



KONFERENCIAKÖTET

Conference Proceedings

**Nemzetközi tudományos konferencia
a Magyar Tudomány Ünnepe alkalmából**
International Scientific Conference
on the Occasion of the Hungarian Science Festival

Sopron, 2023. november 23.
23 November 2023, Sopron

**FENNTARTHATÓSÁGI ÁTMENET:
KIHÍVÁSOK ÉS INNOVATÍV MEGOLDÁSOK**
SUSTAINABILITY TRANSITIONS: CHALLENGES AND INNOVATIVE SOLUTIONS

Szerkesztők / Editors:

OBÁDOVICS Csilla, RESPERGER Richárd, SZÉLES Zsuzsanna, TÓTH Balázs István

Nemzetközi tudományos konferencia a Magyar Tudomány Ünnepe alkalmából
International Scientific Conference on the Occasion of the Hungarian Science Festival

Sopron, 2023. november 23. / 23 November 2023, Sopron

**FENNTARTHATÓSÁGI ÁTMENET:
KIHÍVÁSOK ÉS INNOVATÍV MEGOLDÁSOK
SUSTAINABILITY TRANSITIONS:
CHALLENGES AND INNOVATIVE SOLUTIONS**

KONFERENCIAKÖTET
CONFERENCE PROCEEDINGS

LEKTORÁLT TANULMÁNYOK / PEER-REVIEWED PAPERS

Szerkesztők / Editors:

OBÁDOVICS Csilla – RESPERGER Richárd – SZÉLES Zsuzsanna – TÓTH Balázs István



SOPRONI EGYETEM KIADÓ

UNIVERSITY OF SOPRON PRESS

SOPRON, 2024

Nemzetközi tudományos konferencia a Magyar Tudomány Ünnepe alkalmából
International Scientific Conference on the Occasion of the Hungarian Science Festival

Sopron, 2023. november 23. / 23 November 2023, Sopron



A MAGYAR
TUDOMÁNY
ÜNNEPE



HUNGARIAN
SCIENCE
FESTIVAL

A konferencia támogatói / Sponsors of the Conference:



Felelős kiadó / Executive Publisher: Prof. Dr. FÁBIÁN Attila
a Soproni Egyetem rektora / Rector of the University of Sopron

Szerkesztők / Editors:

Prof. Dr. OBÁDOVICS Csilla, Dr. RESPERGER Richárd,
Prof. Dr. SZÉLES Zsuzsanna, Dr. habil. TÓTH Balázs István

Lektorok / Reviewers:

Dr. habil. BARANYI Aranka, Prof. Dr. BÁRTFAI Zoltán, Dr. BARTÓK István, Dr. BEDNÁRIK Éva,
Bazsóné Dr. BERTALAN Laura, Dr. CZIRÁKI Gábor, Dr. DIÓSSI Katalin, Dr. habil. JANKÓ Ferenc,
Dr. KERESZTES Gábor, Dr. habil. KOLOSZÁR László, Dr. KÓPHÁZI Andrea,
Prof. Dr. KULCSÁR László, Dr. MÉSZÁROS Katalin, Dr. NEDELKA Erzsébet,
Dr. NÉMETH Nikoletta, Dr. NÉMETH Patrícia, Prof. Dr. OBÁDOVICS Csilla,
Dr. PALANCSA Attila, Dr. habil. PAPP-VÁRY Árpád Ferenc, Dr. RESPERGER Richárd,
Dr. habil. SZABÓ Zoltán, Prof. Dr. SZÉLES Zsuzsanna, Dr. SZÓKA Károly, Dr. TAKÁTS Alexandra,
Dr. habil. TÓTH Balázs István, Pappné Dr. VANCSÓ Judit

ISBN 978-963-334-499-6 (pdf)

DOI: [10.35511/978-963-334-499-6](https://doi.org/10.35511/978-963-334-499-6)

Creative Commons license: CC BY-NC-SA 4.0 DEED



Nevezd meg! - Ne add el! - Így add tovább! 4.0 Nemzetközi
Attribution-NonCommercial-ShareAlike 4.0 International

SZERVEZŐK

Soproni Egyetem Lámfalussy Sándor Közgazdaságtudományi Kar (SOE LKK),
A Soproni Felsőoktatásért Alapítvány

A konferencia elnöke: Prof. Dr. SZÉLES Zsuzsanna egyetemi tanár, dékán (SOE LKK)

Tudományos Bizottság:

elnök: Prof. Dr. OBÁDOVICS Csilla PhD egyetemi tanár, Doktori Iskola-vezető (SOE LKK)
társelnök: Dr. habil. TÓTH Balázs István PhD egyetemi docens, igazgató (SOE LKK)
tagok: Prof. Dr. FÁBIÁN Attila PhD egyetemi tanár (SOE LKK), rektor (SOE)
Prof. Dr. SZÉKELY Csaba DSc professor emeritus (SOE LKK)
Prof. Dr. KULCSÁR László CSc professor emeritus (SOE LKK)
Prof. Dr. SZALAY László DSc egyetemi tanár (SOE LKK)
Prof. Dr. Clemens JÄGER PhD egyetemi tanár, dékán (FOM)
Dr. habil. BARANYI Aranka PhD egyetemi docens (SOE LKK)
Dr. habil. POGÁTSA Zoltán PhD egyetemi docens (SOE LKK)
Dr. habil. SZABÓ Zoltán PhD egyetemi docens (SOE LKK)
Dr. habil. PAPP-VÁRY Árpád Ferenc PhD tudományos főmunkatárs (SOE LKK)
Dr. Rudolf KUCHARČÍK PhD egyetemi docens, dékán (EUBA FIR)

Szervező Bizottság:

elnök: Dr. RESPERGER Richárd PhD adjunktus (SOE LKK)
tagok: Dr. KERESZTES Gábor PhD egyetemi docens, dékánhelyettes (SOE LKK)
Dr. habil. Eva JANČÍKOVÁ PhD egyetemi docens (EUBA FIR)
Dr. habil. KOLOSZÁR László PhD egyetemi docens, intézetigazgató (SOE LKK)
Dr. HOSCHEK Mónika PhD egyetemi docens, intézetigazgató (SOE LKK)
PAPPNÉ Dr. VANCSÓ Judit PhD egyetemi docens, intézetigazgató (SOE LKK)
Dr. SZÓKA Károly PhD egyetemi docens (SOE LKK)
titkár: NEMÉNY Dorka Virág kutatási asszisztens (SOE LKK)

ORGANIZERS

University of Sopron Alexandre Lamfalussy Faculty of Economics (SOE LKK),
For the Higher Education in Sopron Foundation

Conference Chairperson: Prof. Dr. Zsuzsanna SZÉLES PhD Professor, Dean (SOE LKK)

Scientific Committee:

Chair: Prof. Dr. Csilla OBÁDOVICS PhD Professor, Head of Doctoral School (SOE LKK)

Co-Chair: Dr. habil. Balázs István TÓTH PhD Associate Professor, Director (SOE LKK)

Members: Prof. Dr. Attila FÁBIÁN PhD Professor (SOE LKK), Rector (SOE)

Prof. Dr. Csaba SZÉKELY DSc Professor Emeritus (SOE LKK)

Prof. Dr. László KULCSÁR CSc Professor Emeritus (SOE LKK)

Prof. Dr. László SZALAY DSc Professor (SOE LKK)

Prof. Dr. Clemens JÄGER PhD Professor, Dean (FOM)

Dr. habil. Aranka BARANYI PhD Associate Professor (SOE LKK)

Dr. habil. Zoltán POGÁTSA PhD Associate Professor (SOE LKK)

Dr. habil. Zoltán SZABÓ PhD Associate Professor (SOE LKK)

Dr. habil. Árpád Ferenc PAPP-VÁRY PhD Senior Research Fellow (SOE LKK)

Dr. Rudolf KUCHARČÍK PhD Associate Professor, Dean (EUBA FIR)

Organizing Committee:

Chair: Dr. Richárd RESPERGER PhD Assistant Professor (SOE LKK)

Members: Dr. Gábor KERESZTES PhD Associate Professor, Vice Dean (SOE LKK)

Dr. habil. Eva JANČÍKOVÁ PhD Associate Professor (EUBA FIR)

Dr. habil. László KOLOSZÁR PhD Associate Professor, Director of Institute (SOE LKK)

Dr. Mónika HOSCHEK PhD Associate Professor, Director of Institute (SOE LKK)

Dr. Judit PAPPNÉ VANCSÓ PhD Associate Professor, Director of Institute (SOE LKK)

Dr. Károly SZÓKA PhD Associate Professor (SOE LKK)

Secretary: Dorka Virág NEMÉNY Research Assistant (SOE LKK)

TARTALOMJEGYZÉK / CONTENTS

Plenáris szekció

Plenary Session

How to Make European Integration Fair and Sustainable? <i>István P. SZÉKELY</i>	13
---	----

1. szekció: Fenntartható gazdálkodás és menedzsment, körforgásos gazdaság Session 1: Sustainable Economy and Management, Circular Economy

A zöld ellátási láncok aktuális kérdései - Kritikai szakirodalmi összefoglalás <i>PIRICZ Noémi</i>	27
--	----

Well-being - kulcs a fenntartható működéshez <i>KÓPHÁZI Andrea – KOVÁCSNÉ LACZKÓ Éva Mária</i>	36
--	----

Szervezeti kultúra és fenntarthatóság <i>KOVÁCSNÉ LACZKÓ Éva Mária</i>	48
--	----

Az új mexikói kvótakereskedelmi rendszer és erdészeti vonatkozásai <i>KIRÁLY Éva – BOROVICS Attila</i>	61
--	----

A designesztétika gazdasági megközelítésének lehetőségei <i>REMÉNYI Andrea – ZALAVÁRI József</i>	76
--	----

A körforgásos üzleti modellek a vállalati gyakorlatokban <i>KRIZA Máté</i>	98
--	----

