

University Academic Curriculum Vitae

Dr. Luigi Piemontese

[SCOPUS ID](#)

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Education since leaving school

- 2020, PhD in Sustainability Science (Stockholm Resilience Centre at Stockholm University, Sweden) with a thesis titled “Sustainable Land and Water Management for a Greener Future: Large-scale insights in support of Agroecological Intensification”. The title was declared equivalent to the Italian PhD in “Gestione delle Risorse Agrarie, Forestali e Alimentari” by the University of Florence.
- 2014, MSc in Environmental and Energy Engineering (University of Genoa, Italy), thesis: “Multi-model ICT-based Hydro-Meteorological Simulation of a Mediterranean Storm” with CIMA Research Foundation.
- 12/2013 – 03/2014, ERASMUS Placement Program (Grupo de Investigación en Hidroinformática y Gestión del Agua Enterprise, Universidad Politecnica de Madrid, Spain)
- 01/2013 – 06/2013, ERASMUS Program (Universitat de Barcelona, Spain)
- 07/2011 – 08/2011, Intensive Erasmus Program, Frederik University, Cyprus
- 2011, BSc in Environmental Engineering (University of Rome Tor Vergata, Italy)

Present appointment

- Researcher Fellow (RTDa) in Agricultural hydraulics and watershed protection (AGR-04/A)
 - Start of appointment: 2026
 - Employer: Faculty of Agricultural, Environmental and Food Sciences, Free University of Bozen-Bolzano, Italy.
 - Brief description of responsibilities: Responsible and lecturer of university courses, research and outreach.
- National Scientific Habilitation (Abilitazione Scientifica Nazionale 2021) as associate professor in the scientific area 07/C1 (Agricultural, Forest and Biosystems Engineering).
- National Scientific Habilitation (Abilitazione Scientifica Nazionale 2023) as associate professor in the scientific area 08/A1 (Hydraulics, Hydrology, Hydraulic and maritime constructions).

Professional experience

From / to	Job title	Name of academic Institution	Academic level	responsibilities
02/2023-01/2026	Researcher Fellow (RTDa) in Agricultural hydraulics and watershed protection (AGR-04/A)	Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence, Italy	RTDa	Responsible and lecturer of university courses , research on drought risk, agricultural water management, sociohydrology and outreach activities
09/2022-09/2023	Adjunct Professor (professore a contratto) in Physics	Department of Agricultural and Forestry Sciences, University of Tuscia	Adjunct Professor (professore a contratto)	Responsible and lecturer for the course of Physics (FIS/02), 6 ECTS)
06/2022-01/2023	Post-doctoral	Department of Agriculture,	Post-doc	Planning the construction and rehabilitation of

	Research Fellow (Assegnista di Ricerca)	Food, Environment and Forestry (DAGRI), University of Florence, Italy		traditional water harvesting structures in support of mobile pastoralists of African drylands and plot test of innovative fog harvesting technology
11/2020-04/2022	Post-doctoral Research Fellow (Assegnista di Ricerca)	Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence, Italy	Post-doc	Development of best-siting methodology for the selection of sand dams construction sites and support to the design and construction of wells and sand dams in dryland Angola
12/2020-12/2021	Consultant	Stockholm Resilience Centre, Sweden		Input on idea, approach, method and writing of the report "Operationalizing small-scale water storage in Western Sahel", Commissioned by the World Bank
10/2020-12/2020	Consultant	Physical Geography Dept. at Stockholm University, Sweden		Data analysis of future hydroclimatic change for the project "Slow onset risks of climate change for Swedish water resources", commissioned by the Swedish Civil Contingency Agency
01/2016-06/2016	Graduate Research Assistant	King Abdullah University of Science and Technology, Saudi Arabia	Graduate Research Assistant	Hydraulic modelling of urban floods in desert environments
09/2014-09/2015	Consultant	United Nation Satellite Centre (UNOSAT), Geneva, Switzerland		Hydroclimatic modelling for flood early warning systems and GIS training assistant

Participation in exhibitions (where applicable)

- Scientific responsible for the design and realization of the photo exhibition "Pratiche sostenibili di uso delle acque non convenzionali", held for the Bright Night 2022 (Notte Europea delle Ricercatrici e dei Ricercatori) in Piazza Santissima Annunziata, Florence, Italy, May 2022.

Experience in academic teaching

- **Title of courses given in the last 5 years**
- A.Y. 2025-2026 – **Teaching professor (docente):** Course "Information Technology in Irrigation" (AGR/08), 3/6 ECTS. MSc in Natural Resources Management for Tropical Rural Development, School of Agriculture at the University of Florence, Italy. Teaching activity in English
- A.Y. 2024-2025 – **Teaching professor (docente):** Course "Information Technology in Irrigation" (AGR/08), 3/6 ECTS. MSc in Natural Resources Management for Tropical Rural Development, School of Agriculture at the University of Florence, Italy. Teaching activity in English
- A.Y. 2024-2025 – **Teaching professor (docente):** Course "Laboratory" (AGR/08), 3/6 ECTS. MSc in Natural Resources Management for Tropical Rural Development, School of Agriculture at the University of Florence, Italy. Teaching activity in English.
- A.Y. 2023-2024 – **Teaching professor (docente):** Course "Information Technology in Irrigation" (AGR/08), 3/6 ECTS. MSc in Natural Resources Management for Tropical Rural Development, School of Agriculture at the University of Florence, Italy. Teaching activity in English
- A.Y. 2023-2024 – **Teaching professor (docente):** Course "Laboratory" (AGR/08), 3/6 ECTS. MSc in Natural Resources Management for Tropical Rural Development, School of Agriculture at the University of Florence, Italy.

