# LUMBRERAS, Julio

## PERSONAL INFORMATION

Spaniard.
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## SUMMARY

Chemical and environmental engineer. Received a PhD in Air Quality at the Technical University of Madrid (UPM) in 2003 and a master's degree at the Harvard Kennedy School (HKS) in 2017. Currently, Associate Professor at the School of Industrial Engineering (UPM). Visiting Scientist at the Harvard T.H. Chan School of Public Health. Member of NetZeroCities, the European Platform to implement the mission to deliver 100 climate-neutral and smart cities by 2030. Co-author of more than 90 papers and book chapters. Associated Editor of the journal "Health and Cities" within Frontiers in Sustainable Cities. Participated in many international workshops and conferences on urban air quality, climate change and sustainable human development, and worked on more than 50 research projects. I am passionate about making a better world through **intelligent** and radical **collaboration** between universities, governments, companies and civil society, and **engaging diverse people** in transforming processes towards **sustainability,** mainly **in cities**.

## EDUCATION AND TRAINING

- May 2017. **Master in Public Administration**. Harvard Kennedy School of Government. Harvard University.
- February 2000- July 2003. **PhD. on Air Quality**. Technical University of Madrid (UPM). *Doctor Europeus*. Award from the Institute of Industrial Engineers.
- Sept. 1993- January 2000. Six-year degree program, equivalent to combined BSc and MSc in **Chemical and Environmental Engineering**. Technical University of Madrid (UPM).

## TEACHING EXPERIENCE

- Sept 2020-today. **Visiting Scientist**. Harvard T.H. Chan School of Public Health.
  Professor of "Sustainable Cities" at the Harvard Extension School
- Sept 2017-August 2020. **Visiting Scholar**. Harvard Kennedy School of Government.
  Professor of "Sustainable Cities" at the Harvard Extension School
  Teaching fellow at "Climate Solutions Living Lab" (Prof. Wendy Jacobs), and "Leadership from the Inside Out: the personal capacity to lead and stay alive" (Prof. Ronald Heifetz).
- Aug 2010-Today. **Associate Professor Tenured**. UPM.
  Teaching "Environmental Engineering", "Air Quality", "Industrial Ecology", "Life Cycle Assessment", "Urban environment", and "Adaptive Leadership".
- Feb 2005-Aug 2010. Associate Professor Tenure Track. UPM.
  Taught "Energy and Environmental Technologies", "Air Pollution", "Sustainable Development", "Wastewater and waste treatment", and "Environment and Development".
- Feb 2004-Feb 2005. Lecturer. Universidad Carlos III de Madrid.
  Taught "Statistics" (for several bachelor and master programs).

## PUBLIC MANAGEMENT EXPERIENCE

- From June 2021. **Coordinator of the Spanish Cities Mission** (citiES 2030).
- Dec 2020-June 2021. **Vice-Rector for Academic Strategy and Internationalization**. UPM. Responsible for all the academic and international programs at UPM (around 40,000 students, and 500+ international agreements with public and private universities). Coordinator of *EELISA*, European University.
- May 2017-Dec 2020. **Director for North America**. UPM. Established strategic partnerships with nine US universities (Harvard, MIT, Cornell, UC-Berkeley, George Mason, Purdue, IIT, Smith College, and Michigan State), including research collaborations, students exchange, and partnerships with private companies.
- April 2014-May 2016. **Academic Dean** at the School of Industrial Engineering (SoII). UPM. Responsible for implementing the MSc on Industrial Engineering, including a mandatory 12 ECTS course (350 students/year) based on CDIO methodology (Conceive, Design, Implement, Operate).

- April 2011-April 2014. **Vice Dean** for Quality and Social Responsibility at the SoII. UPM. Responsible for the development and implementation of a **social responsibility strategy** in the SoII, including a biennial report using GRI framework (first High Ed institution in Spain).

**INTERNATIONAL EXPERIENCE**

- From 2020. **Harvard T.H. Chan School of Public Health (US)**. Visiting scientist sponsored by Prof. John Spengler.
- 2017-2020. **Harvard Kennedy School (US)**. Visiting scholar sponsored by Prof. William C. Clark.
- 2007. **University College London** (UK). Working with Prof. Mark Barret on energy scenarios and their influence on atmospheric pollution.
- 2005. **University of Birmingham** (UK). Working with Prof. Sotiris Vardoulakis on measuring air quality concentration levels through different analytical techniques.
- 2003. **National Environmental Technology Center** (UK). Working with Justin Goodwin on the UK emission inventory.

**PUBLICATIONS** (detailed information available in the long CV or under request)

- **Urban air quality**, including mitigation options, and risk evaluation (14 papers published, 1 book).
- **Health impacts** of urban air quality (2 papers)
- **Transport and logistics systems** (14 papers, 1 book chapter)
- **Climate Change mitigation** for cities, regions and countries (11 papers, 8 books).
- **Urban circularity and regeneration**, using Life Cycle Assessment tools for products and cities (5 papers, 2 books).
- **Urban Sustainability** (2 papers, 1 book chapter)
- Analysis and evaluation of **social impact of CDM projects** in Africa and Latin America (9 papers, 5 books).
- **Clean energy transformation**, specifically in vulnerable communities (6 papers, 1 book chapter, 2 books).
- **Partnerships for innovation** in access to basic services (1 paper, 7 books).
- **Innovation in Higher Education**. Application of new methods to improve learning (9 papers, 3 books).