2. szekció: Társadalmi kihívások és társadalmi innovációk a fenntartható fejlődésben Session 2: Social Challenges and Innovations in Sustainable Development

Társadalmi kihívások a divatipari fogyasztás terén <i>VIZI Noémi</i>	119
--	-----

Klímaszorongás jelenléte az X, Y és Z generáció életében <i>SZEBERÉNYI András</i>	128
---	-----

Közelségi torzítás – a home office egyik kihívása <i>IONESCU Astrid</i>	147
---	-----

Megérti-e a választ, ha megkérdezi kezelőorvosát, gyógyszerészét? Az egészségműveltség mérésének aktuális kérdései Magyarországon <i>PORZSOLT Péter</i>	154
---	-----

A digitális egészségügyi ellátás, mint innováció mérési lehetőségei <i>KOVÁCS Erika</i>	168
---	-----

3. szekció: Fenntartható pénzügyek és számvitel
Session 3: Sustainable Finance and Accounting

A közösségi költségvetési számvitel koncepciója és dilemmái <i>SISA Krisztina A. – SIKLÓSI Ágnes – VERESS Attila – DENICH Ervin</i>	181
Az iszlám banki számvitel digitalizációjának elméleti és filozófiai megközelítése <i>CSEH Balázs</i>	193
A vállalkozások csőd kockázatának és a kötvénymínősítések együttmozgása <i>SZÁNTÓ Tünde Katalin</i>	202
A globális minimumadó következményei és megvalósíthatósága a multinacionális vállalatok számára <i>MATTIASSICH Enikő – SZÓKA Károly</i>	211

4. szekció: Fenntartható turizmus és marketing
Session 4: Sustainable Tourism and Marketing

A fenntartható turizmus: valóság vagy átverés? <i>PALANCSA Attila</i>	221
Metamarketing: fenntartható innovációk a valós és virtuális lehetőségek imperatív szimbiózisa mentén <i>REMÉNYI Andrea</i>	237
A fennmaradás és fenntarthatóság aspektusainak vizsgálata a szálláshely-szolgáltatással foglalkozó KKV-szektorban rendkívüli helyzetek idején <i>VARGYAS Daniella – KERESZTES Gábor</i>	261
Tudatosság és fenntarthatóság a nyaralás alatt is <i>MÉSZÁROS Katalin – HOSCHEK Mónika – Németh Nikoletta</i>	270
A soproni egyetemisták külföldi tervei <i>OBÁDOVICS Csilla – RUFF Tamás</i>	283
Country Branding of the Hashemite Kingdom of Jordan <i>Mohammad Hani KHLEFAT</i>	295
Community-Based Tourism in Southeast Asia <i>Thi Thuy Sinh TRAN – Nikoletta NÉMETH – Md. Sadrul Islam SARKER – Yuan ZHANG – NHAT ANH NGUYEN</i>	309

5. szekció: Sustainable Finance and Accounting, Sustainable Development
Session 5: Sustainable Finance and Accounting, Sustainable Development

Stakeholder Engagement in the Development of the Sustainability Reporting Standards of the Global Reporting Initiative (GRI) and of the International Sustainability Standards Board (ISSB)

Alina ALEXENKO 329

The IFRS and the Financial Accounting System in Algeria: A Literature Review

Asma MECHTA – Zsuzsanna SZÉLES – Ágnes SIKLÓSI 342

Potential Effects of Industry 4.0 Technologies on Environmental Sustainability - A Systematic Literature Review

Mohamed EL MERROUN 351

The Use of Geothermal Energy for Sustainable Development and Economic Prosperity

Nadjat KOUKI – Andrea VITYI 365

6. szekció: Sustainability Transformation and Circular Economy
Session 6: Sustainability Transformation and Circular Economy

A fenntarthatóság, a társadalmi szerepvállalás és a felelős vállalatirányítás szabályozásának szerepe a vállalati innovációban

BARTÓK István János 381

Circular Economy Research Trends in the Textile and Apparel Industry: A Bibliometric Analysis

Md. Sadrul Islam SARKER – Thi Thuy Sinh TRAN – István János BARTÓK 389

The Historical Evolution of Employee Idea Management: A Comprehensive Review

Viktória ANGYAL 405

7. szekció: Sustainable Economy and Management
Session 7: Sustainable Economy and Management

Bewältigungsstrategien eines nachhaltigen Managements von Organisationen innerhalb einer VUCA-Umwelt: Eine systematische Literaturrecherche

Mike WEISS 421

Influences of Autonomous Vehicles on Sustainability: A Systematic Literature Review

Phillipp NOLL – Zoltán SZABÓ 436

Trends in Sustainable Leadership

Roland SEESE – Katalin DIÓSSI 452

Recruiting for Resilience: An Economic Approach to Mitigate Candidate Ghosting

Laureana Anna Erika TEICHERT 460

Führung auf Distanz - Herausforderungen für Führungskräfte durch die Nutzung von Home-Office	
<i>Norbert KLEIN</i>	473
A Generative AI and Neural Network Approach to Sustainable Digital Transformation: A Focus on Medical and Marketing Sectors	
<i>Alexander Maximilian RÖSER – Cedric BARTELT</i>	483
Allgemeine Alterswahrnehmung bei StudentInnen in den österreichischen und ungarischen Grenzregionen	
<i>Dorottya PAKAI – Csilla OBÁDOVICS</i>	498
8. szekció: Társadalmi kihívások és társadalmi innovációk a fenntartható fejlődésben	
Session 8: Social Challenges and Innovations in Sustainable Development	
Fenntartható olvasás a digitális korban	
<i>MOLNÁR Csilla</i>	509
Okos és fenntartható városfejlesztés felelősségteljes digitális innovációval	
<i>GYULAI Tamás – NAGY Marianna</i>	518
A coaching szerepe a vezetőfejlesztésben	
<i>KÓPHÁZI Andrea – Éva LÖWE</i>	535
9. szekció: Fenntartható gazdálkodás és menedzsment	
Session 9: Sustainable Economy and Management	
A szolgáltatók szerepe és felelőssége a desztinációk fenntartható turizmusának megteremtésében, illetve kialakításában: Szisztematikus irodalmi áttekintés	
<i>TEVELY Titanilla Virág – BEHRINGER Zsuzsanna</i>	548
Bükkfürdő imázsának élménymarketing alapú vizsgálata	
<i>HORVÁTH Kornélia Zsanett</i>	563
A public relations (PR) tevékenység határai és viszonya a marketinghez - Egy PR szakemberek körében végzett kvantitatív kutatás eredményei	
<i>KÁROLY Róbert – LUKÁCS Rita – PAPP-VÁRY Árpád Ferenc</i>	572
Márkázott superhősök: Hogyan formálják a különböző termék- és szolgáltatásmárkák Amerika kapitány és Vasember karakterét a Marvel filmekben?	
<i>PAPP-VÁRY Árpád Ferenc – RÖNKY Áron</i>	591
Sztármárka-építés hosszú távon: Cristiano Ronaldo és CR7 márkájának megítélése – Egy kvalitatív kutatás tapasztalatai	
<i>KORIM Dorina – PAPP-VÁRY Árpád Ferenc</i>	609

10. szekció: Sustainable Economy and Management I.
Session 10: Sustainable Economy and Management I.

The Role of Mountain Tourism Activities and Facilities on Domestic Tourism Consumption in Tourism Destinations <i>Deborah KANGAI – Eliyas Ebrahim AMAN – Árpád Ferenc PAPP-VÁRY – Viktória SZENTE</i>	624
Sustainable Project Management <i>Attila LEGOZA</i>	633
The Effect of Sustainability Development Using the Example of Green Washing <i>Dijana VUKOVIĆ – Tanja UNTERSWEG</i>	641
Sustainable Strategies in Case of Start-Up Enterprises <i>Peter IMRICKO</i>	654
Sustainable Strategic Management at Multinational Companies <i>Peter IMRICKO</i>	663
The EU as a “Leadiator” in Climate Governance - a Successful Soft Power Instrument? An Analysis with a Focus on Sustainable Mobility <i>Sarah DIEHL</i>	674
Az irodater komfortjának vizsgálata a munkavállalók szempontjából – Út a jövő optimális irodája felé <i>GROZDICS Anett Tímea – BORSOS Ágnes</i>	684
Mögliche Auswirkungen von CSRD & ESRS auf die digitale Wirtschaft und der Fertigungsindustrie in Deutschland: aus der Perspektive der Industriepformance und der nachhaltigen Entwicklung <i>Mohammad Reza ROBATIAN</i>	696

11. szekció: Sustainable Economy and Management II.
Session 11: Sustainable Economy and Management II.