- Teaching activity in English.
- A.Y. 2022-2023 – **Adjunct Professor (professore a contratto) in Physics** (FIS/02), 6 ECTS). BSc in “Scienze della Montagna”, Department of Agricultural and Forestry Sciences, University of Tuscia (UNITUS), Rieti, Italy.
 - A.Y. 2022-2023 – **Honorary Fellowship (Cultore della Materia)**: Course in “Irrigation with non-conventional water”. (AGR/08, 6 ECTS), MSc in Natural Resources Management for Tropical Rural Development, University of Florence, Italy.
 - A.Y. 2022-2023 – **Honorary Fellowship (Cultore della Materia)**: Course in “Water Resources Evaluation and Management”. (AGR/08, 6 ECTS), MSc in Natural Resources Management for Tropical Rural Development, University of Florence, Italy. A.Y. 2018-2022
 - **Lecturer**: Module of water harvesting and resilience (1 ECTS). Online professional training course on Water Harvesting for Microclimate Management. School of Agriculture at the University of Florence, Italy. Teaching activity in English.
 - **Lecturer**: Various classes on soil water management within the MSc Hydrology coordinated by Prof. Fernando Jaramillo at the Physical Geography Department at Stockholm University, Stockholm, Sweden. Teaching activity in English.

A synthesis of the available results of student evaluations, in the form of percentage of positive answers to the most relevant questions about teaching performance, is reported in the tables below for the course “Information Technology in Irrigation”. Full details are freely available at the following link: <https://sisvalidat.it/AT-UNIFI/AA-2024/T-0/S-101221/Z-1183/CDL-B216/C-GEN/I-B0214982YXB0214982YXN0/TAVOLA>

Information Technology in Irrigation	2023-2024	2024-2025	2025-2026
Does the teacher explain the subject clearly?	100%	100%	100%
Does the teacher stimulate / motivate interest in the subject?	100%	100%	100%
Are you generally satisfied with the course taught?	100%	100%	100%
Is the teacher available to answer questions online?	100%	100%	100%
Is the teacher helpful and comprehensive when asked for clarification?	100%	100%	100%

- **Undergraduate supervision (Bachelor + Master level):**
- **Co-supervision** of Stephen kimani, Master of Science in “Natural Resources Management for Tropical Rural Development, School of Agriculture, University of Florence, Italy, 2024-2025. Thesis title: “Understanding Shifts in Human-Water Interactions Post-Implementation of a Drip Irrigation System in Sub-Saharan Africa”.
- **Co-supervision** of Virginia Bile, Master of Science in “Natural Resources Management for Tropical Rural Development, School of Agriculture, University of Florence, Italy, 2023-2024. Thesis title: “Effectiveness of soil conservation practices in semi-arid enclosed rangelands of Northern Kenya”.
- **Co-supervision** of Chiara Salvi, Master of Science in “Scienze e Tecnologie Agrarie”, School of Agriculture, University of Florence, Italy, 2022-2023. Thesis title: “Utilizzo di fotocamere time-lapse per la comprensione dei fenomeni di trasporto di sedimenti e dinamiche di contrazione ed espansione del reticolo idrografico”.
- **Co-supervision** of Elisa Michelotti, Master of Science in “Statistics and Data Science”, School of Economics and Management, University of Florence, Italy, 2022-2023. Thesis title: “Invasi collinari in Toscana: analisi statistica per

**Other
academic
responsibilities**

una migliore ubicazione”.

- **Co-supervision** of Sara Pini, Master of Science in “Scienze e Tecnologie dei Sistemi Forestali”, School of Agriculture, University of Florence, Italy, 2022-2023. Thesis title: “Accumulo di acqua e sedimenti a monte di briglie toscane”.
- **Co-supervision** of Tobia Papini, Master of Science in “Scienze e Tecnologie Agrarie”, School of Agriculture, University of Florence, Italy, 2022-2023. Thesis title: “Migliore localizzazione degli invasi collinari toscani”.
- **Co-supervision** of Said Mowilid Abdulkadir, Master of Science in “Natural Resources Management for Tropical Rural Development”, School of Agriculture, University of Florence, Italy, 2020-2021. Thesis title: “Selection of suitable sites for sand dams in Upper Biji Catchment, Northern Somalia”.

- **Internal appointments to faculty and university boards**

- **Member** of the Department Council, Department of Agriculture, Food, Environment and Forestry (DAGRI), University of Florence, Italy, 2023-2026.
- **Member** of the Teaching Board of MSc course “Natural Resources Management for Tropical Rural Development”, School of Agriculture, University of Florence, Italy, 2023-2026
- **Member** of the Teaching Board of the bachelo’s course “Mountain Sciences” (Scienze della Montagna), University of Tuscia, Italy, 2022 – 2023.
- **Member** of the Orientation Committee, School of Agriculture, University of Florence, Italy, 2025 – 2026.
- **Member** of the University Research Unit on Inner Areas (Aree interne e marginali), University of Florence, Italy, 2024 – 2026.

