

## **Dr. Prof. Juan Antonio Munizaga-Plaza**

**Occupational field:** Civil & environmental engineering, waste management, innovation, entrepreneurship, sustainability, urban mining

### **Contact**

Department of Earth and Environmental Sciences

Lehrstuhl für Geologie

Luisenstr. 37

80333 München

Germany

Room: A 230

Email: [juan.munizaga@lmu.de](mailto:juan.munizaga@lmu.de)

Webpage: <https://www.linkedin.com/in/jamunizaga/>

### **Further Information**

Juan Antonio is a postdoctoral researcher at [FutuRaM \(Future Availability of Secondary Raw Materials\)](#) at the Department of Earth and Environmental Sciences, LMU München. The Horizon Europe-funded project seeks to develop knowledge on the availability and recoverability of secondary raw materials within the European Union up to 2050, with a particular focus on critical raw materials (CRMs).

He also is an assistant professor at the School of Environment and Risk Prevention and professor of the Master Program in Environmental Management of the Faculty of Ocean Sciences at the Universidad Católica del Norte, Chile.

His research interests lie primarily in evaluating and optimizing city solid waste management systems, focusing on waste characterization, waste prevention and minimization, materials recovery, and recycling.

He received his early education in Civil Engineering at the UCN Antofagasta campus, Chile, and his Master's and PhD in Environmental Engineering from the University of Cantabria, Spain.

In parallel to his doctorate, he participated in the entrepreneurship programme (DOCE) for PhD students at The Santander International Entrepreneurship Centre. He has participated in Entrepreneurship courses at Wadhvani Foundation and Babson Fellows Program for Entrepreneurship Educators at Babson College (USA). The Luksic Scholars Foundation awarded him a scholarship for Chilean university professors.

He is the founder and coordinator of Comunidad Laboratorio (Community Lab), a collaborative and citizen science project, focused on educating the population and co-generating sustainable neighbourhoods and university campuses with greater environmental and social awareness to generate and promote sustainable development for society from a local and global perspective. The

Community lab is nowadays participating in a reforestation project in three locations under water scarcity in the Region of Coquimbo, Chile.

He currently directs the "Monitoring and evaluation for the optimization of waste management in healthcare establishments through a technological platform" project IT20110084 awarded together with researchers from UCN Coquimbo, Universidad Católica de la Santísima Concepción and Universidad Andrés Bello in the IX Contest FONDEF IDeA - Technological Research 2020 of the National Research and Development Agency of Chile with a budget of USD 581,080. This project seeks to improve healthcare waste management in the pilot hospitals of Concepción and Coquimbo to be a benchmark technological platform in Chile that transforms public system hospitals into intelligent hospitals in managing their waste on the road to sustainability, industry 4.0 and circular economy.

The Bank of Santander has awarded him the Santander Mobility International Teachers Scholarship. He did a research visit at the Institute of Water Quality and Resource Management at the Vienna University of Technology (Technische Universität Wien), Austria.

### **Publication**

- Poblete, R., Cortés, E., Munizaga-Plaza, J.A., 2022. [Carbon dioxide emission control of a vermicompost process using fly ash](#). Science of the Total Environment 803 (2022) 150069
- Munizaga-Plaza, J.A.; Lobo, A., 2013. [Domestic waste generation and its variability in communities of intermediate size](#). International Journal of Environmental Pollution, 29 (Sup. 3) 9-17, National Autonomous University of Mexico (UNAM), Mexico D.F. (Mexico), ISSN: 01884999
- Munizaga-Plaza, J.A., [Technical feasibility of a high-density landfill for the city of Antofagasta, Chile](#). International University of Andalusia, January, 2009, Sevilla, Spain, 226 p., ISBN: 978-84-7993-073-8
- Norton, E.; Munizaga-Plaza, J.A., 2007. Technical feasibility report: Mejillones sanitary landfill. Department of Civil Engineering, Universidad Católica del Norte, May, 53 p., Antofagasta, Chile