Sustainability and Climate Protection in Hospitals - Green Hospitals in the Future in Germany <i>Patricia Carola MERTEN</i>	719
Territoriality in Climate Adaptation? Space Interpretations of Different Disciplines and Fields and their Potential Utilization in the Examination of Climate Adaptation’s Territorial Aspects <i>Attila SÜTŐ</i>	727
Sustainable Unity in the European Insurance Market: Calculating Personal Injury Claims (From Experience to Methodology) <i>Zsolt Szabolcs EKE</i>	745

12. szekció: Poszter szekció
Session 12: Poster Session

A dendromassza-hasznosítás, mint megújuló természeti erőforrás szerepe a fenntartható, körkörös gazdaságban <i>SZAKÁLOSNÉ MÁTYÁS Katalin</i>	755
Az I szektor karbonhatékonyságának vizsgálata Magyarországon <i>KOVÁCSNÉ SZÉKELY Ilona – MAGYAR Norbert – JAKUSCHNÉ KOCSIS Tímea</i>	761
A visegrádi országok egészségügyi reformjainak és intézkedéseinek összehasonlítása <i>VITÉZ-DURGULA Judit – SÓTONYI Tamás Péter</i>	766
A márkaépítés hatása a fogyasztói lojalításra a Magyar Telekom esetében <i>TAKÁTS Alexandra – SZÁSZ Zsombor Levente</i>	780
Examining the Impact of Certain Factors on the Delivery Time of a Manufacturing Firm Using Data Science Methods <i>Zsolt TÓTH – József GARAB</i>	800
Artificial Intelligence with an Economic Growth Perspective <i>Firat ŞAHİN</i>	809

Territoriality in Climate Adaptation? Space Interpretations of Different Disciplines and Fields and their Potential Utilization in the Examination of Climate Adaptation's Territorial Aspects

Attila SÜTŐ

PhD Student, *Budapest Corvinus University, International Relations and Geo-Economy Doctoral Programme, Sustainable Development Institute, Hungary*

attila.suto@uni-corvinus.hu;

Deputy Head of Division and Chief Planner, *HungaroMET Non-profit Ltd., National Adaptation Centre, Hungary*

attila.gergely.suto@enstrat.hu

Abstract:

Climate change impacts are among the most essential global challenges. Climate policy, especially adaptation connects strongly to the geographical space: impacts and adaptation interventions both occur in the physical environment. Territorially different challenges require territorially different responses in each region. Spatially conscious planning of adaptive responses as well as monitoring their effectiveness, territorially different impacts and adaptive capacities are important policy tasks. The question is whether these spatial characteristics were taken into consideration properly in adaptation policy – an issue that has not been examined in proper depth so far. To examine the emergence of territorial aspects the first step is to define the substance of spatiality in general and in adaptation policy in particular. To support this definition process and the future comparative analyses of national climate adaptation documents' spatial sensitivity, the goal of this study is to give a short overview of different disciplines' space interpretations. According to the results, a mixture of absolute and relative interpretations, a more emphasised use of objective and external spaces, as well as cohesion concepts of regional development policy can constitute the theoretical foundations of the future examination of the role and degree of spatiality in national adaptation policy instruments.

Keywords: spatial aspects, climate change, climate adaptation, adaptation planning, spatiality
JEL Codes: Q54, Q58, R58

1. Introduction

This study is second part of a presentation held in the “Society-Economy-Nature: Synergies in the Sustainable Development Scientific Conference” on 03.11.2022, in Sopron and the article elaborated from that presentation and is under publication in the *E-conom* journal. That first lecture/article dealt with the main findings of the actual climate adaptation planning- and monitoring/reporting/evaluation (MRE)-literature, going into details about the challenges caused by the impacts and consequences of climate change as key geo-economic issues; the EU's leading role in fighting against climate change at strategic planning and policy level¹⁹, and the difference

¹⁹ The adoption of the European Green Deal and Fit for 55! packages also strengthened adaptation's momentum, recommending massive increase of community resilience. The EU's development policy environment exactly reflects this fact: CC is among the main policy priorities of both the community's 2014-20 and 2021-27 programming periods.

between mitigation and adaptation pillars²⁰. One of the most important lessons of climate adaptation planning and MRE practice is that spatial characteristics matter at each level: territorially different impacts need territorially different adaptation responses. So spatial viewpoints and special emphasis on geographical characteristics should be of key importance in climate (particularly in adaptation) policy. The question is that how and in what degree takes the traditionally sector-oriented planning scene the spatial aspects into consideration in climate adaptation policy in the different countries?

The first results of the international literature review revealed that among the distinguished territorial levels of adaptation policies, most of the literature deals with local (mostly urban) mitigation and adaptation problems and their management. The regional and national levels get lesser emphasis, especially Europe-wide comparisons of national adaptation activities are lacking²¹. Beyond the role of spatial planning in adaptation or the growing importance of hazard assessments and risk information in spatial planning, however, neither the importance of proper, territorially conscious monitoring and evaluation; nor the role of spatial thinking and spatial aspects in adaptation policy appeared directly. All in all, adaptation policy instruments' spatiality has not been examined in proper depth neither at national nor at local level in European comparison, neither in a comprehensive way nor from a scientific point of view (Sütő, 2023).

Territorial aspects of climate adaptation policy

Climatic factors influencing the regionally different impacts and consequences of climate change are among the most important elements of geographic endowments²². Spatially different impacts need spatially different adaptation responses, indicating that spatial thinking and special emphasis on geographical features are of key importance in climate (adaptation) policy. Climate impacts, consequences and sectoral vulnerabilities emerge actually locally, so municipal leaders and micro-regional/regional or national decision-makers have a fundamental interest in properly planned adaptation steps. For this, they require profound, up-to-date territorial knowledge on the issues (Sütő et al., 2023) via spatially sensitive situation analyses, risk and vulnerability assessments tracing relative spatial/territorial differences.

In the related literature given authors deal with the role of the space-oriented geography in understanding climate change, adaptation and their spatiality (Randalls, 2017; Farbotko, 2017; Chang & Wi, 2018; Colven & Thomson, 2018; Taylor & O'Keefe, 2021,); others with the spatially determined nature and geographical dimensions of adaptation interventions and knowledge (e.g. in the form of risk maps like Koks et al., 2014), saying that environmental (and within it: climate) policies must be better linked to regional policy (Davidse et al, 2015; Weckroth & Ala-Mantila, 2022). Increasing attention on spatial issues and the relationships between adaptation-oriented, strategic and spatial planning activities can also be observed (Greiving & Fleischhauer, 2010; Sapountzaki et al., 2011; Greiving & Schmidt-Thomé, 2013; Storbjörk & Ugglå, 2014). Because climate policy, especially its adaptation pillar cannot be handled separately from the geographical (and other types of) space(s), integrating geographical and/or spatial aspects into adaptation policy making from strategic planning through implementation and

²⁰ While Greenhouse Gas (GHG) emission causes problems worldwide, and its management requires global cooperation and negotiations; then adaptation has to find local answers for particular local climate impacts.

²¹ Out of the articles few goes further than identifying planning practice- or planning method-related problems and structural or financial limitations at different territorial levels

²² Together with geomorphological, ecological, hydrographical, and soil characteristics; frequently influence demographic and economic conditions of a given area

monitoring to evaluation, tracking the sectoral “mainstreaming²³” of adaptation; and strengthening the spatial approach within adaptation policies are fundamental development and climate policy tasks.

2. Objective of the article

Already the Introduction chapter referred to the fact that climate policy, especially its adaptation pillar cannot be handled separately from the geographical space. Consequently, integrating territorial aspects into adaptation policy making, from the actual planning of the whole adaptation process; through systematic monitoring of territorial achievements of the related strategic objectives and precise evaluation of territorial effectiveness of interventions; to following the sectoral “mainstreaming” of adaptation and strengthening the spatial approach within adaptation policies are fundamental development and climate policy tasks.

To respond to the geographical and spatial characteristics in climate adaptation, the overall objective is to analyse and evaluate the geographical / spatial / territorial content and focus of European national climate adaptation policies through the assessment of the role and degree of spatial thinking and sensitivity to spatial issues in climate adaptation policy instruments. For this the planned research will examine the current presence of territorial thinking and spatial content in adaptation planning, and MRE activities. As a first step, we must define the essence of spatiality: what we understand under the terms “spatial aspects” or “spatial approach”, under the concept “spatiality” in general and in climate adaptation policies and activities particularly. This article aims this identification.

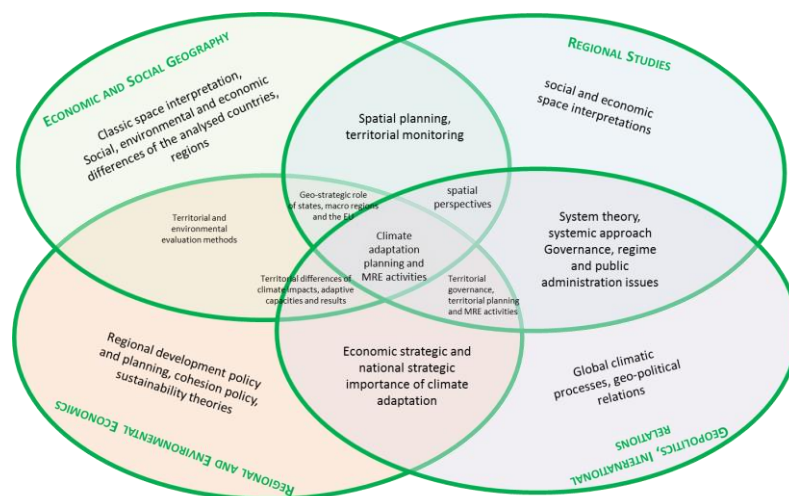


Figure 1: Disciplinary context and indicative thematic connections of the planned research (as a whole)

Source: Own editing (2023)

For answers we turned to the different space interpretations of some relevant disciplines (natural geography, social geography, economic geography, regional sciences, regional geography, regional economics, political and administrative sciences and international relations, geo-politics) and fields (regional development policy, spatial planning and strategic planning) that connect strongly to the concept of space (Figure 1). Because the main scope (spatial content of adaptation activities) is a space-centred issue, the research chooses directly or indirectly

²³ Mainstreaming in this sense means the integration of adaptation objectives and aspects into sectoral policy documents.

space-oriented disciplines from whose point of view it will be able to identify “spatiality” and spatial thinking”. The next subchapters introduce the results of this overview based on scientific and grey literature review and my related development policy experience.

3. Methodology for identifying space interpretations in different disciplines: how should we approach spatiality in adaptation?

This article, as its predecessor²⁴, is based on a comprehensive literature review whose method followed the logic of the first part. Beyond the literature items and practical policy materials I collected from regional and spatial planning practice during the recent decades, the literature selection was based again on detailed library and internet search. In the review process, I used the same databases of JSTOR (<https://www.jstor.org/>) and the BCE’s Library (<https://huntaka.uni-corvinus.hu/>) as in the case of the first article. The used keywords of the advanced search rounds were “*space interpretation*”, “*spatiality*”, “*territoriality*”, “*territorial thinking*”, “*territorial aspects*”, “*spatial aspects*”, “*spatial sensitivity*”, “*territorial sensitivity*”, and their further permutations, completed with the name of a discipline (e.g., *territorial thinking + regional study*, *spatial sensitivity + geopolitics*, etc.). I must emphasise that the review concentrated explicitly on spatiality (delimited/limitless space as a general concept in the centre) and not on territoriality (as statistically/administratively delimited units of the surface in the focus); but to cover as wide literature basis as possible, during the literature search I used both spatiality and territoriality as keywords.

