

## CURRICULUM VITAE

Ali Kerem Saysel, Ph.D., Professor.

Boğaziçi University, Institute of Environmental Sciences

web.boun.edu.tr/ali.saysel; [iesc.boun.edu.tr](http://iesc.boun.edu.tr); [sesdyn.ie.boun.edu.tr](http://sesdyn.ie.boun.edu.tr)

Boğaziçi University, 34342 Bebek İstanbul

tel: +90 212 3597252; fax: +90 212 2575033

[ali.saysel@boun.edu.tr](mailto:ali.saysel@boun.edu.tr)

### I. SHORT BIO

BS in Industrial Engineering (Bogazici University, 1990), MS and PhD in Environmental Sciences and Technology (Bogazici University 1993 and 1999). An interdisciplinary scholar on social-ecological resilience and sustainability transformations. Specialist in the field of System Dynamics for modeling and simulation of dynamically complex problems. Practicing systems thinking, dynamic modeling, simulation, interactive gaming and participatory processes for resource management, policy design and building foresight on sustainable futures. A particular focus is the food-water-energy-ecosystems nexus, e.g. irrigation schemes, agricultural systems, and climate change mitigation and adaptation.

A member of the International System Dynamics Society and an associate editor of the System Dynamics Review (2016-). Member of the IPBES Task Force on Scenarios and Models (2019-22). Apart from system dynamics, affiliated with the fields of ecological economics and political ecology.

Over the last past five years, he led the creation of the graduate program track on Socio-ecological Sustainability in the Institute of Environmental Sciences of Boğaziçi University, during his service as the Environmental Sciences Division Head (2016-19). He acted as a lead author of the IPBES Global Assessment on Biodiversity and Ecosystem Services (2019).

Current research involves:

Innovative and Sustainable Groundwater Management in the Mediterranean. Principal investigator. **PRIMA – Partnership for Research and Innovation in the Med Area (2020-23)** with seven Mediterranean Partners;

Soil salinity and sodicity management by sustainable irrigation practices in Konya Plain, Turkey. WP3 Leader. Principal investigators: N. Coptý and M. Babaei, **Newton Institutional Link Grand between UK and Turkey (2019-21)**;

Systems Analysis MOOCs for Sustainability Transformation, **Erasmus+ Strategic Partnership for Higher Education KA203 (2020-23)**, Coordinator: UiB, Erling Moxnes, with six European partners.

Multiplayer Simulation Gaming for Sustainable Groundwater Irrigation. Principle Investigator. **Boğaziçi University Research Fund (2021-22)**

## II. EDUCATION

- Ph. D. 1999. Institute of Environmental Sciences, Boğaziçi University, Turkey  
Thesis: Dynamic Simulation Model for Long Term Comprehensive Environmental Analysis of GAP.
- M.S. 1993. Institute of Environmental Sciences, Boğaziçi University, Turkey  
Thesis: Time Series Analysis for Urban Heat Island Effect in Istanbul (1950-90).
- B.S. 1990. Industrial Engineering Department, Boğaziçi University, Turkey

## III. PAST POSITIONS AND RESEARCH POSTS

- Professor (since 2014), Institute of Environmental Sciences, Boğaziçi University, Turkey.
- Visiting Associate Professor (2019-20), University of Bergen, Department of Geography - System Dynamics Group, Bergen, Norway.
- Visiting Scholar (2014-15), Worcester Polytechnic Institute, Department of Social Science and Policy Studies, MA, USA.
- Associate Professor (2004-2014), Institute of Environmental Sciences, Boğaziçi University, Turkey.
- Associate Professor (2001-2004), University of Bergen, Department of Information Science - System Dynamics Group, Bergen, Norway.
- Postdoctoral Research Associate (2000), New University of Lisbon, Faculty of Science and Technology, Environmental Systems Analysis Group, Lisbon, Portugal.
- Research Assistant (1991-1999), Institute of Environmental Sciences, Boğaziçi University, Turkey.

