCERTAINTY ANALYSIS

In the NEXOGENESIS project, the team aims at providing future projections related to policies and their impacts on the WEFE (Water, Energy, Food and Ecosystem) nexus for each of its five Case studies: Nestos River basin, Lielupe River basin, Jiu River basin, Adige River basin and Inkomati-Usuthu River basin. These projections will be produced through the use of System Dynamics Models (SDMs) that deal with complex systems and external model data. In order to elaborate these projections as accurately as possible and as it is not known how the future is going to play out, the NEXOGENESIS team will perform 4 types of analyses: sensitivity analysis, scenario analysis, what-if analysis and uncertainty analysis. The NEXOGENESIS team has published a deliverable explaining the used methodology available [here](#).

Sensitivity, scenario, and uncertainty analyses in NEXOGENESIS

- **Sensitivity analysis:** this analysis allows to identify the parameters or variables that have important impacts on model outputs. These tests consist in changing one parameter or variable at a time to differing magnitudes and observing the response in specific (critical) output variables of interest and classify them as more or less sensitive.
- **Scenario analysis:** scenario analysis will not focus on one parameter or variable but rather on “widespread changes” which may affect the projections as for example global climate changes, or socio-economic developments, or policy changes. Here, many parameters will be changed at the same time.
- **What-if analysis:** this analysis allows testing of any possible ‘thought experiment’ by asking what happens if something changes. In this way, we can identify possible thresholds of a system, and perform a safe, fast and efficient testing of an unrealistic or dangerous situation to identify potential undesirable effects.
- **Uncertainty analysis:** uncertainty analysis is performed recognise uncertainties in data projections and the future in general, and to allow their consideration in the future decision making. In NEXOGENESIS, numerous approaches will be used for uncertainty analysis in the SDMs.

To learn more about the sensitivity and uncertainty analysis used in the project, read our corresponding deliverable: [here](#).

More about the project on our website: <https://nexogenesis.eu/>

And stay tuned to learn more about the results on our social media accounts:



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