Regarding the selected criteria for analysis, I basically sought for literature from previously chosen disciplines / practical fields that I consider spatially interested. I did not apply any regional selection criterion; the processed literature came from all regions/countries of the world. As opposed to the first phase of the literature review introduced in the first article, I did not apply any limit regarding the year range of the literature items because I was interested all kinds of space interpretations independently from the time of their creation.

All literature items were analysed according to a predefined aspect system. I sought in the articles 1) the presence of related concepts (space, territory, place, region, etc.); 2) the mentioning of spatial elements; 3) spatial dimensions or 4) spatial structure; 5) the concrete description of actual space interpretations. Then the possible involvement of these aspects in climate policy and the concrete comparative document analysis were considered.

The review preferred the conceptual or synthesizing works of authors that can provide us with a comprehensive picture of given space considerations. As an initial step I turned both to definitive space concepts like that of Agnew (1989), Massey (1994) or Cresswell (2008) and to synthesizing or collective works like that of Haggett (2006) (who defined the basic territorial concepts of the geographical space), Faragó (2012) (who introduced the main interpretations and approaches of territorial reasoning and evolution of space concepts and notions), Nemes-Nagy (1998) (who introduced the development of concepts and examination methodologies of the relationship between space and society in regional science) and Dusek (2004) (who, summarized the basic issues of social space research, as a foundation of territorial analyses).

During the overview of works of different authors looking for a proper definition of space, as Dusek (2004) warns us, we can find either blurred concepts or too narrow definitions valid only for given situations. Several studies that deal with territorial analyses’ methodological background generally start with philosophical space definitions. These differentiate 3 main approaches: absolutist and relativist interpretations and the interpretation of Kant. However, regarding the complexity of the notion of space, none of the above can be regarded as exclusively applicable (Nemes-Nagy, 1998; Dusek, 2004).

²⁴ The first part, presented at the “Society-Economy-Nature: Synergies in the Sustainable Development Scientific Conference” in 2022 and to be published in the E-econ journal.

Regarding the related concepts (space, territory, place, region), the definitions of Haggett (2006) reflect the absolutist approach. In his synthesizing work he refers to space as a large area without boundaries, “*ranging in size from local areas to the global*” meanwhile territory is usually „*the terrestrial space that is used to denote its geometric part*”. The author also defines the concepts of region and place²⁵ as delimited, lower-level units of space. Classical geography regards space, region, territory, area and place as strongly connected concepts, referring to given units of the earth’s surface. Cresswell (2008) calls space as a location or a geographical point on the earth’s surface with exact identities (defined by longitude and latitude). As opposed to the meaningful places, Cresswell thinks, it does not have a concrete meaning. Massey disagreed with the idea that space is meaningless and sees both place and space as „*inextricably intertwined*” entities. The one informs the other, so they cannot be handled separately (Massey, 1994). Agnew (1989) also underlines that space is a more abstract concept, and he continues that it is something that is more conceptual than real as opposed to places. Tuan (1979) argued that space and place together are the essence of geography that uses spatial analysis and explain spatial organisation. According to Faragó (2012), in the postmodern interpretations space and place are especially distinguished. The first one, as Agnew (1989) already had pointed out, is a general, abstract concept, to a lesser extent a „*larger physical unit*”, but much more a system of places (relational system of occupied positions in space). Other, postmodern interpretations of space as a conceptual base for „*spatial structures*” where space is the „*relational system of the multitude of occupied positions*”, meanwhile place is a „*specific experience*” which depicts the relational system locally (Faragó, 2012), lead us further from absolutist interpretations to the relativist approaches. We see territory means principally delimited, administrative unit, meanwhile space is a more general/abstract spatial concept. In case of adaptation policy, we can concentrate rather on the latter notion.

4. Results: space interpretations in spatially focused disciplines / fields

The following subchapters introduce the main space concepts and interpretations of those disciplines / fields on which research exploring spatiality’s presence in adaptation policies can be built.

4.1. (Natural) Geography – the basis of human space interpretations

Geography in general is one of the most significant space-oriented disciplines; its understanding of space creates the foundations of many others. Cohen (2003) defines geography as a discipline that studies the characteristics and patterns of the natural and anthropogenic environment’s interactions – this definition indicates the main branches of the discipline: natural and social/economic geography. The basis of the discipline’s space interpretation derives basically from *natural geography* that examines space with empirical tools based on positivism/realism, regarding space as an external endowment, as Faragó (2012) remarks in his summarizing work. But where are these bases from? Faragó says that natural sciences (e.g., physics, geometrics) provide the roots of the generally known space concept (the well-known three-dimensional space without preferred points, an „*empty form that can be freely filled in*”). This geometrical space is timeless, immaterial and homogeneous (Dusek, 2004). Additionally, there is an ordering force deriving from space’s substance as an independent variable that affects its elements. This approach still has the strongest impact on human thinking of the issue (Faragó, 2012).

²⁵ The region is "a part of the earth's surface with defined boundaries and characteristics". Place is „also a certain part of the earth's surface applies, (...) we do not use it in an abstract sense, only one can be identified location-related” (Haggett, 2006:5).

The described features, e.g. the container-like space, are the essence of the absolutist space interpretation in which space is an objective entity with its own structure, based on the special dualism of continuity of space and division of the things in the “container” (Korompai, 1995; Nemes-Nagy, 1998; Dusek, 2004) (Figure 2, part a). Though this approach is basically “rudimentary”, it has still a strong role as an interpretational framework in practical fields focusing on space formation (e.g., physical planning, architecture, urban planning, etc.) (Nemes-Nagy, 1998). One of the main absolutist space interpretation-oriented subjects of geographical analyses is the natural space as the actual framework of human activities, that directly influences the individuals’ behaviour. Dusek (2004) even use the notion of natural geographic space, as a part of the natural space that can be perceived by humans in terrestrial scale. In this approach it is not difficult to recognize similarities with the geographical space of climate change as frameworks of climatic processes (“the container” in which these processes are taking place) and at the same time the space is also affected by those processes.

We can see natural geography’s absolute space interpretation and geography’s space, place and territory concepts (delimited/limitless geographical areas with abstract or concrete meaning) still have relevant impact on current human space interpretation and as such, can form one basis of an adaptation’s spatiality-oriented research.

4.2. Social and economic geography – territorial differences of spatial elements

As a discipline of cultural geographical patterns, social and economic geography use similar space interpretations than natural geography but with a special focus: it examines the society’s natural spatiality. Here the other main approach, the relativist interpretation comes into our attention that depicts space as a system of relations between objects (objective beings) and an order of coexistence. This division of spatial elements and their relations creates the continuity of space (Korompai, 1995; Nemes-Nagy, 1998; Dusek, 2004) (Figure 2 part b). Here, spatiality’s essence, according to Nemes-Nagy (1998), is the dualism of non-identity of spatial objects with each other²⁶. Consequently, social and economic geography focus mainly on places, positions and regions.

Dusek (2004) considers social space as the external space of human activities that can be identified by geographic coordinates and described by humans’ and their communities’ features. The social space is the framework, subject, and result of human activities. Its materialized results exist in the natural space, so defining their locations are similar task to that of the natural geographical objects. This fact explains the even nowadays significant weight of absolutist approach in spatial studies.

Amin (2002) refers to the social space construction when considers place as the embodiment of virtual forces, temporary “spatio-temporalisation” of associational networks. He and other social geographers focus on sociocultural and -material aspects of spaces, regarding space (in the form of architectural, material, relational, social, and discursive spaces) and place as core elements of their interpretations and considering both concepts socially constructed²⁷ (Baroutsis et al., 2017).

As in this theories space does not derive from the nature but from the society (more exactly: from *the mutual connections between the two spheres*). The mentioned approaches focus mostly on the various relational systems, networks, and structures (Fragó, 2012). Social space’s materialized elements such as movements, points and formations of points, hierarchies, networks, and surfaces have outstanding role in territorial analysis. In this framework surface is a limitless space yet, while regions have boundaries. The surface can be regarded as the sum

²⁶ At the same time, while the essence of temporality is the dualism of non-identity with themselves; finally, spatiotemporal existence is the non-identity with both each other and themselves.

²⁷ According to them, social spaces and places produce and recreate social interactions and practices.

of the regions. To analyse the spatiality of society means therefore the examination of the surface and its regions. These analyses are based on the aspects of the geometric space (e.g., distribution of points, features of plane figures) and use related notions (distance, point, line, etc.) (Dusek, 2004). We can see clearly here the evolution from and further development of natural geography's space concepts.