## IV. PUBLICATIONS

### IV.1. In Peer Reviewed International Journals

- Ciobanu N., A. K. Saysel. 2021. Using social ecological inventory and group model building for resilience assessment to climate change in a network governance setting: A case study from Ikel Watershed in Moldova. *Environment, Development and Sustainability*. V. 23 (1), pp. 1065-85
- Chan, K. M. A., D. R. Boyd, R. K. Gould, J. Jetzkowitz, J. Liu, B. Muraca, ... A. K. Saysel ... E. S. Brondizio. 2020. Levers and Leverage Points for Pathways to Sustainability, *People and Nature*. V. 23 (1), pp. 1065-85
- Yazar M, D. Hestad, D. Mangalagiu, Y. Ma, T. F. Thornton, A. K. Saysel, D. Zhu. 2020. Enabling Environments for Regime Destabilization towards Sustainable Urban Transitions in Megacities: Comparing Shanghai and Istanbul. *Climatic Change*. V. 160 (4), pp. 727-752.
- Thornton T. F., D. Mangalagiu, Y. Ma, J. Lan, M. Yazar, A. K. Saysel, A. Chaar. 2020. Cultural models of and for urban sustainability: assessing beliefs about Green-Win. *Climatic Change*. V. 160 (4), pp. 521-537.
- Yazar M., D. Hestad, D. Mangalagiu, A. K. Saysel, Y. Ma, T. Thornton. 2020. From urban sustainability transformations to green gentrification: Urban renewal in Gaziosmanpaşa, Istanbul. *Climatic Change*. V. 160 (4), pp. 637-653.

- Doğança Z., A. K. Saysel. 2018. Developing Seventh Graders' Understanding of Complex Environmental Problems with Systems Tools and Representations: A Quasi-Experimental Study, *Research in Science Education*. V. 48, pp. 491-514
- Saysel, A. K. 2017. Role of Information Feedback in Soil Nitrogen Management: Results from a Dynamic Simulation Game, *Systems Research and Behavioural Science*, special issue in System Dynamics. V. 34, pp. 424-439
- Öztürk, M., N. Coptu, A. K. Saysel. 2013. Modelling the Impact of Land Use Change on the Hydrology of a Rural Watershed, *Journal of Hydrology*, V. 497, pp. 97-109
- Saysel, A. K., M. Hekimoğlu. 2013. Exploring the Options for Carbon Dioxide Mitigation in Turkish Electric Power Industry, *Energy Policy*, V. 60, pp. 675-686
- Moxnes, E., A. K. Saysel. 2009. Misperceptions of Global Climate Change: Information Policies, *Climatic Change*, 93: 15-37
- Saysel, A. K., Y. Barlas. 2006. Model Simplification and Validation: Illustration with Indirect Structure Validity Tests, *System Dynamics Review*, V. 22. No: 3, pp. 241-262
- Castillo, D., A. K. Saysel. 2005. Simulation of Common Pool Resource Field Experiments: A Behavioural Model of Collective Action, *Ecological Economics*, V.55, pp. 420-236
- Saysel, A. K., Y. Barlas, O. Yenigun. 2002. Long Term Sustainability in an Agricultural Development Project: A System Dynamics Approach, *Journal of Environmental Management*, V. 64. No: 247, pp. 247-260
- Saysel, A. K., Y. Barlas. 2001. A Dynamic Model of Salinization on Irrigated Lands, *Ecological Modelling*, V. 139. No: 2-3, pp. 177-199

#### **IV.2. In Peer Edited International Volumes**

- Feola G., C. Sattler and A. K. Saysel. 2012. Simulation Modeling in Farming Systems Research: Potential and Challenges, in *The Farming Systems Approach into the 21st Century: The New Dynamic*, (ed. I. Darnhofer, D. Gibbon, B. Dedieu), Elsevier Science.
- Saysel A. K. 2010. Agriculture in Turkey Towards a New Climatic Era: Prospects and Challenges, in *Rethinking Structural Reform in Turkish Agriculture: Beyond the World Bank's Strategy*, (ed. Barış Karapınar, Fikret Adaman and Gökhan Özertan), Nova Science Publishers.
- Saysel A. K. 2004. Irrigation Projects, Agricultural Dynamics and the Environment, in *Encyclopedia of Life Support Systems (EOLSS)*, System Dynamics Chapter (ed. Yaman Barlas), UNESCO Publishing, Paris-Oxford.