- **Responsibilities for organizing conferences, seminars, exhibitions (place, duration, institute)**

- **Co-organizer** of the seminar “Le isole minori italiane come aree interne: progetti e opportunità”, December 2025, University of Florence, Florence, Italy.
- **Chair** of the session “Theories, Methods and Politics of Working with Waters and People” at the World Anthropological Union Congress, November 2025, Antigua, Guatemala. <https://www.waucongress2025.org/panel/?id=492>
- **Chair** of the session “Soil hydrology and irrigation for sustainable food production in a global climate change context”, EGU General Assembly May 2025, Vienna, Austria. <https://meetingorganizer.copernicus.org/EGU25/session/51661>
- **Organizing member** of the 4th Conference AISSA Under 40 2024, July 2024, at the University of Florence, Florence, Italy. <https://www.aisa.it/convegnoAISSAUnder40>
- **Scientific committee member** of the 6th International Research meeting on Archetype Analysis in Sustainability Research, June 2023 at Lund University, Sweden (and hybrid).
- **Organizer** of the Fourth International Research meeting on Archetype Analysis in Sustainability Research, February 2021, online conference. <https://www.agrar.hu-berlin.de/en/institut-en/departments/dao/ress-en/forneu/archetype-analysis-workshops>

Memberships Member of editorial boards

- Associate editor, Journal of Water and Climate Change: [https://iwaponline.com/jwcc/pages/Editorial Board](https://iwaponline.com/jwcc/pages/Editorial_Board)
- Guest Editor, Frontiers in Environmental Science. Special Issue “Sociohydrology in Drylands”: <https://www.frontiersin.org/research-topics/60458/sociohydrology-in-drylands>
- Guest Editor, Environmental Research Letters. Special Issue “Archetype of sustainable land use and governance”: https://iopscience.iop.org/journal/1748-9326/page/Focus_on_Archetypes_of_Sustainable_Land_Use_and_Governance

Academic Networks and Association Membership

- Invited member of the Associazione Italiana di Ingegneria Agraria (AIIA)

- Member of the Società Idrologica Italiana (SII)
- Member of the Gruppo Italiano di Idraulica (GII)
- Member of the European Geosciences Union (EGU)
- Member of the American Geoscience Union (AGU)
- Member of the International Association for the Study of the Commons (IASC)
- Member of the Global Land Programme (GLP)
- Coordinator of the Working Group “Policy tailoring for sustainable land system transformation.
- Core member of the Working Group “Archetype analysis in sustainability science” of the GLP

Research grants and scholarships

- **Summary of current research and scholarship**

Luigi Started his scientific journey at the Stockholm Resilience Centre, one of the most prestigious research hubs on resilience to climate change and sustainability science, where he built an international network on global issues related to sustainable land and water management. During the last five years Luigi was involved in several interdisciplinary research activities, which are reflected in the scientific collaborations synthesized below:

The candidate set up an international collaboration with the Swedish University of Agricultural Sciences (Uppsala, Sweden) and in particular with prof. Jennie Barron. Object of the collaboration was the study of most appropriate sustainable land and water management practices in contexts of low productivity, both globally and in specific case studies – for example in Uganda. The collaboration involved the World Overview of Conservation Approaches and Technologies (WOCAT), which is a global network on sustainable land management, which supports the implementation of UNCCD activities, and the Stockholm International Water Institute (SIWI). The candidate also spent a visiting period in 2022 to strengthen the collaboration and participate to scientific discussions, which led to various scientific publication, which support the work of WOCAT and UNCCD on spreading Sustainable land and water management. <https://www.slu.se/en/research/research-catalogue/grupper/i/Agricultural-water-management/>

The candidate has been involved in an international network of research on wetlands, involving the most influential experts in the field, including Prof. Georgia Destouni (Stockholm University, Sweden), the Bolin Centre for Climate Research, Prof. James Jawitz (University of Florida, USA), Prof. Sergey Chalov (Lomonosov Moscow State University, Russia) and many more. The work led to the development of several collaborations, including scientific articles and international project on wetlands and wetlandscapes: <https://www.su.se/english/research/research-catalogue/research-projects/3/ng-doves-disclosing-the-overlooked-wetlandscape-ecosystem-services>

The candidate set up an international interdisciplinary collaboration on socio-hydrology with the renowned, ERC Consolidator Grant winner, Prof. Giuliano Di Baldassarre (Uppsala University, Sweden), Dr. Stefano Terzi (EURAC, Bozen), the anthropologist Diego Menestrey Schwiager (University of Cologne, Germany) and the environmental historian, ERC winner. The collaboration focused on the study of socio-hydrological dynamics around the development of water infrastructure in response of a long and intense drought. The candidate spent a visiting time in Uppsala and one Barcelona to build up the high level scientific network and lead the development of an interdisciplinary study, which set the basis for a promising ongoing work. <https://www.uu.se/en/contact-and-organisation/staff?query=N14-377>

The candidate has been involved in an international collaboration with global experts on sand dams, which is a fast-spreading water infrastructure for climate change adaptation in semi-arid regions. The collaboration started in 2021 and included several universities and NGOs across Europe, North America and Africa, involved in projects and research on sand dams. The

candidate spent a visiting period at the University of Sevilla and organized workshops and collaborative works that led to 3 collaborative publications, which are the reference point for research and application on sand dams globally. <https://research.vu.nl/en/persons/jeroen-aerts/>

The candidate has been involved in an international collaboration on small agricultural water reservoirs, which are a key distributed infrastructure for sustainable water management in agricultural landscapes. The collaboration developed across several projects and with a variety of case studies, including Italy, Sweden, Spain and North Africa. <https://agwamed.eu/>, <https://www.salam-med.org/>

The candidate has been involved in an international collaboration on archetype analysis in sustainability science. The topic represents a forefront approach to map patterns of recurrent features that shape the sustainability of certain intervention across disciplines. Is a rather methodological exchange with potential application in various topics, including sustainable land and water management, biodiversity, and governance (to mention a few). The contribution of the candidate was substantial during his PhD studies and beyond, publishing some of the most references and advanced development of the concept. The candidate also organized an international workshop on the topic and became part of the core group of experts on the subject.