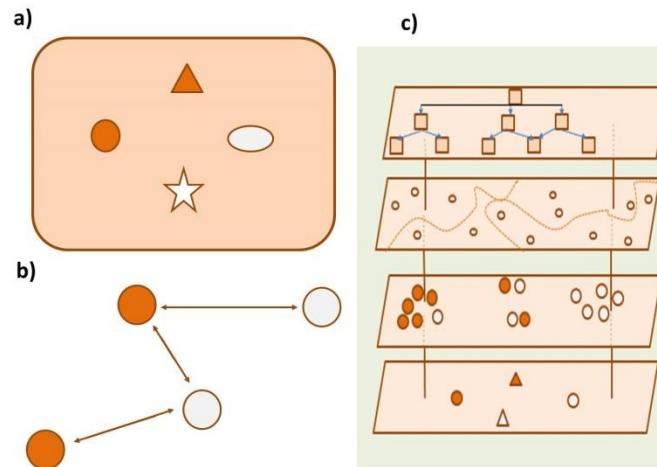


Figure 2: Different interpretations of space: absolute space (part a) of natural geography, relativist approach of localized outer spaces of social spheres (part b) and the interpretative, multi-layered approach of regional sciences

Source: Own editing (2023), based partly on Nemes-Nagy (1998)

All in all, social and economic geography regard space as a system of relations between objects, where non-identity with both each other and themselves is the main ordering force. This approach is essential in an analysis focusing on spatiality of adaptation, which deals basically with differences of spatial impacts of climate change and different adaptive capacities / vulnerabilities of given regions, countries, micro or macro regions, functional areas; or different effectiveness of policy measures in given territorial units. Furthermore, considerations of space's materialized elements such as climate impact-induced movements of people, identification of particularly vulnerable points (settlements), point formations (settlement groups), hierarchies (urban networks), networks (infrastructure elements) and surfaces (vulnerable regions) are also essential in adaptation-oriented planning as subjects of targeted interventions. The emphasis on places, positions and regions must be central aspects in an analysis of national adaptation activities' spatial performance, too. But the evolution of space interpretations does not stop here. The special space manifestations of different disciplines using this relativist approach and the mathematical methods get us to the space interpretations of the even more economic and social space-oriented studies.

4.3. Regional study: parallel use of external and internal space concepts

Space has several layers. This multi-layered nature of space is reflected well in the interpretative approach mentioned by Faragó (2012:10-11): different manifestations of space require different interpretations, due to the nature of space as very complex systems' spatiality. In this approach, says the author „*the substance of space manifests in the variety of its appearances and aspects*”, because different disciplines use different concepts to describe space, based on their unique objects and interpretations. Adaptation policy, as integrator of several sectors, harmonizes different manifestations of space, too, to identify how the society, the different sectors or the adaptation policy planning itself interprets the “subject-spaces” of their activities.

As a distinguished advocate of the interpretative approach, *regional studies* (together with classic regional economics and location theories) developed further the earlier mentioned approaches in their space interpretations. Meanwhile social and economic geography, as we saw earlier, concentrate on the relation system of society's external spatial elements, regional studies bring "internal spaces" into the analysis (Nemes-Nagy, 1998; Faragó, 2012).

Under existence in space and time Nemes-Nagy understands inequalities and some forms of order and nominates the two main components of the spatial dimension: territorial inequalities (differences) and territorial order (configuration - the functioning systems' spatial structure). To identify differences, spatial research prefers quantitative analyses of regional inequalities disaggregating upper territorial levels into lower territorial units to explore internal divisions. Meanwhile, configuration is analysed by elaboration of thematic maps. All in all, in the modern regional study's approach both specific geographical and social conditions and mechanisms are considered.

If in an analysis a social sphere's localization / connection to geographical space play a crucial role, we talk about external space (the existence of a given sphere in the geographical space). In this case identifying the immaterial social elements' connections to geographical locations are not an easy task usually, the localization is frequently indirect (Nemes-Nagy, 1998). External space could be analysed in two main ways²⁸. The pair of external space is the internal space. Those spatial aspects, inequalities and order that exist in the social sphere themselves, separated from (or not attributed to) the geographical space constitute the internal spaces. These are abstract space of a given sphere, which can be examined through basic relations of dual values (Nemes-Nagy, 1998; Dusek, 2004).

Due to the string of interconnectedness, separation of different spaces is not an easy task. According to Nemes-Nagy (2007), the basis of regional study' approach is the distinction between the localized outer space of society attributed to the geographical ("terrestrial") space and the inner space of given social spheres. The outer space in this view is the depiction and mapping of social processes. Similarly, Lengyel (2010) and Faragó (2012) emphasise the duality of physical and social space analyses.

After all, regional study's approach brought new aspects into the concept of spatiality. It incorporates "internal spaces" into the analysis; Its central method is the regional analysis instead of the sectoral approach; it concentrates on elements (spatial categories) to describe spatial inequalities and configurations. In adaptation planning and evaluations similar examinations are frequently conducted.

In regional study, economic, social, cultural and geographical spaces are often considered as different layers upon each other (Figure 2 part c). Differences within a given thematic space layer are transformed into spatial inequalities. When one examines such a complex and multi-sectoral topic than climate adaptation, or climate vulnerability with their impact chain-based elements; the application of this multi-layered approach considering both external and internal spaces and different spatial elements/aspects via regional science's complex double-sided methodology can be an asset to be utilized in a wider adaptation policy-oriented research's empirical part.

4.4. Political and administrative sciences – socially constructed realities and spaces

²⁸ Regional research describes or compares different territorial entities, their characteristics and structures, focusing on society's spatiality by quantitative spatial parameters, where the main analytical units are the territorial entities. The other way, sectoral analysis focuses on a relative homogeneous social sphere's spatially determined institutions, processes and actors to describe the spatial division through its functioning (Nemes-Nagy ed., 2005).

Political/administrational studies and international relations concentrate among other things on different governance and regime types, the related global processes and their territorial consequences. These factors might also seriously influence the establishment, structure and functioning of national adaptation policies' planning and MRE system-building practices.

Norms, rules, and their differences mean important information to understand the different approaches of given communities (e.g., nations, states). Looking through the different political science- and IR-theories, it seems that some social theory-based schools, like constructivism and post-structuralism are adequate also for depicting "behavioural" differences and space interpretations. Constructivism thinks that rather a nation's (historical, cultural, and social) belief system explains their policy efforts and behaviour than their general material interests. Not only geography, technology, and wealth BUT also ideas, norms and rules define states' identities and interests, they even constitute the actors themselves. Social construction of reality is the core concept of constructivism, saying that actors, interests, and identities are constructed socially, and these constructed categories help to understand the world (Barnett, 2019; Sørensen et al., 2021). Another theoretical school, post-structuralism's main questions are: how we construct the world and how constructions of the world, people and places make given policies natural/legitimate? Its representatives make ontological assumptions about concepts because it matters how we are viewing the world (Hansen, 2019; Sørensen et al., 2021). The analysed differences between national behaviours and concept constructions can explain differences in national adaptation-oriented planning- and MRE-system constructions.

This approach brings up once again the issue of socially constructed "internal" and "social" space interpretations. These might have also an impact on a given society's spatial structures. Faragó (2012) pays our attention that our affairs are arranged in the world in accordance with our perception of our spatial existence. For example, a given government operationalizes its internal space interpretations through regionalization processes or development of polycentric spatial structures; in other cases, they prefer decentralised management systems. In this respect territorial governance is a practical space-organizing intervention deriving from internal space interpretations (Figure 3)²⁹.

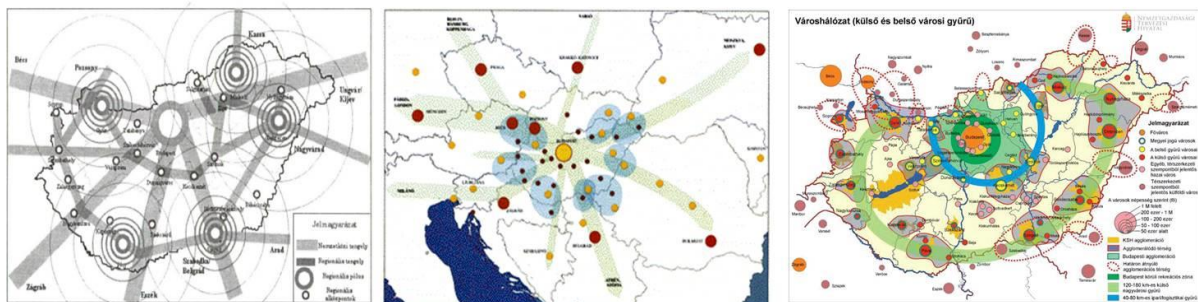


Figure 3: Different Hungarian urban network-related development concepts in different periods' Hungarian national spatial policies (NSDC 2005 (left), NDRC 2014 (middle and right))
Source: Parliamentary Decree 97/2005. (XII. 25.) and NGM-NTH (2014)

²⁹ As a good example, these differences can be detected also in the different Hungarian settlement network-related development objectives of different periods' domestic territorial policies. While the second National Spatial Development Concept (2005), in the era of European regionalisation, had emphasised the role of development poles (regional centres) in the Hungarian settlement network; then the next National Development and Regional Development Concept in 2014 already focused on different tiers of the urban system simultaneously, and put growing weight on county seats as sign of a polycentric development approach. The two different viewpoints reflect the changing spatial concepts of different political leaderships— and in different times these different approaches were operationalized.

Relativist and constructivist spatial approaches, as we saw, emphasise space's relational dimension, considering space as a direct product of society, made up from societal relations. These socially constructed "internal", "social" space interpretations can influence the spatial structure of society, too. In our case, historical, cultural, political and social characteristics of different societies must also be taken into account in an analysis concentrating on national adaptation policy activities, to find out how these characteristics influence different nations' adaptation policy activities. Differences in planning and MRE practices may root back to different national administrative and governmental features. Furthermore, manifestation of societal space interpretation into political/administrative spatial structures are good examples for the important role of socially constructed space interpretations' impacts on practical life and (even adaptation) policy decisions.

4.5. Two external space oriented regional disciplines: geopolitics/regional economics as geography of international relations/economy

Geography itself (more exactly: the external geographical space) is the essence of geopolitics, as the different definitions of the disciplines show. Numerous authors concentrate on the pivotal role of geographical settings in their definitions, focusing on political power's spatial framework (Cohen, 1973, 2008; Agnew, 1989; Tuathail et al., 1997; Kelly, 2016; Morgado, 2020).