#### **IV.3. In Peer Reviewed National Journals**

- Sansarcı E., A. A. Aşıcı, A. K. Saysel. 2014. System Dynamics Model of the Original Philips Curve, *Düzce Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, V. 2, pp. 25-44.
- Doğança Z., A. K. Saysel. 2013. Yedinci Sınıf İnsan ve Çevre Ünitesine Eleştirel Bir Yakşalım: Dinamik ve Karmaşık Çevre Problemlerinin Öğretilmesi, *Boğaziçi Üniversitesi Eğitim Fakültesi Dergisi*. V. 30, pp. 87-106.

#### **IV.4. Selected Work in Proceedings (the last ten years)**

- Saysel A.K. and Ciobanu N. System Dynamics Approach to Resilience and its Use for Sustainability and Vulnerability Analysis. *3. International Disaster and Resilience Congress*, 5-7 October 2021
- Uygur I., I. Daloğlu-Çetinkaya, A. K. Saysel. Groundwater Governance in Çumra-Karapınar: From Community management to an Open Access Regime. *8. KOP Regional Development Symposium*, 26-8 October 2021.
- Seifeddine J, R. Reinecke, N. Ben-Salem, R. C. G. Silva, E. Varouchakis, .... A. K. Saysel, ... and J. J. Gómez-Hernández. Multidisciplinary joint-force efforts towards science-based management in the Mediterranean region: A particular focus on transboundary aquifers, *ISARM 2021 - International Conference on Transboundary Aquifers "Challenges and The way forward"* December 6-9, 2021.
- Tunca M. C., A. K. Saysel, M. Babaei, G. Erpul. A Dynamic Simulation Approach to Soil Salinity and Sodicity Control, *EGU General Assembly*, 19-30 April 2021.
- Akar E., A. K. Saysel. Occupational Safety Dynamics in Onshore LNG Receiving Terminals. *The 2020 Conference of the System Dynamics Society*, Virtually in Bergen, Norway, July 19-24, Norway
- Bal E., A. K. Saysel. Groundwater Appropriation Game: A Dynamic Simulation Approach. *The 2020 Conference of the System Dynamics Society*, Virtually in Bergen, Norway, July 19-24, Norway
- Ciobanu N., A. K. Saysel. Group Model Building For Socio-Ecological Resilience Analysis: A Case Study From Ikel Watershed In The Republic Of Moldova. *Thirty-sixth System Dynamics Conference*, Reykjavik, Iceland, August 6-10, 2018.
- Mirhanoğlu A., A. K. Saysel. Sustainable Groundwater Irrigation in Mardin Kızıltepe Plains of Southeast Turkey. *Thirty-sixth System Dynamics Conference*, Reykjavik, Iceland, August 6-10, 2018.
- Saysel, A. K. Living Within the Planetary Capacity: A Dynamic Feedback Approach, *Thirty-third System Dynamics Conference*, Cambridge, MA, July 19-23, 2015.
- Saysel, A. K. Analyzing Soil Nutrient Management with Dynamic Simulation Experiments, *Thirty-second System Dynamics Conference*, Delft, Netherlands, July 20-24, 2014.
- Saysel A. K., S. Kaptan. Analyzing Fertilizer Use on Farmlands with Computer Simulation Experiments, *9th International Conference of the European Society for Ecological Economics*, 18-21 June 2013, Lille, France.
- Doğança Z., A. K. Saysel. An Interview Protocol for Assessing Students' Understanding of Dynamically Complex Environmental Problems, *Thirtieth International System Dynamics Conference*, St. Gallen, Switzerland, July 22-26, 2012.
- Doğança Z., A. K. Saysel. Teaching Dynamic Ecological Issues with System Based Approach, *9th International Conference of the European Society for Ecological Economics*, 14-17 June 2011, Istanbul, Turkey.