**MAIN RESEARCH AND APPLIED PROJECTS** (detailed information available in the long CV or under request)

- **Net Zero Cities** (the EU Cities Mission Platform).
- **People-Driven Adapting Cities for Tomorrow** (ongoing EU LIFE project).
- **Madrid Deep demonstration**. Open and social innovation platform designed for the implementation of climate-neutral policies that imply complex **socio-technical transformations** in Madrid through **collective intelligence** (in collaboration with Madrid City Council, Ferrovial, and MIT Center for Collective Intelligence).
- **Adaptive Cities through Nature-Based Solutions** (ongoing Climate-KIC Innovation Ecosystem project) and Vegetation for Urban Green Air Quality Plans (EU LIFE project).
- **Comprehensive assessment of urban air quality and climate change in Madrid (AIRTEC)**. 4-year project funded by the Madrid region to promote mitigation options considering simultaneously air pollutant and GHG emissions.
- **Circular solutions** to reduce impacts from waste management in Madrid using Life Cycle Assessment tools. 4-year project funded by the Spanish official R&D program.
- Design, implementation and evidence-based assessment of the **Madrid Plan for Air Quality and Climate Change**, including Madrid Central and Protocol to improve air quality under episodes of high pollution.
- Model to **evaluate risks** associated with Air Pollution and Climate Change in the Iberian Peninsula (SERCA): applied research project to systemically reduce carbon emissions from main emission sectors (transport, power production, and buildings) focusing on health impacts (mortality and morbidity) and other environmental impacts (vegetation).
- Annual **atmospheric emission inventory** of Madrid (since 2012).
- Annual **energy balance** for the city of Madrid (since 2008).
- Development of a **model to estimate impacts of emission scenarios for Spain** to develop policies and measures to mitigate climate change and improve urban air quality (2002-2010).
- Model to estimate **emissions from transport systems** (EmiTrans) and during the life cycle (GlobalTrans).
- Development of a framework to **estimate the social impact of environmental projects**, mainly applied to Clean Development Mechanisms (CDM) under the Kyoto Protocol.

- Evaluation and design of policy measures to promote **clean energy transformation** in developing countries, mainly reducing gender, social, economic and environmental impacts from the use of **traditional cookstoves** (programs in Brazil, Senegal, Nicaragua, and Mexico since 2010).
- **Sustainability strategy** at UPM and HKS. Strategies to reduce emissions and promote systemic change at two universities in Spain and the US.

## OTHER RELEVANT EXPERIENCE AND REWARDS

- 2021. **Viable Cities Champion**. For the pioneering efforts in developing citiES 2030.
- 2000 - 2017. **Founder of the alumni** association at the School of Industrial Engineering, and member of the Board.
- 1999 - Today. **Engineering without borders**. Collaborator. Member of the Board from 2003 to 2007, attending periodical meetings to define activities, structure and finances of the organization.
- 2002- 2016. Advisor to the General Director for Air Quality and to the Director for Climate Change (**Ministry of Environment, Spain**).
- 2005 - Today. **Spanish Representative** for the Task Force on Integrated Assessment Modelling, under the Convention on Long Range Transboundary Air Pollution (**CLRTAP**).
- 2010 - Today. Supervisor of **13 PhD** defended and currently supervising 2 theses.
- 2010 - Today. **Associate Editor** in the Editorial Board of Cities and Health, within of Frontiers in Sustainable Cities.
- 2008 - Today. **Reviewer** for 12+ international scientific journals.
- 2008 - Today. **Evaluator** of 54 research projects at the national levels, 9 projects from the 7th European Framework Program, 2 projects from Horizon 2020, 12 projects from the MIT Portugal Program, and 1 project from the Australian Antarctic Science.
- 2009 - 2016. Responsible at FAIRMODE (Forum for AIR quality MODelling in Europe) for various **Working Groups**.
- 2013 - Today. Reviewer of 8 academic programs for the **European Accreditation Board** (EUR-ACE standard).

## PATENTS

*Developed by:* Julio Lumbreras Martín, Encarnación Rodríguez Hurtado, Rafael Borge García
*Title:* Modelo para la proyección de emisiones contaminantes del tráfico "EmiTRANS"
*Number:* Registro de utilidad M-006035/2008

## SKILLS (gained through education and experience shown above)

- **Communication skills**. Ability to structure messages to inspire the audience to take action. Data visualization skills to communicate data and complex ideas visually. Competence to convey insights and recommendations more effectively. Ability to develop narratives to communicate.
- **Organizational / managerial skills**. *Leadership* as shown with the creation of several organizations and programs, besides teaching classes and workshops on adaptive leadership. *Strategic competence* (listening skills, goal setting, creative and systems thinking) gained as member of the board of directors at UPM, alumni association, Engineering without Borders, and Yes Europe Lab. *Negotiation* skills developed as Spanish representative to TFIAM, member of the EU Cities Mission and coordinator of citiES 2030. *Planning* skills (creating and keeping deadlines, making schedules, decision making) gained as project manager (more than 30 projects) and at managerial positions within UPM. *Teamwork* competence (collaboration, delegation, group leadership) shown in the 40+ managed projects.
- **Digital skills**. Independent user for information processing. Proficient in communication. Basic user to create content. Concerned about safety, so I have installed security programs in my devices. Independent user to solve problems that arise when using digital technologies.

Should any supporting document is needed, please do not hesitate to contact me at: julio.lumbreras@upm.es

Madrid, April 2022.