IVM Institute for Environmental Studies

VU

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Selected research highlights

A new and transferable method to map slums

More than 1 billion people live in slums, globally, and this number is on the rise. Transforming slums would require data on their extent and location. Yet, this data is missing, as current approaches rely on costly very-high resolution satellite imagery, and their transferability is limited. In a recent paper, Hang Yang, Peter Verburg, Alex Levering, and Jasper van Vliet present a method to identify slums at a building-level, using publicly available data only. The method was tested extensively for different cities in Kenya, and achieves a good accuracy even when applied on completely unseen cities. The relevance of this finding was confirmed by an invitation to present findings in the Global Urban Data Coalition of UN-Habitat.

> Link to paper

Floods reduce life satisfaction, but home protections and compensation measures help mitigate the impact

Floods can cause large societal impacts, both in terms of material damage and impacted wellbeing of flooded households. To understand these wellbeing impacts, a team led by Laurine de Wolf, in collaboration with Peter Robinson, Thijs Endendijk, Jeroen Aerts and Wouter Botzen, analysed around 1500 survey responses from Dutch households following the 2021 summer flood in the province of Limburg. The results indicate that individuals who had their home flooded have a lower satisfaction with their life in general compared to those who were not affected. This negative impact was partially mitigated for households that had installed flood-protection measures in their homes. Among vulnerable low-income households, a decrease in life satisfaction was observed when they were not reimbursed for their flood damages. These findings highlight the potential of flood adaptation in mitigating the loss of life satisfaction during a flood event and enhancing post-flood recovery.

> Link to paper

FEATURED RECENT PUBLICATIONS

Dissertations:

Huazhi Li (11 March 2026): *Connected Extremes: Capturing Dependence in Global-scale Flood Risk Assessments*

Marijn Ton (13 March 2026): *Modeling Migration and Global Population Patterns: Combining High-Resolution Household and Natural Hazard Data*

Irene Benito Lázaro (1 April 2026): *Flooding Beyond Limits: Capturing Unprecedented Surges and Flood Patterns in Large-Scale Coastal Flood Risk Assessments*

Heidi Mendoza (20 May 2026): *Buckets at the end of the world: When rivers dry, when rivers overflow*

Sinoxolo Magaya (28 May 2026): *Crystals & Manure for Food: Demand, constraints and enablers for recycled phosphorus in organic agriculture across the EU*

Alessia Matano (29 May 2026): *From Drought to Flood: uncovering the dynamics of risk*

Selected journal articles:

Hochrainer-Stigler, S., **Brusselaers, J.**, Zhu, Q., **Tesselaar, M.**, & Ciullo, A. (2026). Climate storylines to build resilience for European public and private risk finance instruments against remote events. Ecological Economics, 239, Article 108756. https://doi.org/10.1016/j.ecolecon.2025.108756

Goes, K., Corsten, D., & Mouter, N. (2026). Not everyone wants a seat at the table: A national segmentation of participatory needs in the Dutch energy transition. The Electricity Journal, 39(2), 1-11. Article 107528. Advance online publication. https://doi.org/10.1016/j.tej.2026.107528

Badura, T., & Schaafsma, M. (2026). Incorporating spatial complexity and variability into the design of stated choice experiments for biodiversity policy support. Resource and Energy Economics, 86, 1-17. Article 101565. Advance online publication. https://doi.org/10.1016/j.reseneeco.2026.101565

van den Bergh, J., & Drews, S. (2026). A review of carbon-pricing studies for developing countries. Climate and Development, 18(2), 121-140. https://doi.org/10.1080/17565529.2025.2506758

West, T. A. P., Wang, Y., Salekin, S., & Meason, D. (2026). A theoretical framework for forestry risk mitigation under climate change scenarios based on fuzzy portfolio selection. Mitigation and Adaptation Strategies for Global Change, 31(1), 1-14. Article 8. https://doi.org/10.1007/s11027-

A more holistic approach to multi-hazard and multi-risk assessment and management

A multi-hazard and multi-risk approach is key to increase society's resilience to disasters. A perspective paper synthesising findings from the MYRIAD-EU project (2021-2025) led by IVM points to several avenues for continued scientific research: continue the mainstreaming and mutual understanding of concepts and definitions; continue developing a strong evidence base of how dynamics in hazard, exposure, and vulnerability in space and time shape multi-risk; further developing methods for providing both current and future multi-hazard and multi-risk scenarios; increasing the availability of appropriate, solutions-oriented, usable tools; more explicitly including equity issues and equitable disaster risk reduction and adaptation; continue extensively testing and coproducing multi-hazard and multi-risk knowledge in in-depth case studies; supporting the development of Multi-Hazard Early Warning Systems; and strengthening opportunities for Early Career Researcher leadership and empowerment within project structures. In the paper, Philip Ward, Sophie Buijs, Judith Claassen, Timothy Tiggeloven, Nicole van Maanen, Julius Schlumberger, Marleen de Ruiter, Wiebke Jäger, Tristan Stolte, and other authors suggest concrete ways in which these topics can be addressed in future years and decades.

