

# CURRICULUM VITAE

## PERSONAL INFORMATION

FULL NAME: **Taher Kahil**

ADDRESS: **Water Security Research Group, Biodiversity and Natural Resources Program, International Institute for Applied Systems Analysis (IIASA), Schlossplatz 1, A-2361 Laxenburg, Austria**

E-MAIL: **kahil@iiasa.ac.at**

WEBSITE: [www.researchgate.net/profile/Mohamed\\_Kahil](http://www.researchgate.net/profile/Mohamed_Kahil)

## EDUCATION AND TRAINING

**2011-2015, PhD in Economics.** Department of Economic Analysis, University of Zaragoza (Spain). Mention: **Cum Laude, DOCTOR INTERNACIONAL.**

**2008-2010, Master of Science in Integrated Planning for Rural Development and Environment Management.** Mediterranean Agronomic Institute of Zaragoza-International Centre for Advanced Mediterranean Agronomic Studies (IAMZ-CIHEAM), Zaragoza (Spain). Mention: **Cum Maxima Laude.**

**2003-2008, National Agricultural Engineer (Rural and Agricultural Economics).** College of Agriculture-Mograne (ESAM), Zaghuan (Tunisia).

## WORK EXPERIENCE

**2021-present:** Research Group Leader, Water Security Research Group, Biodiversity and Natural Resources Program International Institute for Applied Systems Analysis (IIASA). Laxenburg (Austria).

**2015-2020:** Research scholar at Water Program, International Institute for Applied Systems Analysis (IIASA). Laxenburg (Austria).

**2013-2015:** Ph.D researcher (2 years full-time employment contract) at Department of Agricultural and Natural Resource Economics, Agrifood Research and Technology Center (CITA-Government of Aragon). Zaragoza (Spain).

**2011-2013:** Ph.D scholar within the program FPI-INIA (International competitive call for Ph.D grants from the Spanish Ministry of Economy and Competitiveness) at CITA. Zaragoza (Spain).

**2010-2011:** Research assistant at Department of Agricultural and Natural Resource Economics, CITA. Zaragoza (Spain).

## LANGUAGES

Mother tongue: **Arabic**

Other languages:

	<b>Understanding</b>	<b>Speaking</b>	<b>Writing</b>
<b>English</b>	Advanced	Advanced	Advanced
<b>French</b>	Advanced	Advanced	Advanced
<b>Spanish</b>	Advanced	Advanced	Advanced

## **SCHOLARSHIPS AND AWARDS**

- Extraordinary award for best Ph.D thesis in economics from the University of Zaragoza, Spain. 2017.
- Nominated for the 2012 award of the CIHEAM Best Thesis of Master.
- Scholarship from the Spanish Institute for Agricultural Research (INIA) (FPI-INIA, International competitive call for 4-years Ph.D Grants from the Spanish Ministry of Economy and Competitiveness) to undertake Ph.D studies at CITA (Zaragoza, Spain). August 2011-July 2015.
- Scholarship from IAMZ/CIHEAM for participation in the Master Program. 2008-2010.
- Award for best Diploma in Agricultural Engineering from the Ministry of Agriculture, Tunisia. 2008.
- Outstanding graduation award for best Diploma in Agricultural Engineering at the College of Agriculture (ESAM-Tunisia). 2008.

