

Project: **1484**

Project title: **ReForMit - Understanding and securing the Resilience of Forest-based climate change Mitigation**

Principal investigator: **Fabian Stenzel**

Report period: **2025-05-01 to 2026-04-30**

Project progress overview

Stakeholder workshops have been conducted and scenarios developed using the DGVM LPJmL. The POEM Earth system model development is nearly finished and simulations are planned for this summer. Final upload and sharing on DKRZ storage is yet to be done. Publications are in progress, see below.

Publications

SIWI 2025. W-FLR Tool: Water-smart Forest and Landscape Restoration. Stockholm.

https://siwi.org/project_page/water-smart-forest-and-landscape-restoration-tool/

Sakschewski, B., Caesar, L., Andersen, L., Bechthold, M., Bergfeld, L., Beusen, A., Billing, M., Bodirsky, B. L., Botsyun, S., Dennis, D., Donges, J. F., Dou, X., Eriksson, A., Fetzer, I., Gerten, D., Häyhä, T., Hebden, S., Heckmann, T., Heilemann, A., Huiskamp, W. N., Jahnke, A., Kaiser, J., Kitzmann, N., Krönke, J., Kühnel, D., Laureanti, N. C., Li, C., Liu, Z., Loriani, S., Ludescher, J., Mathesius, S., Norström, A., Otto, F., Paolucci, A., Pokhotelov, D., Rafiezadeh Shahi, K., Raju, E., Rostami, M., Schaphoff, S., Schmidt, C., Steinert, N. J., Stenzel, F., Virkki, V., Wendt-Potthoff, K., Wunderling, N., Rockström, J.: Planetary Health Check 2025: A Scientific Assessment of the State of the Planet; Potsdam : Potsdam Institute for Climate Impact Research (PIK), 144 p.; **2025**; <https://doi.org/10.48485/pik.2025.017>

FAO, SEI, CI & TNC. 2025. Climate and ecosystem service benefits of forests and trees for agriculture. Rome, Stockholm, and Arlington. <https://doi.org/10.4060/cd7599en>

Xi, Q.; Gao, H.; Wang-Erlandsson, L.; Dong, J.; Fenicia, F.; Savenije, H. H. G. & Hrachowitz, M.: Terrestrial ecosystems enhanced root zone water storage capacity in response to climate change over the past four decades, Science Bulletin, 2025, 70, 3019-3028, <https://doi.org/10.1016/j.scib.2025.06.027>

Behboudian, M.; Emami-Skardi, M. J.; Anamaghi, S.; Santos Ferreira, C. S.; Wang-Erlandsson, L.; Halbac-Cotoară-Zamfir, R. & Kalantari, Z.: Social resilience of tropical forest ecosystems: A systematic review of core principles and their application Journal of Environmental Management, 2025, 394, 127319, <https://doi.org/10.1016/j.jenvman.2025.127319>

Anamaghi, S.; Behboudian, M.; Emami-Skardi, M. J.; Kåresdotter, E.; Ferreira, C. S. S.; Destouni, G.; Wang-Erlandsson, L.; Tengberg, A.; Stenzel, F.; Fetzer, I.; Mahjouri, N.; Kerachian, R. & Kalantari, Z.

Research efforts and gaps in the assessment of forest system resilience: A scoping review Ambio, **2025**: <https://doi.org/10.1007/s13280-025-02243-4>

Stenzel, F.; Ben Uri, L.; Braun, J.; Breier, J.; Erb, K.; Gerten, D.; Haberl, H.; Matej, S.; Milo, R.; Ostberg, S.; Rockström, J.; Roux, N.; Schaphoff, S. & Lucht, W.: Breaching planetary boundaries: Over half of global land area suffers critical losses in functional biosphere integrity, One Earth, 2025, 8, 101393, <https://doi.org/10.1016/j.oneear.2025.101393>