> Link to paper

The Trump effect on net zero commitments - new project on norm backsliding in corporate climate governance just started

Under an NWO XS-grant, Oscar Widerberg and Bruna Bosi Moreira investigate how political pressure, especially under U.S president Trump's second term, may cause companies to back away from committing to "net zero" carbon emissions. Thousands of companies have voluntarily adopted ambitious climate targets, but little is known whether those commitments are strong enough to survive political pushback. Using advanced text analysis of corporate reports and interviews with company leaders in the U.S. and Europe, the project will explore how and why companies change or stick to their climate goals. The findings will deepen our understanding of how environmental norms spread and offer new insights into corporate climate governance."

> Link to grant

Education news

Plato's Garden Wins the VU Education Impact Award

Mario Torralba led a trans-faculty team to receive the VU Education Impact Award for Plato's Garden: an innovative nature-based pedagogy platform that invites students to approach learning physically, sensorially and reflectively through experiential learning methods. The initiative connects sustainability, wellbeing and academic depth within a broadly applicable pedagogical framework.

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Budzik, G., Sylla, M., & **Schulp, C. J.** E. (2026). Cooling benefits of Urban agriculture to inhabitants—mapping cooling potential of allotments in European functional urban areas. Journal of Environmental Management, 397, 1-21. Article 128275. https://doi.org/10.1016/j.jenvman.2025.128275

Tang, L., **Verburg, P. H.**, Ke, X., Wang, C., Wu, S., Li, W., & Zhu, J. (2026). Spatio-temporal changes in cropland system and its impacts on grain production in China. Agricultural Systems, 232, 1-10. Article 104573. https://doi.org/10.1016/j.agsy.2025.104573

Yang, H., Niu, L., & **van Vliet, J**. (2026). Diverging trajectories of built-up land dynamics for country groups by income until 2100. Habitat International, 168, 1-13. Article 103677. https://doi.org/10.1016/j.habitatint.2025.103677

Mazzoleni, M., Di Baldassarre, G., Hagström, A. et al. (2026). Drought is associated with human migration in agriculture-dependent middle-income countries. Commun Earth Environ 7, 248. https://doi.org/10.1038/s43247-026-03358-6

Ye, M., **Perumal, S. R. V.,** Pantoš, M., Cimerman, S. R., **Ward, P. J.**, & **Koks, E. E.** (2026). Analysing power system cascading failures and service disruptions in a data-scarce environment: A case study of Vietnam. Reliability Engineering & System Safety, 112575. https://doi-org.vu-nl.idm.oclc.org/10.1016/j.ress.2026.112575

Mendoza, H. D., **Van Loon, A. F.**, Rohse, M., Koehler, J. K., & Cruz, S. (2026). Everyday Futures of Riverine Communities in the Peruvian Amazon. World Futures Review, 19467567261429295. https://doi-org.vu-nl.idm.oclc.org/10.1177/19467567261429295

Luo, F., Selten, F. & **Coumou, D**. (2026). The role of soil moisture on summer atmospheric circulation climatology in the Northern Hemisphere. npj Clim Atmos Sci 9, 42. https://doi.org/10.1038/s41612-025-01294-4

Lehmann, I., Kok, M., Immerzeel, R., & Marques, A. (2026). Implications of global distributive justice principles for implementation of the Kunming-Montreal Global Biodiversity Framework. Conservation Biology, 40(1), e70167. https://doi.org/10.1111/cobi.70167

Raniecka, P., Galli, N., Govoni, C., Rulli, M. C., Villamayor-Tomas, S., & Dell'Angelo, J. (2026). *On the Global Water Crisis: A Taxonomy of Human–Water Challenges.* Cambridge University Press. https://doi.org/10.1017/9781009658850

van Tongeren, P., & **Negacz, K.** (2026). From niche to scale: enabling factors for saline agriculture in the North Sea and Mediterranean regions. *Journal of the Science of Food and Agriculture*. https://doi.org/10.1002/jsfa.70575

Nicolas-Artero, C., & **Dell'Angelo, J.** (2026). Sustainability transition frameworks: Integrating space, scale, nature, power, and justice. *Environmental Science & Policy, 177,* 104327 https://doi.org/10.1016/j.envsci.2026.104327

Prizes, awards and grants

CLOSER

Paolo Scussolini and Maurizio Mazzoleni won a Horizon Europe grant to advance the attribution and forecasting of climate events and their impacts, including slow-onset phenomena. The CLOSER project is a collaboration among 15 institutes across Europe and other continents that captures not only climatic factors, but also drivers such as land-use change, groundwater depletion, changes in exposure and social vulnerability. It bridges rapid advancements in climate and weather modelling, risk assessment and the socio-economics of disasters with the social sciences of adaptation and policy, from six case applications across four continents to global application. CLOSER involves in a co-creation process researchers and key stakeholders: emergency responders, climate services, adaptation planners, impacted economic sectors, intergovernmental and legal organisations.