## **PARTICIPATION IN RESEARCH PROJECTS**

- Europe and Central Asia Regional Water Security Initiative: Development of an Assessment Methodology and preparation of Diagnostic reports. Role: Project coordinator, Funding Agency: World Bank. Amount: 500,000 EUR, Period: 2021-2022 (2 years).
- WaterStressAT: Climate change induced water stress – participatory modeling to identify risks and opportunities in Austrian regions. Role: WP leader, Funding Agency: Austrian Climate Research Program. Amount: 250,000 EUR, Period: 2020-2022 (2 years).
- Study on Disaster Risk Management – A macro perspective cost-benefit analysis for reducing vulnerability. Role: Project coordinator, Funding Agency: The Inter-American Development Bank. Amount: 116,700 USD, Period: 2019-2020 (1 year).
- Advancing WFaS East Africa: Scaling resilient water and agricultural systems (scaleWAYS). Role: Researcher, Funding Agency: Austrian Development Agency. Period: 2019-2021 (3 years).
- Food-water-energy for Urban Sustainable Environments (FUSE) project. Role: Researcher, Funding Agency: Belmont Forum. Period: 2018-2021 (3 years).
- Integrated Solutions for Water, Land and Energy (IS-WEL) project. Role: Researcher, Funding Agency: Global Environmental Facility (GEF) and United Nations Industrial Development Organization (UNIDO). Period: 2016-2019 (3 years).
- Irrigation water management under scarcity, droughts and climate change. Role: Researcher, Funding Agency: Spanish Institute for Agricultural Research (INIA). Period: 2015-2017 (3 years).
- Sustainable water management under scarcity, droughts and climate change. Role: Researcher, Funding Agency: MAPFRE Foundation. Period: 2014 (1 year).
- Environmental and economic effects of land and water use in the agricultural sector (NATAG). Role: Researcher, Funding Agency: Spanish Institute for Agricultural Research (INIA). Period: 2010-2013 (3 years).

- Economic and environmental analysis of land use for the design of climate change adaptation and mitigation policies. Role: Researcher, Funding Agency: Government of Aragon and La Caixa Bank. Period: 2010-2012 (2 years).

## **RESEARCH STAYS**

**From 1 March to 31 May 2015 (13 weeks):** Research stay at the Department of Agricultural Economics and Agricultural Business, New Mexico State University, New Mexico (USA). Supervisor: Dr. Frank A. Ward. Purpose of the stay: Economic and environmental analysis of groundwater use and river-aquifer interaction in the Jucar Basin using the groundwater flow model MODFLOW and hydro-economic modeling techniques.

**From 23 July to 24 October 2014 (13 weeks):** Research stay at the Ecosystem Sciences Division of the CSIRO Land and Water Flagship, Commonwealth Scientific and Industrial Research Organization (CSIRO), Adelaide (Australia). Supervisor: Dr. Jeffery D. Connor. Purpose of the stay: Analysis of water management policies (water markets and subsidies for efficient irrigation systems) for irrigation adaptation to climate change using stochastic programming modeling.

**From 1 March to 31 May 2013 (13 weeks):** Research stay at the Water Science and Policy Center (WSPC), Department of Environmental Sciences, University of California, Riverside (USA). Supervisor: Dr. Ariel Dinar. Purpose of the stay: Elaboration of two papers on hydro-economic modeling of the Jucar Basin and on game theory application to water management problems.

## **PUBLICATIONS**

### **Book chapters**

[6] Albiac J., **T. Kahil** and E. Esteban (2020). Engineered Rivers in Spain: the case of the Jucar Basin. In Schmandt J., J. North, G. Ward and A. Kibaroglu (Eds), *Sustainability of Engineered Rivers in Arid Lands: Challenge and Response*. Cambridge University Press (Forthcoming)

[5] Buckle S., M. Mirabile, A. Aguilar, E. Lanzi, S. Guerrero, R. Dellink, W. Symes A. Elgouacem, B. Henderson, van Ruijven, U. Dieckmann, P. Havlik, **T. Kahil**, et al. (2020). Integrated policies for climate, air, ecosystems, energy and transport. In Hynes W., M. Lees and J.M. Muller (Eds), *Systemic Thinking for Policy Making: The Potential of Systems Analysis for Addressing Global Policy Challenges in the 21<sup>st</sup> Century*. New Approaches to Economic Challenges, OECD Publishing, Paris.

[4] Karousakis K., G. Gruere, J. Chateau, M. Adenauer, S. Guerrero, P. Havlik, U. Dieckmann, **T. Kahil**, et al. (2020). A concerted approach to biodiversity, water, food and trade. In Hynes W., M. Lees and J.M. Muller (Eds), *Systemic Thinking for Policy Making: The Potential of Systems Analysis for Addressing Global Policy Challenges in the 21<sup>st</sup> Century*. New Approaches to Economic Challenges, OECD Publishing, Paris.

[3] Albiac J., **T. Kahil**, A. Dinar and J. Tapia (2016). Cambio climático y mercados de agua. In Gomez-Limon J. and J. Calatrava (Eds), *Los Mercados de Agua en España: Presente y Perspectivas* (In Spanish). Cajamar Caja Rural. February 2016.