- **Summary of significant achievements in research and scholarship**

The study, research and collaboration sustainable land and water management, drought and socio-hydrology over the past years have concretized in recognized scientific contribution, which is providing pivotal guidance in both research and applications. In particular, the following activities were of particular influence within the scientific community, as showed by his citation metrics:

The candidate developed an innovative methodology to map potential areas of expansion of sustainable land and water management practices gaining insights from real case studies. The work led to a highly cited publication, which is widely appreciated across the WOCAT network (<https://wocat.net/en/slm/>) and within the archetype analysis scientific community. <https://www.sciencedirect.com/science/article/pii/S0959378020307044>.

A related advance in the field of archetype analysis is the publication of a pivotal methodological article in the field, which was conceived and led by the candidate. The article sets the standards for validating archetype analysis, which is now a mandatory methodological step for a rigorous archetype analysis. <https://iopscience.iop.org/article/10.1088/1748-9326/ac4f12>

The candidate led the creation of a bottom-up, global dataset on sand dam location and characteristics. This project originated from the collaboration mentioned above and involved the joint work of over 15 researchers and 3 NGOs involved in the construction of sand dams globally. The [dataset](#) the first global account of the thousands of infrastructure across drylands, providing essential information and data for future research and implementation of this technology.

The candidate developed a seminal work to explain the paradoxes of decreased resilience to drought after infrastructure development projects for reducing drought impacts. After a long and in-depth work, including fieldwork in Angola, the candidate, supported by an interdisciplinary group of co-authors, combined empirical evidence, participatory processes, anthropological literature analysis and theoretical and conceptual elaborations, which led to the publication of a scientific article in the prestigious journal Nature Climate Change (), which received great resonance across technical and general-interest media (see publications about the author). <https://www.nature.com/articles/s41558-024-01929-z>

Personal research grants and contracts

Date granted	Award Holder(s)	Funding Body	Title	Amount received
2024	Piemontese L.	University of Florence	Erasmus+ Teaching Staff (STA)	1300€
2022	Piemontese L.	University of Florence	Travel grant for presenting at the AIIA 2024 conference	400€
2022	Piemontese L.	University of Florence	Funding for a visiting position at the Swedish Agricultural University	700€
2018	Piemontese L.	Bolin Centre for Climate Research	Exploring the barriers to development of sustainable and water management in Uganda.	50000 SEK (about 5000€)
2017	Piemontese L.	Bolin Centre for Climate Research	Integrative approaches in the Ciénaga Grande wetland through scientific dialog	42620 SEK (about 4200€)
2016	Piemontese L.	Bolin Centre for Climate Research	Travel grant for oral presentation at JpGU-AGU conference in Tokyo0, Japan	15000 SEK (about 1500€)
2014	Piemontese L.	University of Genoa	Erasmus Placement grant at the Politechnical University of Madrid	1800€
2013	Piemontese L.	University of Genoa	Erasmus grant at the Universitat de Barcelona	2400€
2011	Piemontese L.	University of Rome Tor Vergata	Intensive Erasmus Program grant	1000€

Project fundings which I have contributed to

Date granted	Award Holder(s)	Funding Body	Title	Amount received
2024	Project PI Fernando Jaramillo, Stockholm University	Water4All	Disclosing the overlooked wetlandscape ecosystem services (DOWES)	126.000,00 to the University of Florence
2022	Project PI Pierpaolo Roggero, Università degli Studi di Sassari	PRIMA Program	Sustainable Approaches to LAnd and water Management in MEditerranean Drylands (SALAM-MED)	300.000,00 to the University of Florence
2021	Project PI Elena Bresci, University of Florence	EuropeAid	RE-FARM - Research on agroecological innovations for increasing resilience to climate change in Cuanza Sul and Benguela	528.000,00 to the University of Florence

Visiting appointments

- June-July 2025, **Visiting Researcher** at the Institute for the History of Science, Autonomous University of Barcelona, Spain
- July 2023, **Visiting Researcher** at the Department of Physical Geography and Geographic Regional Analysis, University of Sevilla, Sevilla, Spain
- March-April 2022, **Visiting Researcher** at the Department of Soil and Environment of the Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden.
- February-May 2017, **Visiting PhD student** at the Southeast Environmental Research Centre, Florida International University (FIU), Miami, Florida, USA.