### **Conference proceedings**

- Munizaga, J. A.; Vallone, A., 2021. Linking the community for the co-creation of sustainable neighbourhoods: The case of "Community Laboratory". IX Ibero-American Symposium on Waste Engineering, REDISA 2021, September 20-24, Panama, Panama.
- Munizaga, J. A.; Fernández, L. A.; Álvarez, G.; Lobo, A., 2017. [Monitoring and evaluation of land surface temperature of landfills in arid zones through analysis of multi-temporal Landsat satellite images](#). 7th Iberoamerican Symposium on Waste Engineering, REDISA 2017, June 13-14, Santander, Spain. ISBN: 978-84-697-3824-5.
- Cuartas, M., Lobo, A.; Munizaga, J. A.; Pérez, F., 2015. [Geo-referenced tool for modelling and optimization of waste management systems](#). 6th Iberoamerican Symposium on Waste Engineering, Towards an Integrated Solid Waste Management System, REDISA 2015, November 9-11, Cartago, Costa Rica, ISBN: 978-987-1323-35-7.

- Munizaga, J. A.; Lobo, A., 2013. [Garbometer: A methodology for comprehensive evaluation of municipal solid waste management systems](#). 5th Iberoamerican Symposium on Waste Engineering, REDISA 2013, October 15-16, 2013, Mendoza, Argentina, ISBN: 978-987-1323-35-7
- Munizaga, J. A.; Lobo, A., 2013. [Garbometer: A Methodology for comprehensive evaluation of municipal solid waste management systems](#). Poster Session. ISWA World Congress, October 7-11, 2013, Vienna, Austria.
- Munizaga, J. A.; Lobo, A., 2013. Garbometer: A methodology for comprehensive evaluation of municipal solid waste management systems. Encuentros 2013: "Inspiring Innovation", Media Lab, Massachusetts Institute of Technology (MIT), June 27-29, 2013, Boston, USA.
- Munizaga, J. A.; Lobo, A., 2012. Proposal for comprehensive evaluation of municipal solid waste management systems. CONAMA 2012: 11th National Environmental Congress, Madrid, November 26-30, ISBN: 978-84-695-6377-9.
- Munizaga, J. A.; Lobo, A., 2011. Generation rate and variability in quantities of different municipal solid waste streams in communities from 10,000 to 200,000 inhabitants. Encuentros 2011: "Connecting Chilean Minds Worldwide", University of California, November 10-12, Berkeley, USA.
- Munizaga, J. A.; Lobo, A., 2011. Generation rate and variability in quantities of different municipal solid waste streams in communities from 10,000 to 200,000 inhabitants. 4th Iberoamerican Symposium on Waste Engineering, REDISA 2011, October 5-6, Mexico D.F., Mexico, 106-110, ISBN: 978-607-607-015-4.
- Munizaga, J. A.; Lobo, A., 2011. Generation rate and variability in quantities of different municipal solid waste streams in communities from 10,000 to 200,000 inhabitants. Sustainable Solid Waste Management in Eastern Europe - Prospects for the Future, May 19-20, Taras Shevchenko National University, Kiev, Ukraine.

## Education

**April 2022 – July 2022.** Research stay in the Research Unit of Waste and Resource Management at the Institute of Water Quality and Resource Management at Technische Universität Wien (TU Wien), Austria. Research in the sustainable development of neighbourhoods and improvement of the Community Lab methodology, April 1 – July 29.

**November 2019 – January 2020.** Foundational course in Entrepreneurship (Phase 3: examples and transformational leadership). Wadhvani Foundation, November 11 – January 10, Webinar

**July 2019.** Foundational course in Entrepreneurship (Phase 2: facilitation skills). Wadhvani Foundation, July 19 – 25, Santiago, Chile.

**June – July 2019.** Foundational course in Entrepreneurship (Phase 1: concepts). Wadhvani Foundation, June 24 – July 14, Webinar

**April 2019.** Symposium for Entrepreneurship educators Babson College, April 8 – 12, Wellesley, Massachusetts, USA.

**July – August 2018.** Symposium for Entrepreneurship educators. Babson College, University of Antofagasta and Banco de Chile, July 30 – August 3, Terrado Hotel, Antofagasta, Chile.

**December 2010 – February 2016.** PhD in Environmental Engineering with international mention, distinction – Cum Laude. Ministry of Foreign Affairs and Cooperation and the Spanish Agency for International Development Cooperation (MAEC – AECID) scholarship at the Group of Environmental Engineering, Department of Water and Environmental Science and Technologies, University of Cantabria, Santander, Spain.