[2] Albiac J., A. Dinar, **T. Kahil** and E. Esteban (2015). The debate on sustainable water management: Evidence from drought in the Jucar Basin. In Andreu J., A. Solera, J. Paredes, D. Haro and H. Van Lanen (Eds), *Drought: Research and Science-Policy Interfacing*. CRC Press. March 2015.

[1] Albiac J., **T. Kahil** and E. Esteban (2013). Agricultura y cambio climático. In Gomez-Limon J. and E. Reig (Eds), *La Sostenibilidad de la Agricultura Española* (In Spanish). Cajamar Caja Rural.

August 2013.

### **Papers in Refereed Journals**

- [26] Tramberend S., R. Burtsher, P. Burek, **T. Kahil**, et al. (2020). Co-development of East African regional water scenarios for 2050. *One Earth* 4(3): 434-447.
- [25] Baccour S., J. Albiac J., **T. Kahil** (2021). Cost-effective mitigation of greenhouse gas emissions in the agriculture of Aragon, Spain. *International Journal of Environmental Research and Public Health* 18(3): 1-19.
- [24] Albiac J., E. Calvo, **T. Kahil**, E. Esteban (2020). The challenge of irrigation water pricing in the Water Framework Directive. *Water Alternatives* 13(3): 674-690. Special issue: WFD + 20: Assessing the European Water Framework Directive.
- [23] Burek P., Y. Satoh, **T. Kahil**, et al. (2020). Development of the Community Water Model (CWatM v1.04): A high-resolution hydrological model for global and regional assessment of integrated water resources management. *Geoscientific Model Development* 13: 3267-3298.
- [22] Stokal M., **T. Kahil**, Y. Wada, J. Albiac et al. (2020). Cost-effective management of coastal eutrophication: A case study for the Yangtze river basin. *Resources, Conservation & Recycling* 154: 104635.
- [21] **Kahil T.**, J. Albiac, G. Fischer et al. (2019). A nexus modeling framework for assessing water scarcity solutions. *Current Opinion in Environmental Sustainability* 40: 72-80.
- [20] Li A., C. Kroeze, **T. Kahil**, et al. (2019). Water pollution from food production: lessons for optimistic and optimal solutions. *Current Opinion in Environmental Sustainability* 40: 88-94.
- [19] Ortiz-Partida J.P., **T. Kahil**, T. Ermolieva, et al (2019). A two-stage stochastic optimization for robust operation of multipurpose reservoirs. *Water Resources Management* 33 (11): 3815-3830.
- [18] Crespo D., J. Albiac, **T. Kahil**, et al. Trade-offs between water uses and environmental flows: A hydro-economic analysis in the Ebro basin. *Water Resources Management* 33 (7): 2301-2317.
- [17] Yermoliev Y., T. Ermolieva, **T. Kahil**, et al. (2019). stochastic optimization models for risk-based reservoir management. *Cybernetics and Systems Analysis* 55(1): 55:64.
- [16] Parkinson S., V. Krey, D. Huppmann, **T. Kahil**, et al. (2019). Balancing clean water-climate change mitigation trade-offs. *Environmental Research Letters* 14, 014009.
- [15] Chebil A., **T. Kahil**, B. Oueslati (2018). Policy measures for reducing aquifer depletion in a context of climate change: the case of the coastal area of Cap-Bon (Tunisia). *New Medit* 17(4).
- [14] **Kahil, T.**, S. Parkinson, Y. Satoh, et al. (2018). A Continental-Scale Hydroeconomic Model for Integrating Water-Energy-Land Nexus Solutions. *Water Resources Research* 54(10): 7511-7533.
- [13] Greve, P., **T. Kahil**, J. Mochizuki, et al. (2018). Global assessment of water challenges under uncertainty in water scarcity projections. *Nature Sustainability* 1(9): 486-494.
- [12] Byers, E., M. Gidden, D. Leclere, J. Balkovic, P. Burek, K. Ebi, P. Greve, D. Grey, P. Havlik, A. Hillers, N. Johnson, **T. Kahil**, et al. (2018). Global exposure and vulnerability to multi-sector development and climate change hotspots. *Environmental Research Letters* 13(5).