Publications

Scientific articles in International Peer-review Journals

- Pini, S., Cassiani, G., Peruzzo, L., *Piemontese, L.*, Dani, A., Giambastiani, Y., & Preti, F. (2026) Sediment Water Storage Investigation of Check Dams Using Electrical Resistivity Tomography. *Journal of Hydrology*, volume 665, 134647, <https://doi.org/10.1016/j.jhydrol.2025.134647>
- Murgia, I., Beltrami, S., Villani, L., Vaglia, V., Alderotti, F., Angeloni, G., ... *Piemontese, L.* (2025). The challenge of science for sustainable agriculture: an Italian early career researchers' perspective. *Agroecology and Sustainable Food Systems*, 1–9. <https://doi.org/10.1080/21683565.2025.2600387>
- *Piemontese, L.*, Villani, L., Limones, N. et al. Global dataset of sand dam features and geographical distribution across drylands. *Sci Data* 12, 1929 (2025). <https://doi.org/10.1038/s41597-025-06197-w>
- Villani L., Castelli G., Forzini E., *Piemontese L.*, Lucca E., Bouizrou I., Lompi M., Bertoli G., Giuliano A., Chiarelli D.D., Theodotou Schneider X., Pacetti T., Caporali E. and Bresci E. (2025) Large dams and small reservoirs: co-modeling water storage strategies in a Mediterranean catchment under a changing climate. *Front. Water* 7:1673203. doi: [10.3389/frwa.2025.1673203](https://doi.org/10.3389/frwa.2025.1673203)
- Castelli, G., Howard, B. C., Adyel, T. M., AghaKouchak, A., Agramont, A., Aksoy, H., *Piemontese L.*, ... Ceperley, N. (2025). Co-creating water knowledge: a community perspective. *Hydrological Sciences Journal*, 70(16), 2899–2919. <https://doi.org/10.1080/02626667.2025.2571065>
- De Angeli, S., Villani, L., Castelli, G., Rusca, M., Boni, G., Bresci, E., and *Piemontese, L.* (2025) Invited perspectives: Advancing knowledge co-creation in drought impact studies, *Nat. Hazards Earth Syst. Sci.*, 25, 2571–2589, <https://doi.org/10.5194/nhess-25-2571-2025>
- Nigro M., Penna D., Baneschi I., Castelli G., Dani A., Menichini M., *Piemontese L.*, Trucchi P., Preti F., Doveri M., Giannecchini R. (2024). The selection of paired watersheds affects the assessment of wildfire hydrological impacts. 941, art. no. 173488. DOI: 10.1016/j.scitotenv.2024.173488
- *Piemontese L.*, Terzi S., Di Baldassarre G., Menestrey Schwieger D.A., Castelli G., Bresci E. (2024). Over-reliance on water infrastructure can hinder climate resilience in pastoral drylands. *Nature Climate Change*, 14 (3), pp. 267 - 274. DOI: 10.1038/s41558-024-01929-z
- Oberlack, C., Pedde, S., *Piemontese, L.*, Václavík, T. & Sietz, D. (2023). Archetypes in support of tailoring land-use policies. *Environmental Research Letters*, 18 060202. <https://doi.org/10.1088/1748-9326/acd802>
- *Piemontese, L.*, Castelli, G., Limones, N., Grazio, A., & Bresci, E. (2022). Large-scale siting of sand dams: A participatory approach and application in Angolan drylands. *Land Degradation & Development*, 1– 15. <https://doi.org/10.1002/ldr.4500>
- Forzini, E., *Piemontese, L.*, Bresci, E., Barthod, B., Bielser, Sylvestre, F.M., Adhikari, N., Pun, S., Castelli, G.; (2022), Identification of suitable sites for traditional *pokhari* water harvesting in mountain rural communities of the Himalaya. *Hydrology Research*; nh2022027. doi: <https://doi.org/10.2166/nh.2022.027>
- Jaramillo, F., *Piemontese, L.*, Berghuijs, W. R., Wang-Erlandsson, L., Greve, P., & Wang, Z. (2022). Fewer basins will follow their Budyko curves under global warming and fossil-fueled development. *Water Resources Research*, 58, <https://doi.org/10.1029/2021WR031825>
- Lorenzo Villani, Giulio Castelli, *Luigi Piemontese*, Daniele Penna, Elena Bresci, Drought risk assessment in Mediterranean agricultural watersheds: A case study in Central Italy, *Agricultural Water Management*, Volume 271, 2022, 107748, ISSN 0378-3774,

<https://doi.org/10.1016/j.agwat.2022.107748>.

