Supplement to:

A system dynamics modeling framework for endogenizing human behavior change in global-scale integrated assessment models

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1. Model and Data Availability

The Behavioral Change modeling framework is embedded within FRIDA version 2.1. The model and its input data, including calibration data, are open-source and can be downloaded from:

> Schoenberg, W., Blanz, B., Ramme, L., Wells, C., Grimeland, M., Callegari, B., Breier, J., Rajah, J. K., Nicolaidis Lindqvist, A., Mashhadi, S., Muralidhar, A., & Eriksson, A. (2025). FRIDA: Feedback-based knowledge Repository for IntegrateD Assessments (v2.1). Zenodo. https://doi.org/10.5281/zenodo.15310860

Model documentation, simulation experiment, and calibration and sensitivity analysis procedures are reported within the main article. To reiterate, the uncertainty analysis and reporting approach in FRIDA necessitates the use of ensemble runs with descriptive statistics (median, 67% and 95% confidence intervals). The default single-run in the Stella model is only one sample run and differs from the median values.

The results reported in this paper are based on 100,000-member ensembles. The output data as well as the codes for reproducing the figures can be retrieved from the FRIDA Behavioral Change Module repository:

> Rajah, J. K. (2025). FRIDA Behavioral Change Module – Output Data Repository (1.0.0) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.15397824

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3. Acknowledgment

A version of this paper has been submitted to Geoscientific Model Development and is currently under the review. There are differences in the introduction and literature review sections, and the discussion section excludes the broader contributions to the SD field. As part of the open peer-review process, the paper has been posted as a pre-print on EGUsphere available at:

> Rajah, J. K., Blanz, B., Kopainsky, B., & Schoenberg, W. (2025). An endogenous modelling framework of dietary behavioural change in the fully coupled human-climate FRIDA v2.1 model. EGUsphere. https://doi.org/10.5194/egusphere-2025-2260