- [11] Crespo D., J. Albiac, **T. Kahil**, E. Esteban (2018). Análisis de la asignación sectorial y espacial del agua en la Cuenca del Ebro: impactos de la escasez y las sequías. *Revista Española de Estudios Agrosociales y Pesqueros* (In Spanish) 250: 127-159.
- [10] Satoh Y., **T. Kahil**, E. Byers et al. (2017). Multi-model and multi-scenario assessments of Asian water futures: The Water Futures and Solutions (WFaS) initiative. *Earth's Future* 5.
- [9] Albiac J., **T. Kahil**, E. Notivol and E. Calvo (2017). Agriculture and climate change: Potential for mitigation in Spain. *Science of the Total Environment* 592: 495-502.
- [8] **Kahil T.**, F. Ward, J. Albiac, J. Eggleston and D. Sanz (2016). Hydro-economic modeling with aquifer-river interactions to guide sustainable basin management. *Journal of Hydrology* 539: 510-524.
- [7] **Kahil T.**, J. Albiac, A. Dinar, E. Clavo, E. Esteban, L. Avella and M. Gracia-Molla (2016). El debate sobre las políticas de agua: evidencia empírica de la sequía en el Júcar. *Revista Española de Estudios Agrosociales y Pesqueros* (In Spanish) 243:115-144.
- [6] **Kahil T.**, J. Albiac, A. Dinar, E. Clavo, E. Esteban, L. Avella and M. Gracia-Molla (2016). Improving the performance of water policies: Evidence from drought in Spain. *Water* 8, 34.
- [5] **Kahil T.**, A. Dinar and J. Albiac (2016). Cooperative water management and ecosystem protection under scarcity and drought in arid and semiarid regions. *Water Resources and Economics*. 13: 60-74. Special issue: Contributions to the International Water Resource Economics Consortium 11<sup>th</sup> Annual Meeting.
- [4] **Kahil T.**, J. Connor and J. Albiac (2015). Efficient water management policies for irrigation adaptation to climate change in Southern Europe. *Ecological Economics* 120: 226-233.
- [3] **Kahil T.**, A. Dinar and J. Albiac (2015). Modeling water scarcity and droughts for policy adaptation to climate change in arid and semiarid regions. *Journal of Hydrology* 522: 95-109.
- [2] **Kahil T.** and J. Albiac (2013). Greenhouse gases mitigation policies in the agriculture of Aragon-Spain. *Bio-based and Applied Economics* 2(1): 49-72.
- [1] **Kahil T.** and J. Albiac (2012). Instrumentos de política de cambio climático en la agricultura de Aragón. *Revista Española de Estudios Agrosociales y Pesqueros* (In Spanish) 233(3):13-42.

### **Policy Publications**

- [9] de Souza M., S. Koo-Oshima, **T. Kahil**, Y. Wada, et al. (2021). Food and agriculture. In *The United Nations World Water Development Report 2021: Valuing Water*. WWAP/UN-Water. March 2021.
- [8] Willaarts B., A. Palazzo, **T. Kahil**, et al. (2021). Sustainable development pathways to water, food, and energy security in the Zambezi basin. IIASA Policy Brief #27. February 2021.
- [7] Tramberend S., R. Burtscher, P. Burek, **T. Kahil**, et al. (2019). East Africa water scenarios to 2050. IIASA. Laxenburg, Austria.
- [6] Albiac J., A. Dinar, E. Esteban, **T. Kahil** (2018). The role of policies in managing scarce water resources. Scientia: Earth and Environment. [www.scientia.global](http://www.scientia.global)
- [5] Albiac J., **Kahil T.**, E. Notivol and E. Calvo (2017). Agricultura y cambio climático: el potencial de mitigación del sector agrario en España. Blog of REMEDIA. <https://redremedia.wordpress.com/2017/04/25/articulo-agricultura-y-cambio-climatico-el-potencial-de-mitigacion-del-sector-agrario-en-espana/>
- [4] Wiberg D., Satoh Y., Burek P., Fischer G., Tramberend S., **Kahil T.**, et al. (2017). Water Futures and Solutions: Asia 2050 (Final Report). Knowledge and Innovation Support for the Water

Financing Program of the Asian Development Bank (RETA 6498). IIASA, Laxenburg, Austria

[3] **Kahil T.** (2016). Better water, better jobs. Blog of IIASA. <https://blog.iiasa.ac.at/2016/03/22/better-water-better-jobs/>

[2] **Kahil T.**, A. Dinar and J. Albiac (2015). Water management and cooperation under climate change. *Global Water Forum (Economics, Governance)*. November 22, 2015.