- Giulio Castelli, *Luigi Piemontese*, Ruth Quinn, Jeroen Aerts, Paul Elsner, Maurits Ertsen, Stephen Hussey, Walter Leal Filho, Natalia Limones, Bongani Mpofu, Doug Graber Neufeld, Keziah Ngugi, Nobubelo N
- ya, Alison Parker, Cate Ryan, Josep de Trincheria, Lorenzo Villani, Jessica Eisma, Elena Bresci, Sand dams for sustainable water management: Challenges and future opportunities, *Science of The Total Environment*, Volume 838, Part 2, 2022, 156126, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2022.156126>.
- *Piemontese, L.*, Kamugisha, R.N., Barron, J., Tukahirwa, J.M.B., Harari, N., Jaramillo, F., 2022. Investing in sustainable intensification for smallholders: quantifying large-scale costs and benefits in Uganda. *Environ. Res. Lett.* <https://doi.org/10.1088/1748-9326/ac5ae0>
- *Piemontese, L.*, R. Neudert, C. Oberlack, S. Pedde, M. Roggero, A. Buchadas, D. A. Martin, R. Orozco, K. Pellowe, A. C. Segnon, L. Zarba, and D. Sietz. 2022. Validity and validation in archetype analysis: Practical assessment framework and guidelines. *Environmental Research Letters*.
- *Piemontese, L.*, Kamugisha, R.N., Fetzer, I., Tukahirwa, J., Tengberg, A., Pedde, S. and Jaramillo, F.: “Barriers to scaling sustainable land and water management in Uganda: a cross-scale archetype approach”. *Ecology and Society* 26, (2021).
- Bennich, T., Maneas, G., Maniatakou, S., *Piemontese, L.*, Schaffer, C., Schellens, M. and Österlin, C. (2021), Transdisciplinary research for sustainability: scoping for project potential. *International Social Science Journal*. <https://doi.org/10.1111/issj.12245>
- *Piemontese, L.*, Castelli, G., Fetzer, I., Barron, J., Liniger, H., Harare, N., Bresci, E. and Jaramillo, F.: “Estimating the global potential of water harvesting from successful case studies”. *Global Environmental Change* 63, 102121 (2020).
- Gleeson, T., Wang-Erlandsson, L., Porkka, M., Zipper, S. C., Jaramillo, F., Gerten, D., Fetzer, I., Cornell, S, *Piemontese, L.* et al (2020). Illuminating water cycle modifications and Earth system resilience in the Anthropocene. *Water Resources Research*, 56, e2019WR024957. <https://doi.org/10.1029/2019WR024957>
- Gleeson, T., Wang-Erlandsson, L., Zipper, S., Porkka, M., Jaramillo, F., Gerten, D., Fetzer, I., Cornell, S., *Piemontese, L.*, Gordon, L., Rockström, L., Oki, T., Sivapalan, M., Wada, Y., Brauman, K., Flörke, M., Bierkens, M., Lehner, B., Keys, P., Kummu, M., Wagener, T., Dadson, S., Troy, T., Steffen, W., Falkenmark M., and Famiglietti, J.: The Water Planetary Boundary: Interrogation and Revision, *One Earth*, 10.1016/j.oneear.2020.02.009, 2, 3, (223-234), (2020).
- *Piemontese, L.*, Fetzer, I., Rockström, J., Jaramillo, F., 2019. Future Hydroclimatic Impacts on Africa: Beyond the Paris Agreement. *Earths Future* 7, 748–761. <https://doi.org/10.1029/2019EF001169>
- Jaramillo, F.; Desormeaux, A.; Hedlund, J.; Jawitz, J.W.; Clerici, N.; *Piemontese, L.* et al. (2019) Priorities and Interactions of Sustainable Development Goals (SDGs) with Focus on Wetlands. *Water* 2019, 11, 619.

Conference proceedings

- *Piemontese, L.*, Bocci, C., Michelotti, E., Papini, T., Giambastiani, Y., Castelli, G., Bresci, E. and Preti, F. (2024). “Approccio Innovativo per la Localizzazione di Aree Idonee alla Realizzazione di Piccoli Invasi in Toscana.” Paper presented at the XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche - IDRA2024, Parma, Italy. <https://doi.org/10.5281/zenodo.13584918>.

- Piemontese L., Terzi S., Di Baldassarre G., Menestrey Schwieger D.A., Castelli G., Bresci E. (2024). "Il ruolo delle infrastrutture idriche nella resilienza dei pastori alla siccità estrema in zone semi aride". Convegno "La Ricerca Nel Settore Dell'idraulica Agraria, Dell'irrigazione e Delle Sistemazioni Idraulico-Forestali", *Quaderni di Idronomia Montana 37/2*, pp. 147-154.
- Pini, S., Cassiani, G., Dani, A., Giambastiani, Y., Peruzzo, L., Piemontese, L., Preti, L., "Accumulo di acqua e sedimenti a monte di briglie in Toscana". (2024). Convegno "La Ricerca Nel Settore Dell'idraulica Agraria, Dell'irrigazione e Delle Sistemazioni Idraulico-Forestali", *Quaderni di Idronomia Montana 37/2*, pp. 439-446.

Book chapters

- Fetzer, I; Piemontese, L; Rocha Gordo, J, Martín-López, B., 2021. The Routledge Handbook of Research Methods for Social-Ecological Systems, book chapter "Statistical analysis". Taylor & Francis.

Official reports

- Coordination and lead authorship of the project reports "Models of the direct impacts on food and energy sectors, human health, ecosystems" and "Cross-sectorial evaluations of drought impacts and strategies for mitigating water use conflicts and improving governance policies" of WP3, Spoke 1 of the PNRR project RETURN (project period: 2023 – 2026). <https://www.fondazionereturn.it/en/>
- Coordination and lead authorship of the report "Archetypes of Sustainable Development", from the Fourth International Research meeting on Archetype Analysis in Sustainability Research, February 2021. https://www.agrar.hu-berlin.de/de/institut/departments/daoe/ress/forneu/4th_atana_workshop_report.pdf
- Coordination and lead authorship of the report from the workshop "Le sfide prioritarie delle scienze agrarie nel contesto dell'antropocene", during the fifth AISSA Under 40 conference, June 2024, Florence. <https://www.aissaunder40.com>
- Contribution to the report "Water Harvesting Explorer: Decision Support for Climate Adaptation", commissioned by the World Bank, 2021, <https://www.acaciawater.com/en/project/water-harvesting-explorer-decision-support-for-climate-adaptation/>