PhD thesis research: [“Methodology for Comprehensive Evaluation of Municipal Solid Waste Management Systems”](#) applied to 18 cases in Spain.

**October 2014 – June 2015.** DOC-E (Researcher/Entrepreneur) - Entrepreneurship Program CISE - The Santander International Entrepreneurship Center at the University of Cantabria, Santander, Spain. 9-month course. Creating new business models with high added value, bringing together the research conducted at the university with the productive experience.

**October 2013 – December 2013.** Internship / Visiting PhD student. Institute of Water Quality and Resource Management at Technische Universität Wien (TU Wien), Vienna, Austria. Three-month Internship to qualify for the processing of the International Doctor Mention

**September 2012.** 1st ISWA – TU Wien Summer School on Solid Waste Management (iTool). Institute of Water Quality and Resource Management at Technische Universität Wien (TU Wien), Vienna, Austria. 2-week course. 5 ECTS. The summer school provided knowledge about analysis, evaluation, and design of sustainable waste management systems. The participants learned how to establish and use an extensive knowledgebase to support cost effective waste management decisions.

**October 2008 – September 2010.** Master’s degree in research in Environmental Engineering. Ministry of Foreign Affairs and Cooperation and the Spanish Agency for International Development Cooperation (MAEC – AECID) scholarship at the Group of Environmental Engineering, Department of Water and Environmental Science and Technologies, University of Cantabria, Santander (Spain). Two-year Degree.

Master’s thesis regarding “Design Factors for Urban Waste Management in 11 Municipalities of Cantabria, Spain”.

**March 1997 – October 2007.** Civil Engineer and Bachelor of Engineering Sciences. Department of Civil Engineering, Universidad Católica del Norte, Antofagasta, Chile.

Undergraduate thesis was developed around a “Technical feasibility of a high-density landfill for the city of Antofagasta, Chile”.

## Honours and awards

- Awarded by the international mobility scholarship from Santander Bank for professors for a research stay 2021.
- Community Lab: Co-creation of sustainable neighborhoods in the conurbation of Coquimbo and La Serena was selected in a set of 48 sustainable initiatives between 1,900 presented for the Chilean Climate Action Network 2021, competition organized by the Delegation in Chile of the European Union and the Government of Chile.
- Best Professor 2018 Awarded by the Faculty of Ocean Sciences on its 36th anniversary, UCN Coquimbo, Chile.
- Banco de Chile Fellowship for 2019 Babson's Global Symposium for Entrepreneurship Educators in Wellesley, USA.
- Banco de Chile Fellowship for 2018 Babson's Global Symposium for Entrepreneurship Educators in Antofagasta, Chile.
- 3rd place in the Santander DemoDay Contest 2015 for entrepreneurs in ICT's and waste for "Garbometer: A Tool for the Optimization of Household Waste Management Systems", October 2015, Santander, Spain.
- 1st place in the environmental category of University Entrepreneur Awards (UCem), for the "BioGreenEssential" group project to convert waste from the forest industry (eucalyptus leaves), into high added value products such as eucalyptol, used by the cosmetic industry and Pharmaceutical, July 2015, Santander, Spain.
- Lifelong Learning Program - Erasmus Scholarship for a three-month pre-doctoral stay at Technical University of Vienna (TU Wien), October - December 2013, Vienna, Austria.
- ISWA Austria travel grant to attend the 1st Summer School in Solid Waste Management ISWA - TU Wien (iTool), September 2012, Vienna, Austria.
- MAEC-AECID Scholarship 2010/2012, Ministry of Foreign Affairs and Cooperation, Spanish Agency for International Cooperation and Development for doctoral studies in Environmental Engineering, University of Cantabria, Santander, Spain.
- MAEC-AECID Scholarship 2008/2010, Ministry of Foreign Affairs and Cooperation, Spanish Agency for International Cooperation and Development, for master's studies in Research in Environmental Engineering, University of Cantabria, Santander, Spain.
- 1st place in the prize for the best Scientific work on urban solid waste treatment UNIA / Resur 2008. Universidad Internacional de Andalucía, April 2008, Baeza, Spain.