#### **V. CURRENT TEACHING**

##### **V.1. Graduate courses**

Dynamic Modeling of Socio-Ecological Systems, Boğaziçi University, Institute of Environmental Sciences  
[A class on fundamentals of System Dynamics, with examples from environmental systems and resource management problems]

Systems and Sustainability, Boğaziçi University, Institute of Environmental Sciences

[A class on model validation and analysis, with selected applications of system dynamics in the field of sustainability]

## **V.2. Undergraduate courses**

Simulation Gaming and Decision Experimentation, Boğaziçi University, Industrial Engineering Department

[A class on the methodology of simulation games and their use in dynamic decision experiments]

Social Ecology, Institute of Environmental Sciences, Boğaziçi University

[A graduate class on human and political ecology, focusing on the current opinion and conceptual frameworks adopted in a wide array of disciplines, System Dynamics being just one of them]

## **VI. CURRENT AND PAST GRADUATE STUDENT SUPERVISIONS**

### **VI.1. Ph.D. Supervisions in Boğaziçi University (2005-)**

Natalia Ciobanu – Building Resilience to Climate Change Impacts in the Ichel Watershed in Moldova: A Participatory Modeling Approach (2021)

Leyla Güzeloğlu Kabasakal – Sustainability in Milk Production in Turkey: A Social Multi-criteria Assessment (2019)

Zerrin Doğança – Teaching Dynamic Environmental Problems to Seventh Grades with Systems Approach (2013).

Melih Öztürk (co-supervised with Nadim Copt) – An Integrated Land Use – Hydrological Model For the Sustainable Management of Bartın Spring Watershed (2009).

### **VI.2. M.S. Supervisions in Boğaziçi University (2005-)**

İzel Uygur – İzel Uygur – System Dynamics Approach to Strategic Groundwater Management in Çumra-Konya, Turkey (2021-22)

Anna Beaucamp – Freshwater Supply in Samothraki, Greece: A Social-Ecological Systems Analysis (2021)

Mehmet Can Tunca – A Dynamic Simulation Approach to Soil Salinity and Sodicity in Konya Plain of Turkey (2021)

Elif Bal – Groundwater Appropriation Game: A Dynamic Systems Approach (2020)

Deniz Ülkat - Long Term Impacts of Variable Renewable Energy Generation (VRES) on Electricity Generation in Turkey (2020)

Ezgi Talum – Improving 10th Graders' Understanding of Global Carbon Cycle: A Systems Learning Approach (2019)

Ezgi Akar – Occupational Safety Dynamics in Onshore LNG Receiving Terminals: A Systems Modeling Approach (2019)

Adnan Mirhanoglu – Systems Approach and Modeling for Sustainable Groundwater Irrigation: A Case Study in Mardin Kiziltepe Plain (2018)

Semra Ocak – Political Ecology of Pollution Control Failure In Ergene Basin Of Thrace, Turkey (2018)

Mahir Yazar – The Policy Mobility of Energy Efficiency And Green Gentrification In The Urban Renewal Of Istanbul (2018)

Emre Dönmez – Political Ecology of Small Hydropower Plant Constructions in the Province of Rize (2012).

Yeşim Akpınar – A Dynamic Simulation Model of Carbon Circulation and Methane Feedbacks in Anthropogenic Climate Change (2009).

### **VI.3. Ph.D. Supervisions in Other Institutes**

Engin Sansarcı (co-supervised with Ahmet Atıl Aşıcı, İTÜ Graduate School of Social Sciences) – A System Dynamics Model of Inflation (2016).

### **VI.4. M.S. Supervisions in Other Institutes**

Nikolaus Karg – The Ice-Albedo Feedback: System Dynamics Approach, Environmental Engineering, Technische Universität München, (2012).

Porfirio Guevera – Efficiency of Primary Education in Nicaragua: A System Dynamics Analysis (2004).

Azeem Quereshi – Firm Value Management: A System Dynamics Approach (2004).

Daniel Castillo – System Dynamics Simulation of Cooperation Experiments in Old Providence Island, Colombia (2002).

Mingi Xu – Integration of Financial and Commodity Markets with System Dynamics Methodology (2002).