Publications about the applicant

- **Radio interview** for the German national radio station Deutschlandfunk, titled "Sesshaftwerdung und Überweidung: Langfristige Effekte neuer Brunnen in Afrika" – in English and translated to German (2024): <https://www.deutschlandfunk.de/sesshaftwerdung-und-ueberweidung-langfristige-effekte-neuer-brunnen-in-afrika-dlf-c0de1e87-100.html>
- **Featured publication** of my scientific article 'Over-reliance on water infrastructure can hinder climate resilience in pastoral drylands' – featured on PreventionWeb, the knowledge sharing platform for disaster risk reduction (2024): <http://www.preventionweb.net/publication/over-reliance-water-infrac...>
- **Newspaper article about** my research activity in Angola for the newspaper Ansa – in Italian (2021): https://www.ansa.it/canale_terraegusto/notizie/mondo_agricolo/2021/09/22/ateneo-firenze-realizza-opere-per-lacqua-piovana-in-angola_25139861-b891-4dba-97c8-882aab48f2be.html
- **Newspaper article** about my research activity in Angola for the newspaper La Nazione, in Italian (2021): <https://www.lanazione.it/firenze/cronaca/unifi-agraria-angola-progetto-aiuto-popolazione--adbaed8f>
- **Video interview** by the Communication and Outreach Program of

Stockholm Resilience Centre at Stockholm University: "Life in science abroad: how to make it as a PhD student (2020): <https://www.youtube.com/watch?v=eVCrV1Ko8MQ>

Presentations at scientific conferences

Invited lectures and talks

- 07/2025 – **Invited presentation** titled "Ripensare la co-produzione della conoscenza: Riflessioni da un workshop partecipativo alla conferenza di Firenze", Conference AISSA Under 40, Università di Napoli "Federico II", Dipartimento di Agraria, Portici (NA), Italia
- 05/2024 – **Invited lecturer**, Short Course "Intercultural Science Communication: overcoming barriers for effective engagement", EGU General Assembly 2025, Vienna, Austria. Held in English.
- 08/2023 – **Invited lecturer** at the summer school "Climate Change Adaptation: Risk Assessment and Design of Interventions (CC-Adapt)" organized by The Institute for Technology and Resources Management in the Tropics and Subtropics (ITT) at Cologne University of Applied Sciences. Lecture on "Climate change adaptation measures: sand dams". Held in English.
- 01/2023 – **Invited lecturer** (incarico di docenza) commissioned by the Italian academy of Forest Science for the United Nations Industrial Development Organization Training Program on Precision Forestry for Ethiopian and Peruvian delegation. Florence - Pistoia 30 January -03 February 2023. Held in English.
- 10/2022 – **Invited Keynote Speaker** at the "3rd International and 6th National Conference on Conservation of Natural Resources & Environment", September 12-13, 2022, Ardabil, Iran. Scaling Sustainable land and water management practices nationally: A methodology and application in Uganda. Held in English.
- 07/2022 – **Invited Seminar** on "Water management and water harvesting techniques for Botanical Gardens" at the Annual meeting of the "Gruppo orti Botanici e Giardini Storici della Società Botanica Italiana", held at the botanical garden of Florence (Giardino dei Semplici), Florence, Italy.
- 09/2022 – **Invited Seminar** on "Potential, barriers and problems of scaling sustainable land and water management practices", Uppsala University, Uppsala, Sweden. Held in English.
- 05/2022 – **Invited Seminar on** "Estimating the global potential of water harvesting from successful cases" for the webinar series "Technical and Socio-ecological Tools and Approaches for RWH Mapping and Upscaling" organized by the FAO. Held in English.
- 03/2022 – **Invited Seminar** "Melhor localização em larga escala de Barragens de Areia no Namibe: Abordagem integrada combinando análise biofísica e conhecimento indígena local", FRESAN dissemination seminar, online. Held in Portuguese.

Presentation at national and international conferences

- *Piemontese, L., Castelli, G., Villani, L. and Bresci, E. Integrating Empirical Modelling and Co-Creation for Climate-Resilient Water Storage in Agriculture, Return Final Meeting, Napoli December 2025*
- *Piemontese, L. Bocci, C., Michelotti, E., Papini, T., Castelli, G., Giambastiani, Y., Dani, A., Preti, F. and Bresci, E. A statistical approach to site suitability of small agricultural reservoirs and application in Tuscany (Italy), AIIA 2025: BIOSYSTEMS ENGINEERING TOWARDS THE GREEN DEAL, 21-24 September 2025, Reggio Calabria, Italy. (oral presentation).*
- *Piemontese, L. Bocci, C., Michelotti, E., Papini, T., Castelli, G., Giambastiani, Y., Dani, A., Bresci, E., e Preti, F. Approccio innovativo per la localizzazione di aree idonee alla realizzazione di piccoli invasi in toscana. XXXIX Convegno Nazionale di Idraulica e Costruzioni Idrauliche. Parma, 15-18- settembre 2024. (Oral presentation).*
- *Piemontese, L. De Angeli, S., Castelli, G., Villani, L., Boni, G. and Bresci, E. Framing co-production in socio-hydrological modelling for drought impact assessment and mitigation". AIIA 2024: BIOSYSTEMS ENGINEERING TOWARDS THE GREEN DEAL, June 2024, Padova, Italy. (poster presentation).*