CLIMAAXNext

Maurizio Mazzoleni, Jeroen Aerts, Philip Ward and Jens de Bruijn participates in the newly acquired Horizon Europe project CLIMAAXNext. This project will deliver the next generation of the regional climate risk assessment framework through thematic guidance, interoperable Python-based analytical workflows, and cascading funds distributed to 69 regions and communities. We will then develop the Dynamic Playbook, an integrated knowledge hub that brings together frameworks, workflows, tools, and storymaps in a user-friendly, evolving platform. We will finally bridge the gap between climate risk and disaster risk management by using climate storylines to stress-test key community systems such as health, water security, and landscapes, and to design resilience pathways. With these innovations, CLIMAAXNext will enable climate risks to be explored in a systemic and socially just way, while directly connecting insights to adaptation and resilience planning. Click here for more information.

m-CONNECT: Management of Coastal Networks Nurtured through Ecosystem assessment, Collaboration and Technology

Peter Robinson, Pieter van Beukering and Luke Brander were granted a Horizon Europe Grant to look into interconnected coastal seascapes (CMS-metasystems), i.e. coral reefs, mangroves and seagrasses, and their role in supporting ecosystem services and climate resilience. The project aims to better understand how different forms of ecological connectivity influence services like fisheries, coastal protection and carbon storage. Working with Indigenous Peoples and Local Communities, the project will develop science-based, locally informed guidelines for conserving and restoring these systems across islands in Southeast Asia and the Western Pacific.

NatuRISE: Nature Restoration Impact Assessment for Socio-Economic and Ecological Benefits

Led by Esther Boere, and including Mario Torralba and Peter Verburg, NatuRISE is a newly funded Horizon Europe project that will explore the socio-economic impacts of nature restoration across Europe. By combining ecological, land-use, and economic modelling with social-science approaches, the project will pay special attention to the spatial dimension of restoration, from local landscapes to EU-wide patterns. Through case studies and broader European analyses, NatuRISE will examine how restoration shapes biodiversity, ecosystem services, human wellbeing, and the distribution of costs and benefits, and will develop a decision-support tool to support effective and equitable restoration planning.

Roy Pontman wins VU thesis award

Roy Pontman, who recently joined IVM as a PhD candidate, has just won the VU Master Thesis Award for his thesis on “The Development of an Impact-based Flood Forecasting System based on Ensemble Precipitation Forecasts: A case study of the Geul Catchment". Inspired by the floods in Limburg in 2021, Roy developed an impact-based flood forecasting system. His model predicts water levels and where damage can occur. The system can issue warnings up to three days in advance and is now used by several organisations in the Netherlands and abroad.

STAFF AND ORGANISATIONAL NEWS

Hello and goodbye

These months, IVM has welcomed several new staff members:

- The section Environmental Policy Analysis (EPA) welcomed Bruna Moreira Bosi Moreira as Postdoc.
- The section Environmental Economics (EE) welcomed Amber Emeis as PhD.
- In the section Environmental Geography (EG) Valentina Martínez Ramón started as PhD and Melissa Lina Schönholz as Research Assistant.

The last months we said goodbye to Federico Riva, Juan Antonio Hernández Agüero and Thales West.

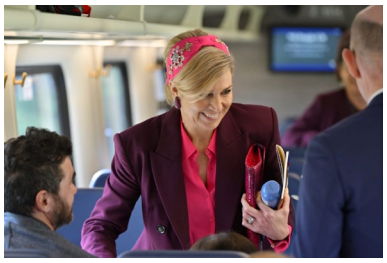
IVM in the spotlight

IPBES Assessment Calls for Stronger Biodiversity Policies

Marije Schaafsma received widespread media attention as coordinating lead author of the IPBES Business and Biodiversity Assessment, which maps companies' biodiversity impacts and dependencies across value chains and calls for urgent business-nature cooperation through new economic models and stronger policy frameworks. The report attracted major attention in national and international press. Marije was quoted by NRC, interviewed by Deutschlandfunk, and contributed to the podcast Met woede & liefde as part of the festival Reclaim The Seeds Amsterdam.

Previous events

IVM Meets Queen Máxima of the Netherlands



Jan Brusselaers met and urged Queen Máxima and Minister Stientje van Veldhoven to ensure robust policies make the circular transition inclusive, so the most vulnerable families truly benefit from circularity. The conversation took place as part of the events in the Circular Economy Week.

Unpacking Fossil Fuel Influence on Institutions

ASI and Climate Obstruction NL co-hosted a roundtable on the influence of the fossil fuel industry on institutions, moderated by Mathieu Blondeel, during which academics, investigative journalists and action-oriented researchers discussed their different roles and how they can work together effectively to reveal the concealed influence of the fossil fuel industry on public institutions and to expose deceptive industry claims of contributing to 'climate solutions'. The event was followed by a seminar session to explore the Global Atlas of Environmental Justice (EJ Atlas), the world's largest environmental conflict database, demonstrating how the EJAtlas has been used for research, teaching, activism and policymaking, with a keynote by Mirja Schoderer.

To help us tailor future newsletters to your needs, we would love to hear from you. Would you like to see some additional or alternative sections? What did you find most insightful this time, and what is on your mind that we could explore in upcoming issues? Reach us at m.c.schoderer@vu.nl and m.torralbaviorreta@vu.nl