The discipline's spatiality manifests already in its scope: namely the political processes at the international and on the domestic level, each influencing the other. Geography in geopolitics is defined as places. Place here means both the exact locations/settings where the aforementioned interactions occur, and the connections between these places (Cohen, 2008; Morgado, 2020). In these cases, the already known external space and relativist approach emerge again. Geographic proximity, differences in population density, or places' locations all influence political decisions. The picture is not constant: changes in geographical settings (e.g., discovery/depletion of natural resources, movement of people and capital, etc.) make geopolitical perspectives dynamic.

In the process of globalization, a much more complex geopolitical system stands out, restructuring existing hierarchical settings. Sub- and supranational levels' importance is increasing; macro regions, city regions, metropolitan entities, megalopolises competing even with states (Rosenau, 1992; Cohen, 2008; Vogler, 2019). Among the main systemic changes, the long-term alterations in climate and the natural environment must be particularly mentioned (e.g., the changing climatic factors influencing national strategies) (Cohen, 2008)³⁰. Climate change impacts and consequences vary from region to region causing large scale trans-border immigration that can change the existing situations (Cohen, 2008; Marshall, 2015).

The enlisted geographical factors of geopolitics can be utilized as analytical aspects in the planned empirical analyses of national adaptation policies. The picture is not constant: changes in geographical settings make geopolitical perspectives dynamic, as we saw, with the special example of climate change and its consequences. How given nations, states can use their climate adaptation policies in strengthening cooperation with or exert influence on other regions is also worth examining.

³⁰ Global warming and melting of ice caps make Arctic waters navigable and exploitable undersea energy sources from the continental shelves making these regions more attractive for great powers. Agriculture can extend into more northern areas in some regions (e.g., in Europe northern shifting of wine regions is expected). Increasing climate migration triggered by famine, desertification, floods, etc. is threatening among others Greece, Turkey, and other Levantine countries. Climate change impacts and consequences vary from region to region causing large scale trans-border immigration that can change the existing situations (Cohen, 2008; Marshall, 2015).

Another geography-oriented sectoral discipline is regional economics. Regarding territorial aspects, all branches of economics deal mainly with internal spaces; the analysis of whom are usually not part of empirical spatial analyses; rather the earlier introduced regional sciences concentrate on external spaces, or territorial analysis of given social spheres. Nemes-Nagy (1998) brings economics and regional studies as examples, as the former focusing on analysis of the economic space, while the latter on the spatial analysis of the economy. Dusek (2004) draws similar consequences: as opposed to social or economic geography, regional economics concentrate on society/economy and their territorial features; and examine the relation between society/economy and external conditions (among them the natural and social space) in general. Localized outer spaces of regional economies might also be taken into consideration in the research, especially in case of national monitoring activities and territorial implications of quantitative environmental evaluation methods and indicator systems.

4.6. Regional development: policy-oriented manifestation of regional economics/regional geography

When looking for space interpretations, even those practical fields are worth being dealt with that influence public and professional thinking about space. Among the most important of such fields are *the regional development policy and the related strategic and spatial planning activities*, as applied practical manifestations of regional geography and regional economics. In other words, regional economics, regional geography, and regional sciences provide the scientific background of policy and decision making in regional development.

Out of this practical space interpretation framework, a special mention must be made about *the notion of territorial cohesion*. The concept has been one of the essential pillars of the EU development policies in the last two decades. Salamin calls our attention to the evolution of the concept from being a pure balancing policy of regional differences³¹ to a practice- and policy-oriented integrated space interpretation. He says that since the elaboration of the TA 2020 document, territorial cohesion has become the subject of scientific research to an ever-growing extent. And although it remained a policy category and have not become a scientific concept (Salamin, 2018), its factors prove useful in any territorial/spatial research's analytical aspect system.

Territorial cohesion's most comprehensive interpretation is introduced by the 2011 *Territorial State and Perspectives of the European Union*³² (TSP) document and the *TA 2020 Strategy*. According to the TSP territorial cohesion means on the one hand the increasingly powerful mainstreaming of territorial aspects into sectoral development directions. On the other hand, it underlines the importance of a comprehensive and integrated (spatial) planning approach that takes special geographical features into consideration (Salamin, 2018). These main directions emerge indirectly in the TA 2030 document, too, but the accurateness of the description does not reach the level of the TA 2020. The enlisted territorial (cohesion) concepts can emerge among any research's analytical aspects that focuses on spatiality of climate adaptation.

Strategic spatial planning activity is one of the main supporters of regional development policy's objectives. In the first decades of the 21st century changing emphases in these activities can be observed: most authors underline that networked governance forms and blurred boundaries of functional territories got key positions in the changing planning systems. Strategic interventions have appeared even at scales other than those of the statutory (local/regional) planning system. Traditionally states shaped their territories into territorial structures harmonized with the administrative borders of elected bodies, covering the whole national state territory without overlaps. However, these boundaries were not flexible enough to handle current socio-

³¹ The first policy use of the term by the EC in 2004 gave a reason for this.

³² TSP is the policy strategy supporting background document of TA2020.

economic problems. As a response, non-governmental and business organisations started to create new functional spatial units at different territorial levels. These new functional territories result in a non-state-centred spatial view (Rosenau, 1992, 1995; Somlyódiné, 2019). As a result, policy making focuses on new forms of multi-layered, flexible scales instead of rigid, formal, clear geographical boundaries of administrative units, depicting better the real processes (Allmendinger & Haughton, 2010; Somlyódiné, 2019). The management of these functional spatial units led to the definition of soft spaces, other than administrative ones.

EU regional policy also deals with the problem of functional versus administrative places.³³ Particularly in connection with the climate issue the documents emphasise benefits of adaptation strategies targeting functional areas by acting and cooperating at levels of river- or lake-basin, coastal or urban regions etc. The relation between administrative units and natural geographical areas is a good example: ecological, natural processes are not operating in the framework of territorial statistical units (as we remember: climate change does not “recognize” political borders). Emergence of functional territories as subjects/targets of adaptation planning and MRE activities is also worth examining as part of the analytical aspect system of the planned research.

5. Conclusions and summary

5.1. Applicable space concepts and interpretations for the examination of adaptation's spatiality

To make proper foundation for an empirical analysis of spatiality's emergence in climate adaptation policy, as a first step, adaptation's spatiality, or spatiality in adaptation policy has to be defined. For this, space concepts of territory- or space-oriented disciplines and policy domains were collected. A wide variety of space interpretations emerged before us that show connections to adaptation policy, and in several points, they can be linked to the planned analysis of national adaptation policy activities' spatiality (Table 1).

In the conceptualization of adaptation's spatiality, absolutist interpretation is utilizable in the depiction of the geographical space as the place where climate change processes occur. (Natural) geography's absolute space interpretation and its space, place and territory concepts preserved their significant impact on human space interpretation even today. Relative interpretations can be used in the analysis of territorial dimensions. Social and economic geography's space considerations as a system of relations between objects is essential because adaptation policies must concentrate on territorial differences: different territorial impacts of and adaptive capacities/vulnerability to climate change in given territorial units. The examination of different spatial elements' presence is also based on relative space interpretations.

Objective spaces, and within this category, external space must be especially focused on as localized outer space of given spheres. In our case a given territorial unit's natural environment, economy or society will mostly be the subject (= sphere) of national adaptation plans' situation analyses.

However, as we have already mentioned in the earlier subchapters, the evolution of space interpretations brought even internal space-oriented studies into the focus. Regional study, for example, focuses simultaneously on external, localized outer spaces with geographic space-attributions and on given spheres' internal space structures and concepts. It applies regional

³³ The TSP 2011 document emphasised that territorial cohesion is relevant not only at different territorial levels but even in different functional territories. Moreover, it advocated a place-based approach providing better tailored territorial messages for functional territorial units within the interventions of Cohesion Policy. Both the TSP and the TA 2020 (ad its newest version, the TA 2030 as well) urge that planning, and management activities of urban settlements have to look over their administrative borders and focus on their functional regions.

analysis instead of the sector-oriented one; implements given social spheres' localization and connection to geographical space where differences/structures within a given thematic space can be transformed into territorial inequalities. It considers different (geographical, social, economic) spaces as different layers upon each other.

Here, the interpretative approach is also remarkable, that cannot be neglected in the case of climate policy, let alone climate adaptation, with its comprehensive, horizontal nature integrating numerous sectors, overarching them with a climate vulnerability-oriented umbrella. As spatial planning, adaptation policy also synthesizes different sectoral development directions onto a territorial unit. For doing this the multi-layered approach's benefit is unambiguous.

Relativist, constructivist spatial approaches also emphasise the relational dimension, regarding space as a direct product of society made up from societal relations. These socially constructed internal and social space interpretations can influence a society's practical administrative spatial structures, too, which can have an impact on adaptation's spatial frameworks, influencing the use of adaptation policy instruments, too. A national adaptation policy-oriented research must be interested in what extent are differences in national adaptation planning and MRE system-building practices in different countries are rooted back to administrative and governmental features.

The main geopolitical or geo-economic approaches through geographical re-orientation of their mother disciplines (politics and economics) play their part in adaptation's spatial approaches, too. Space interpretations in geopolitics are basically identical with the already introduced external spaces (geographical space with physical environmental elements) as localized outer perspectives of politics, where geographic proximity and places' locations influence political decisions. Moreover, the relativist approach emerges here again. Interesting question is how given states can use their climate adaptation policies in strengthening cooperation with or exert influence on other regions. Similarly, geo-economics and regional economics concentrate on their respective localized outer spaces. That approach will be depicted through the analysis of national adaptation-oriented indicator sets.

Geographic space-oriented adaptation policy instruments are the primary subjects of my wider future research. As a practical issue, even applied policy-oriented space concepts ought to be considered. Regional development policy's territorial cohesion-oriented conceptual background, and the related strategic and spatial planning activities can also play crucial part in the identification of spatiality through their presence in adaptation documents.

Adaptation's spatiality also might touch the problem of functional territories versus administrative units: different sectors and thematic fields are operating in special territorial frameworks, often different from administrative districts. The emergence of functional space concepts of regional geography and regional development policy is also worth examining in national planning or MRE documents.