[1] **Kahil T.** and J. Albiac (2014). Climate change and water management in the Ebro Basin. *Global Water Forum (Water Security)*. September 30, 2014.

## PARTICIPATION IN CONFERENCES

Full list of abstracts submitted to conferences is available at:

<https://iiasa.ac.at/web/home/research/researchPrograms/water/staff/Kahil.html>

[17] **Kahil T.** Transformation within reach: Resilient food systems. Keynote speaker at the Side event of the International Borlaug Dialogue 2020. October 2020.

[16] **Kahil T.** An integrated modeling framework for assessing the economics of groundwater sustainability: Application to the Zambezi transboundary river basin. AGU Chapman Conference: Quest for Sustainability of Heavily Stressed Aquifers at Regional to Global Scales. Valencia (Spain). 21-24 October 2019.

[15] **Kahil T.** Economic costs of reduced water availability under climate change: Application of IIASA global hydro-economic modeling framework. Impacts World 2017. Potsdam (Germany). 11-13 October 2017.

[14] **Kahil T.**, J. Albiac. Efficient water management policies for irrigation adaptation to climate change in Southern Europe. 23<sup>rd</sup> Annual Conference of the European Association of Environmental and Resource Economists. Athens (Greece). 28 June-1 July 2017.

[13] **Kahil T.**, S. Parkinson, P. Burek et al. Economic costs of reducing unsustainable groundwater use: Application of IIASA global hydro-economic modeling framework. JpGU-AGU Joint Meeting 2017. Tokyo (Japan). 20-25 May 2017.

[12] **Kahil T.**, F. Ward, J. Albiac, J. Eggleston and D. Sanz. Modeling the surface-groundwater interface for sustainable basin management. 22<sup>nd</sup> Annual Conference of the European Association of Environmental and Resource Economists. Zurich (Switzerland). 22-25 June 2016.

[11] **Kahil T.**, F. Ward, J. Albiac, J. Eggleston and D. Sanz. Hydro-economic modeling of conjunctive ground and surface water use to guide sustainable basin management. European Geosciences Union (EGU) meeting. Vienna (Austria). 17-22 April 2016.

[10] **Kahil T.**, J. Connor and J. Albiac, A stochastic model of irrigation adaptation to climate change in Southern Europe. Paper to be presented at the 21<sup>st</sup> Annual Conference of the European Association of Environmental and Resource Economists (EAERE). Helsinki (Finland). 24-27 June 2015.

[9] **Kahil T.**, Hydro-economic modeling of climate change adaptation possibilities in the Jucar Basin of Spain. Paper presented at the Lunch-time talks of the South Australian Branch of the Australian Agricultural and Resource Economics Society (AARES). Adelaide (Australia). 16 October 2014.

[8] **Kahil T.**, Cooperative arrangements for water sharing and ecosystem protection under scarcity and drought: application to the Jucar Basin, Spain. Paper presented at a seminar in the Department of Economics of Monash University. Melbourne (Australia). 25 August 2014.

[7] **Kahil T.**, A. Dinar, J. Albiac, Efficient water management policies for climate change adaptation

in the Jucar Basin, Spain. Paper presented at the 11<sup>th</sup> meeting of the International Water Resource Economics Consortium. World Bank. Washington DC (USA). 7-9 September 2014.

[6] **Kahil, T.**, A. Dinar and J. Albiac, Cooperative arrangements for water sharing and ecosystem protection under scarcity and drought with application to the Jucar Basin, Spain. Paper presented at the 5<sup>th</sup> World Congress of Environmental and Resource Economists. Istanbul (Turkey). 28 June-2 July 2014.

[5] **Kahil, T.**, A. Dinar and J. Albiac, Modeling water scarcity and droughts to analyze climate change adaptation policies in the Jucar Basin, Spain. Paper presented at the 5<sup>th</sup> World Congress of Environmental and Resource Economists. Istanbul (Turkey). 28 June-2 July 2014.