- *Piemontese, L.*, De Angeli, S., Castelli, G., Villani, L., Boni, G. and Bresci, E. Framing co-production in socio-hydrological modelling for drought impact assessment and mitigation"; European Geoscience Union (EGU), Vienna, Austria, May 2024. (poster presentation).
- *Piemontese, L.*, Terzi, S., Di Baldassarre, G., Castelli, G., Bresci E.: "Over-reliance on water infrastructure can erode resilience of drylands pastoralists". Giornate dell'Idrologia, November 2022, Genova, Italy. (oral presentation).
- *Piemontese, L.*, Limones, N., Castelli, G., Bresci E.: "Indigenous knowledge integration for large-scale siting of sand dams in Angolan drylands. AIIA 2022: BIOSYSTEMS ENGINEERING TOWARDS THE GREEN DEAL, September 2022, Palermo, Italy. (oral presentation).
- *Piemontese, L.*: "Scaling agroecology nationally: A methodology and application in Uganda. AISSA under 40, July 2022, Bozen, Italy. (oral presentation).
- *Piemontese, L.*, Castelli, G., Bresci E.: "Water harvesting interventions supporting traditional climate-resilient practices of Angolan agro-pastoralists". International workshop "pAgro-pastoral communities living with uncertainties in dryland settings", European University Institute, Firenze, Italy, 25-26 November 2021. (oral presentation).
- *Piemontese, L.*, Bresci, E.: "The water Planetary Boundaries: "Limits to water consumption". Bright night, Firenze, Italy, Sept. 2021. (oral presentation).
- *Piemontese, L.*, Castelli, G., Fetzer, I., Barron, J., Liniger, H., Harare, N., Bresci, E. and Jaramillo, F.: "Estimating the potential of water harvesting to increase crop production globally". Landcare conference and awards, Kabale, Uganda, Nov. 2019. (oral presentation).
- *Piemontese, L.*, Castelli, G., Fetzer, I., Barron, J., Liniger, H., Harare, N., Bresci, E. and Jaramillo, F.: "Estimating the potential of water harvesting to increase crop production globally". 3rd workshop on archetype analysis, Olomouc, Check Republic, Oct. 2019. (oral presentation).
- *Piemontese, L.*, Castelli, G., Fetzer, I., Barron, J., Liniger, H., Harare, N., Bresci, E. and Jaramillo, F.: "Mapping the global potential of water harvesting to increase crop production from successful case studies". Agri-4Food, Uppsala, Sweden, September 2019. (oral presentation).
- *Piemontese, L.*, Castelli, G., Fetzer, I., Barron, J., Liniger, H., Harare, N., Bresci, E. and Jaramillo, F.: "Global evidence-based out-scaling of water harvesting potential to increase crop production". Global Land Programme (GLP-OSM), Bern, Switzerland, May 2019. (oral presentation).
- *Piemontese, L.*, Fetzer, I., and Jaramillo, F.: Future hydroclimatic impact in Africa". European Geoscience Union (EGU), Vienna, Austria, May 2018. (poster presentation).
- *Piemontese, L.*, Fetzer, I., Wang-Erlandsson, L., Keys, P., Jaramillo, F. and Gordon, L.: "A conceptual framework on water-land-climate interactions for food production resilience. Resilience conference 2017, Stockholm, Sweden, August 2017. (poster presentation).
- *Piemontese, L.*, Fetzer, I., Rockström, J., Jaramillo, F.: "Future hydroclimatic impact in Africa". Joint Japanese Geoscience Union and American Geoscience Union (JpGU-AGU) conference, Chiba, Japan, May 2016. (oral presentation)
- *Piemontese, L.*, Arcorace, M.: "Flood-FINDER: An opensource tool for mapping flood risk in developing countries". Forty First Climate Outlook Forum for the Grater Horn of Africa (GHACOF41), Dar es Salaam, Tanzania, Aug. 2016. (oral presentation).

Statement of interest

My research path has developed at the intersection of agricultural hydraulics and sustainable water resource management, with a particular focus on socio-hydrological interactions and drought mitigation strategies. The expertise I have gained in studying agricultural and forest hydraulic systems – from hydrological monitoring to spatial modelling and multi-criteria evaluation of interventions – directly aligns with the aim of this position to contribute to territorial hydraulic protection and to the development of innovative mitigation strategies for Alpine

and rural contexts.

My recent activities, including a publication in Nature Climate Change on the role of hydraulic infrastructure, and my international network and experience, demonstrate my ability to combine cutting-edge research with concrete applications. This approach can enrich UniBZ's scientific profile, particularly with participatory and interdisciplinary methodologies.

In teaching, I have developed experience in delivering courses and supervising students in multicultural environments, with the ability to communicate in multiple languages and adapt content to diverse disciplinary backgrounds. This enables me to contribute effectively to degree programmes and to support the University's multilingual character.

My engagement in third mission activities – from collaboration and co-creation with local communities to public dissemination of scientific results – fits UniBZ's vision of being a reference point for the sustainable development of South Tyrol. I believe my profile can foster synergies between research, teaching, and knowledge transfer, strengthening the University's role as a bridge between academic excellence and the concrete needs of local communities.

My ambition for the near future is to build an interdisciplinary team active on various topics of agricultural and forestry hydraulics and able to complement current research across technical, engineering, and socio-economic approaches. My vision is to strengthen the core topics of my current and past research, while openly engaging in fruitful collaboration within other groups at UniBZ and beyond – for example by keep developing collaborations with researchers at the EURAC Research Centre, which I've previously collaborated with. I also plan to apply to prestigious grants, for example the ERC Starting grant, and acquire fundings to actively promote the growth and prestige of the AGR/04-A group and the whole department.

**Language
competence**

Italian – native speaker.

English – proficient user (C1) – Lived and worked in English-speaking contexts for 6 years. Obtained a MSc degree and a PhD in English as official language. Held most of the scientific presentations, seminars and talks in English over the last 10 years.

Spanish – proficient user (B2) – Taken university exams in Spanish during my Erasmus periods (Barcelona and Madrid).

Portuguese – intermediate user (B1). Performed research fieldworks (Angola), dissemination activities and scientific seminars in Portuguese.

Date 01/02/2026