## **VII. RESEARCH PROJECTS**

Multiplayer Simulation Gaming for Sustainable Groundwater Irrigation. Principle Investigator. Boğaziçi University Research Fund (2021-22)

Innovative and Sustainable Groundwater Management in the Mediterranean. Principal investigator. PRIMA – Partnership for Research and Innovation in the Med Area (2020-23)

Soil salinity and sodicity management by sustainable irrigation practices in Konya Plain, Turkey. Researcher with N. Coptý. Newton Institutional Link Grand between UK and Turkey (2019-2021)

Building Resilience to Climate Change Impacts in the Ichel Watershed in Moldova: A system Dynamics Approach. Principal investigator with PH. D. candidate Natalia Ciobanu (2016-2019)

Systems Approach and Simulation Modeling for Sustainable Management of Groundwater Commons. Principle investigator with graduate assistant Adnan Mirhanoglu. Boğaziçi University Research Fund, (2016-2018)

Green growth and win-win strategies for sustainable climate action. Local principle investigator. H2020, Environment and Resources, Project no 642018 (2015-2018)

Misperceptions of Soil Nutrient Dynamics and Fertilizer Overuse: An Experimental Evaluation. Principal investigator. Boğaziçi University Research Fund, no: 6376 (2012-2014).

Teaching Dynamic Environmental Problems to Seventh Graders with Systems Approach. Principal investigator with Ph.D. candidate Zerrin Doğanca. Boğaziçi University Research Fund, no: 5729 (2011-2013).

Dynamics of Carbon Mitigation in Electric Power Industry. Principal investigator with graduate assistant Mustafa Hekimoğlu. Boğaziçi University Research Fund, no: 5136 (2009-2010).

Irrigation policy analysis to evaluate the effects of farm level incentives on waterlogging and salinization. Principle investigator with Gökhan Özertan. Boğaziçi University Research Fund, no: 07S103, (2007-2009).

An Integrated Land Use-Hydrological Model for the Sustainable Management of Bartın Spring Watershed. Principle investigator with Ph.D. candidate Melih Öztürk and Nadim Copty. Boğaziçi University Research Fund, no: 06HY102D, (2006-2008).

Global Carbon Emissions Trading Among Developed and Underdeveloped Countries under Contraction and Convergence Framework. Principle investigator. Boğaziçi University Research Fund, no: 05Y102, (2005-2006).

Systematic Misperceptions of the dynamics of anthropogenic climate change by the general electorate. Researcher with Erling Moxnes. Meltzers Høyskolefund, (2002-2004).

### **VIII. SELECTED PROFESSIONAL ACTIVITIES**

Systems Analysis MOOCs for Sustainability Transformation, Erasmus+ Strategic Partnership for Higher Education KA203 (2020-23), Coordinator: UiB, Erling Moxnes, with six European partners

Africa's Coexistence Landscapes Hwange-Kazuma Chobe Transfrontier Conservation Area (KaZa TFCA) Modeling Workshops. Facilitator and supervisor for water resources modeling. UNEP and the Kaza Secretariat. (2019-20)

UN International Panel on Biodiversity and Ecosystem Services (IPBES) Task Force for Scenarios and Models, member (2019-2022)

Improving People's Health and Unburdening the Health System Through Renewable Energy in Turkey: Assessing the Co-benefits of Decarbonizing the Power Sector, with N. Copty, F. Gaçal, İ. Daloğlu and Ç. Çağlayan. Report delivered to IASS, Postdam (2019)

UN International Panel on Biodiversity and Ecosystem Services (IPBES) Global Assessment, Lead Author for Chapter 5 on Pathways and Scenarios (2016-2019)

System Dynamics Review, associate editor (2016-)

Greenpeace, 2014. Turkey's Energy [R]evolution. National Advisor on Energy Issues. (2014)

"Systems Language of Ecology" Summer School, TUBITAK 4004 Project no: 112B100, 10-14 September 2012, Boğaziçi University, İstanbul, project leader.

Conflict Over Commons Summer School: Fisheries, Co-organized by Boğaziçi University and The University of Manchester, August 27th-September 2nd 2012, İstanbul, organizing committee member.

International Farming Systems Association, 10th European Symposium, 1-4 July 2012 in Aarhus, Workshop in Integrated Simulation Modelling, organizing committee member.

9th International Conference of the European Society of Ecological Economics, 14-17 June 2011, Boğaziçi University, İstanbul, organizing committee member.

International System Dynamics Society, 2006-2009, policy council member.