[4] **Kahil T.**, J. Tapia, E. Notivol and J. Albiac, GHG mitigation measures in the agriculture and forestry sectors of Aragon. Paper presented at the Second Workshop on Mitigation of GHG Emissions from the Spanish Agroforestry Sector (REMEDIA). Zaragoza (Spain). March 2013.

[3] **Kahil T.**, J. Tapia, F. Orús and J. Albiac, Evaluation of climate change mitigation policies in agriculture. Paper presented at the First Workshop on Mitigation of GHG Emissions from the Spanish Agroforestry Sector (REMEDIA). Bilbao (Spain). March 2012.

[2] **Kahil T.** and J. Albiac, Analysis of climate change mitigation and adaptation instruments: application to the agriculture of Aragon. Paper presented at the VIII Spanish Conference of Agricultural Economics. Madrid (Spain). September 2011.

[1] **Kahil T.** and J. Albiac, Climate change mitigation and adaptation measures in the agriculture of Aragon. Paper presented at the Conference of Agriculture, Water and Energy. Madrid (Spain). May 2011.

## **TEACHING AND ADVISING**

### **Teaching**

Course on hydro-economic modeling and optimization. UNESCO Open Water Symposium 2019. Rabat (Morocco). 28-31 October 2019. <https://en.unesco.org/events/open-water-symposium>

Course on General Algebraic Modeling System (GAMS). University of Cordoba. Corboda (Spain). 10-11 September 2020.

### **Advising Ph.D. students**

Daniel Crespo, University of Zaragoza (Spain), “Hydro-economic modeling of the Ebro basin”. Visitor at IIASA from 1 September-30 November 2020.

Paul Ruess, Department of Civil and Environmental Engineering, University of Illinois at Urbana Champaign (USA), “Understanding the impact of international trade on local water and food resources”. YSSP at IIASA from 1 June-31 August 2019.

Xiaoyu Liu, College of Environmental Sciences and Engineering, Peking University (China), “Modelling water-energy-economy nexus at the provincial scale across China”. YSSP at IIASA from 1 June-31 August 2018.

Miguel Angel Almazan, Dept. of Economic Analysis, University of Zaragoza (Spain), “Linking hydro-economic and CGE models for water policy analysis”. Visitor at IIASA from 1 September-30 November 2017.

Lukas Tuma, Dept. of Sustainable Technologies, Czech University of Life Sciences (Czech Republic), “Water management under scarcity and drought”. Visitor at IIASA from 1 May-30 September 2017.

Jose Pablo Ortiz Partida, Dept. of Land, Air, and Water Resources, University of California Davis (USA), “Robust management of multipurpose reservoirs under uncertainty”. YSSP at IIASA from 1 June-31 August 2017. YSSP report obtained Mikhalevich Award for outstanding methodological contribution to systems analysis.

Tonje Grahn, Dept. of Environmental Sciences, Karlstad University (Sweden), “Assessment of Residential Flood Damage Functions to Guide Policy Choices”. YSSP at IIASA from 1 June-31 August 2016.

#### **Advising master students**

Safa Baccour, Mediterranean Agronomic Institute of Zaragoza (CIHEAM-Spain), “Mitigation of GHG emission in agriculture”. Master thesis, from 1 September 2017-30 June 2018.

## **SERVICES**

**Associate editor:** section on Water and Human Systems, Journal *Frontiers in Water* (Frontiers)

**Topic editor:** *International Journal of Environmental Research and Public Health* (MDPI)

**Guest editor:** Special Issue on advances in hydro-economic modeling for sustainable basin management in a context of climate change. Journal *Water Economics and Policy* (World Scientific)

#### **Journal reviews**

Agricultural Systems, Journal of Cleaner Production, Environmental Planning and Management, Strategic Behavior and the Environment, Sustainability, Journal of Hydrology, International Journal of Water Resources Development, ITEA, Climate Change Economics, Water Policy, Journal of Environmental Management, Water Resources and Economics, Resources, Conservation & Recycling, Water Resources Management, Water Alternatives

#### **Professional memberships**

Member of the European Geosciences Union since 2016.

Member of the European Association of Environmental and Resource Economists since 2014.

Member of the Spanish Association of Agricultural Economics since 2011.