Summarizing the different approaches and interpretations of the examined disciplines, we can draw the conclusion in the form as **an indicative definition for spatiality / spatial thinking**. In general, **spatiality** can mean the *prevalence of the above introduced spatial/territorial aspects in thinking and activities, if the analysed approaches, decisions, and actions are significantly influenced by the geographic characteristics, spatially/territorially different natural/social/economic endowments, and spatial structures*. We – at least during this research – understand under the term **spatiality in development policy and climate policy** *the conscious, constant and consequent taking of external and internal spatial elements and their characteristics, territorial/spatial differences, and spatial order into consideration within the absolute or relative space in the examined activities: planning and MRE, particularly in climate adaptation*. **We consider a policy activity spatially conscious if it put significant weight on these spatial dimensions** (characteristics, differences, and configurations) *both in its evidence seeking phase, reasoning, and decisions* (vision- and objective design and elaboration of measures), *during*

setting up indicator sets, and conducting evaluations or establishing decision supporting systems. If these aspects are at least equal with the weight of the sectoral approach (separated handling of different thematic fields) or even dominate it, then we can talk about a **spatially oriented approach**, or **spatial sensitivity** of these activities.

Table 1: Space interpretations and their possible application in an analysis of adaptation policy's spatiality

	Main space interpretations	Essential implication for adaptation policy	Potential utilization in the research
(Natural) Geography	<ul style="list-style-type: none"> absolute space interpretation: 3 dimensions, no preferred points, container analogy - space's substance: the ordering force space is an objective entity, there is the special dualism of continuity of space and division of the things 	<ul style="list-style-type: none"> natural geography's absolute space interpretation and geography's space, place and territory concepts (delimited/limitless geographical areas with abstract or concrete meaning) still have relevant impact on human space interpretation natural space, geographical space as the scene of climate change 	<ul style="list-style-type: none"> Description of climate factors' regional characteristics and spatial descriptions of natural spaces as part of documents/reports
Social/economic geography	<ul style="list-style-type: none"> relative approach: system of relations between objects creates the continuity of space. Substance: order of coexistence. Focus on places, positions, regions, relational systems and networks. social space: external space of human activities 	<ul style="list-style-type: none"> places, positions and regions are central aspects in national adaptation activities considerations of space's materialized elements (impact-induced movements, particularly vulnerable points (settlements), point formations (settlement groups), hierarchies (urban networks), networks (infrastructure elements) and surfaces (vulnerable regions) are essential adaptation planning subjects 	<ul style="list-style-type: none"> territoriality in adaptation: differences of territorial impacts of climate change and different adaptive capacities / vulnerabilities of given territories Analytical aspect: presence of territorial analysis/assessment/approach in documents
Regional studies	<ul style="list-style-type: none"> interpretative approach: different manifestations of space require different interpretations parallel focus on localized outer spaces of social/economic spheres with geographic space-attributions AND internal structures and concepts of given spheres central method: regional analysis; spatial dimensions: territorial inequalities (differences) and territorial order (configuration) spaces considered as different layers upon each other; different space categories applied parallel with each other (objective and real spaces, external and internal spaces, etc.) 	<ul style="list-style-type: none"> interpretative approach: different manifestations of space requires different interpretations to identify how the society, or the planning scene interpret the "subject-spaces" of their policy activities adaptation implements given social spheres' localization and connection to geographical space. complex and multi-sectoral climate adaptation, or climate vulnerability with its impact chain-based elements the application of multi-layered approach considering both external and internal spaces and different spatial elements/aspects via regional science's complex double-sided methodology 	<ul style="list-style-type: none"> Presence of application of different space categories parallel with each other (objective and real spaces, external and internal spaces) Emergence of regional analyses in the planning/evaluation activities Focus on spatial dimensions (differences and configurations)
Political / administrative sciences, IR	<ul style="list-style-type: none"> relativist and constructivist spatial approaches: space is a direct product of society, made up from societal relations. A nation's belief system explains policy efforts and behaviour. Not only geography, BUT also ideas, norms and rules define states' identities and interests Socially constructed "internal" & "social" space interpretations might influence the space structure of society (regionalism, decentralism) 	<ul style="list-style-type: none"> Differences in climate adaptation planning and MRE system-building practices may root back to different national administrative and governmental features. Manifestation of societal space interpretation into political/administrational space structures can influence the territorial levels of adaptation policy 	<ul style="list-style-type: none"> Spatial/ territorial governance and administrative structures' features as analytical aspects Adaptation planning's and MRE's territorial levels as analytical aspects
Geopolitics / regional economics	<ul style="list-style-type: none"> geography itself is the essence of geopolitics: impact of geography on politics is the main focus known external spaces (geographical space with physical environmental elements), as localized outer space of politics regional economics concentrate on society/economy and its territorial features instead of the social space; and examine not only the relation of the society/economy with the natural space but the relation between society/economy and outer conditions (among them the natural and social space) in general 	<ul style="list-style-type: none"> Geographical factors (discovery/depletion of natural resources, movement of people and capital, proximity, differences in population density, places' locations) are important decision influencer factors in geopolitics. MRE of adaptation activities might use environmental and regional evaluation approaches 	<ul style="list-style-type: none"> The degree how given nations/states can use their climate adaptation policies in strengthening cooperation with or exerting influence on other regions is also worth examining. quantitative environmental and regional evaluation methods, sustainability theories might also be taken into consideration especially in case of national monitoring activities and territorial implications of quantitative environmental evaluation methods and indicator systems.
Regional development policy, strategic / spatial planning	<ul style="list-style-type: none"> territorial cohesion-related notions constitute a special practical space concept, rooted back partly to regional study and social/economic geography main elements: mainstreaming of territorial aspects into sectoral development directions, comprehensive and integrated (spatial) planning approach, territorial optimum, territorial harmony, territorial potential and capital, territorial governance, problems of functional and administrative units mostly external spaces and territorial analyses of social/economic spheres are in the centrum 	<ul style="list-style-type: none"> Beyond scientific concepts even policy considerations must be taken into account in a practice-oriented field, like climate adaptation different sectors and thematic fields are operating in special territorial frameworks, different from administrative districts 	<ul style="list-style-type: none"> Adaptation is similar to spatial policy: it synthesises sectoral elements onto a territorial unit The enlisted territorial (cohesion) concepts' presence must emerge among the research's analytical aspects Emergence of functional territories as subjects/targets of adaptation planning and MRE as analytical aspects

Source: Own editing (2023)

5.2. Summary of the findings and further steps

The article gives a short overview of different geographic, external and internal space-oriented disciplines' space and territory interpretations to make a proper theoretical background of analysing national climate adaptation strategic and MRE documents' sensitivity to spatial issues. As the 5.1. subchapter shows, a mixture of absolute and relative interpretations, a more emphasised use of objective and external spaces, as well as territorial cohesion concepts of regional development policy can constitute the theoretical foundations of the future examination of the role and degree of spatiality in national adaptation policy instruments. Based on the reviewed concepts even a definition of spatial sensitivity (of adaptation policy) has been defined.

The aforementioned spatial sensitivity has not been examined yet in the field of climate adaptation policy, however, the connection between the policy field and the geographical space and spatiality is inevitable. As a further research direction, a detailed analysis of spatiality's weight in policy instruments is outlined. Figure 4's last column once again summarizes main implications/potential utilization of given disciplines/fields space concepts and their aspects connected to adaptation's spatial sensitivity as parts of an analytical aspect system, to make a proper base for the future research, in which, as initial step in this area, a comparative analysis of European national adaptation activities' spatiality will serve as a comprehensive pilot analysis. We see: the issue of space interpretations is a multidimensional question – as well as space itself. Consequently, when identifying spatiality/territoriality in a policy field, or when elaborating a proper analytical aspect system for a planned comparative analysis of national climate adaptation policy documents we must draw from several sources. This fact does not make the task easier – but we cannot expect any other result if we are dealing with two such complex issues than climate adaptation and spatial thinking.

References

- Agnew, J. (1989). The devaluation of place in social science. In Agnew, J. & Duncan, J. (Eds.), *The Power of Place (RLE Social & Cultural Geography)*. London: Routledge.
<https://doi.org/10.4324/9781315848617>
- Allmendinger, P., & Haughton, G. (2010). Soft spaces, fuzzy boundaries, and meta governance: the new spatial planning in the Thames Gateway. *Environment and Planning A: Economy and Space*, 41(3), 617–633. <https://doi.org/10.1068/a40208>
- Amin, A. (2002). Spatialities of Globalisation. *Environment and Planning A: Economy and Space*, 34(3), 385–399. <https://doi.org/10.1068/a3439>
- Barnett, M. (2019). Social Constructivism. In Baylis, J., Smith, S., & Owens, P., *The globalization of world politics: an introduction to international relations* (pp. 192–206). (Eight edition). Oxford University Press. <http://doi.org/10.1093/hepl/9780198825548.003.0012>
- Baroutsis, A., Comber, B., & Woods, A. (2017). Social Geography, Space, and Place in Education. In Noblit, G. W. (Ed.), *Oxford Research Encyclopedia of Education* (pp. 1–16). Oxford University Press. <https://doi.org/10.1093/acrefore/9780190264093.013.115>
- Chang, C. H., & Wi, A. (2018). Why the World Needs Geography Knowledge in Global Understanding: An Evaluation from a Climate Change Perspective. In Demirci, A., Miguel González, R., & Bednarz, S. (Eds.), *Geography Education for Global Understanding. International Perspectives on Geographical Education* (pp. 29–42). Springer, Cham.
https://doi.org/10.1007/978-3-319-77216-5_3
- Cohen, S. B. (1963). Geography and Politics in a World Divided. *Naval War College Review*, 16(1), 6. Retrieved: 13.12.2023, from <https://digital-commons.usnwc.edu/nwc-review/vol16/iss1/6>
- Cohen, S. B. (2015). *Geopolitics: The Geography of International Relations*. (Third edition). Lanham, Boulder, New York, London: Rowman & Littlefield. ISBN 9781442223493.
- Colven, E., & Thomson, M. J. (2018). Bridging the divide between human and physical geography: Potential avenues for collaborative research on climate modelling. *Geography Compass*, 13(2), e12418. <https://doi.org/10.1111/gec3.12418>
- Cresswell, T. (2008). Place: Encountering geography as philosophy. *Geography*, 93(3), 132–139, <https://doi.org/10.1080/00167487.2008.12094234>
- Davidse, B. J., Othengrafen, M., & Deppisch, S. (2015). Spatial planning practices of adapting to climate change. Spatial planning practices of adapting to climate change. *European Journal of Spatial Development*, Article No. 57, April 2015. Retrieved: 13.12.2023, from <https://archive.nordregio.se/Global/EJSD/Refereed%20articles/refereed57.pdf>

- Dusek, T. (2004). *A területi elemzések alapjai*. Regionális tudományi tanulmányok 10. ELTE Regionális Földrajzi Tanszék, MTA-ELTE Regionális Tudományi Kutatócsoport, Budapest. Retrieved: 15.12.2023, from https://geogr.elte.hu/REF/REF_Kiadvanyok/REF_RTT_10/REF_10_tartalom.htm
- Faragó, L. (2012): Térértelmezések. *Tér és Társadalom*, 26(1), 5–25. <https://doi.org/10.17649/tet.26.1.2007>
- Farbotko, C. (2016). Climate change and national security: an agenda for geography. *Australian Geographer*, 49(2), 247–253. <https://doi.org/10.1080/00049182.2017.1385119>
- Greiving, S., & Fleischhauer, M. (2010): National strategies of European countries for climate change adaptation: A review from a spatial planning and territorial development perspective. BMVBS-Online-Publikation, No. 21/2010. Retrieved: 20.12.2023, from https://www.bbsr.bund.de/BBSR/EN/publications/ministries/BMVBS/Online/2010/DL_ON212010.pdf?__blob=publicationFile&v=1
- Greiving, S., & Schmidt-Thomé, P. (2013). National Climate Change Adaptation Strategies of European States from a Spatial Planning and Development Perspective. *European Planning Studies*, 20(1), 27–48. <https://doi.org/10.1080/09654313.2011.638493>
- Haggett, P. (2001). *Geography: A Global Synthesis*. Budapest: Typotex.
- Hansen, L. (2019). Poststructuralism. In Baylis, J., Smith, S., & Owens, P., *The globalization of world politics: an introduction to international relations* (pp. 177–191). (Eight edition). Oxford University Press. <http://doi.org/10.1093/hepl/9780198825548.003.0011>
- Kelly, P. (2016). *Classical Geopolitics: A New Analytical Model*. Stanford University Press. <https://doi.org/10.1515/9780804799508>
- Koks, E. E., Moel, H., Aerts, J. C. J. H., & Bouwer, L. M. (2014). Effect of spatial adaptation measures on flood risk: study of coastal floods in Belgium. *Regional Environ Change*, 14(1), 413–425. <https://doi.org/10.1007/s10113-013-0514-7>
- Korompai, A. (1995). *Regionális stratégiák jövőkutatósi megalapozása*. Regionális tudományi tanulmányok I. kötet. ELTE TTK, Regionális Földrajzi Tanszék, Budapest.
- Lengyel, I. (2010). A regionális tudomány „térnyerése”: reális esélyek avagy csalfa délibábok. *Tér és Társadalom*, 24(3), 11–40. <https://doi.org/10.17649/tet.24.3.1326>
- Marshall, T. (2015). *Prisoners of Geography. Ten Maps that tell you Everything You need to know about Global Politics*. London: Elliott&Thompson. ISBN 9781783962433.
- Massey, D. (1994). *Space, Place, and Gender*. University of Minnesota Press. Retrieved: 15.12.2023, from <https://www.jstor.org/stable/10.5749/j.ctttw2z>
- Member States’ Ministers responsible for Urban Development and Territorial Cohesion (2005): The Territorial State and Perspectives of the European Union – Towards a Stronger European Territorial Cohesion in the Light of the Lisbon and Gothenburg Ambitions. A Background Document for the Territorial Agenda of the European Union. Luxembourg, 2005.
- Member States’ Ministers responsible for Urban Development and Territorial Cohesion (2007). Territorial Agenda of the European Union. Towards a More Competitive and Sustainable Europe of Diverse Regions. Agreed on the occasion of the Informal Ministerial Meeting on Urban Development and Territorial Cohesion in Leipzig on 24 / 25 May 2007.
- Member States’ Ministers responsible for Spatial Planning and Territorial Development (2011). The Territorial State and Perspectives of the European Union 2011 update Background document for the Territorial Agenda of the European Union 2020. Presented at the Informal Meeting of Ministers responsible for Spatial Planning and Territorial Development on 19th May 2011 Gödöllő, Hungary.
- Member States’ Ministers responsible for Spatial Planning and Territorial Development (2011). Territorial Agenda of the European Union 2020 Towards an Inclusive, Smart and Sustainable Europe

of Diverse Regions agreed at the Informal Ministerial Meeting of Ministers responsible for Spatial Planning and Territorial Development on 19th May 2011 Gödöllő, Hungary.

- Member States' Ministers responsible for Spatial Planning and Territorial Development and/or Territorial Cohesion (2020). Territorial Agenda 2030. A future for all places. Informal meeting of Ministers responsible for Spatial Planning and Territorial Development and/or Territorial Cohesion. 1 December 2020, Germany.
- Morgado, N. (2020). Neoclassical geopolitics: Preliminary theoretical principles and methodological guidelines. *Medunarodni Problemi*72: 1. pp. 129-157. (2020). <https://doi.org/10.2298/me-djp2001129m>
- Nemes-Nagy, J. (1998). *A tér a társadalomkutatásban*. Ember-település-régió sorozat, Hilscher Rezső Szociálpolitikai Egyesület, Budapest.
- Nemes-Nagy, J. (2007). Kvantitatív társadalmi térértelmezési eszközök a mai regionális tudományban - Elements of Quantitative Spatial Analysis in the Recent Regional Science. *Tér és Társadalom* 21. évf. 2007/1. 1-19. p. <https://doi.org/10.17649/tet.21.1.1090>
- Nemes-Nagy, J. (2009). *Terek, helyek, régiók: A regionális tudomány alapjai*. Akadémiai Kiadó, Budapest. ISBN 978-963-058-656-5.
- NGM-NTH. (2014). National Development 2030. National Development and Regional Development Concept. Based on the Governmental Decree 1254/2012. (VII. 19.) on renewal of regional development policy and elaboration of the new National Development and Regional Development Concept.
- Randall, S. (2017). Contributions and perspectives from geography to the study of climate. *WIREs Climate Change*, 8(4), e466. <https://doi.org/10.1002/wcc.466>
- Rosenau, J. N. (1992). Governance, order, and change in world politics. In Rosenau, J. N., & Czempiel, E.-O. (Eds.), *Governance without Government: Order and Change in World Politics* (pp. 1–29). Cambridge: Cambridge University Press. <https://doi.org/10.1017/cbo9780511521775.003>
- Rosenau, J. N. (1995). Governance in the Twenty-first century. *Global Governance*, 1(1), 13–43. <https://doi.org/10.1163/19426720-001-01-90000004>
- Salamín, G. (2018). *A földrajzi tér alakításának európaizálódása: Az Európai Unió térbeli stratégiáinak, tervezésének és kohéziós politikájának hatása az európai országok térbeli tervezési rendszereinek transzformációjára*. [Doktori disszertáció]. Szent István Egyetem. Enyedi György Regionális Tudományok Doktori Iskola Gödöllő. <https://doi.org/10.14751/SZIE.2018.010>
- Sapountzaki, K., Wanczura, S., Casertano, G., Greiving, S., Xanthopoulos, G., & Ferrara, F. F. (2011). Disconnected policies and actors and the missing role of spatial planning throughout the risk management cycle. *Natural Hazards*, 59(3), 1445–1474. <https://doi.org/10.1007/s11069-011-9843-3>
- Somlyódy-Pfeil, E. (2019). The Adaptation of Territorial Governance from Unitary State Perspective: About the Framework of Functional Space Construction. *Corvinus Regional Studies*, 4(1-2), 41–60. Retrieved: 15.12.2023, from https://unipub.lib.uni-corvinus.hu/6657/1/crs19_1_2_somlyody_pfeil_e.pdf
- Sørensen, G., Møller, J., & Jackson, R., (Eds.) (2021). *Introduction to International Relations: Theories and Approaches*. (8th edition). Oxford University Press. <https://doi.org/10.1093/hepl/9780198862208.001.0001>
- Störbjork, S., & Uggla, Y. (2015). The practice of settling and enacting strategic guidelines for climate adaptation in spatial planning: lessons from ten Swedish municipalities. *Regional Environmental Change*, 15(6), 1133–1143. <https://doi.org/10.1007/s10113-014-0690-0>
- Sütő, A. (2023). The role of strategic planning and territorial aspects of sustainability and climate adaptation activities. Under publication in E-Econ. Sopron, 2023.

- Sütő, A., Selmeczi, P., & Lovász, C. M. (2023). *Potential Applicability of Vulnerability Assessments in the Western Balkan Countries*. *KnE Social Sciences*, 8(1), 505–534. <https://doi.org/10.18502/kss.v8i1.12673>
- Taylor, P. J., & O’Keefe, P. (2021). In praise of Geography as a field of study for the climate emergency. *The Geographical Journal*, 187(4), 394–401. <https://doi.org/10.1111/geoj.12404>
- Tuan, Y. F. (1979). Tuan, YF. (1979). Space and Place: Humanistic Perspective. In Gale, S., & Olsson, G. (Eds.), *Philosophy in Geography (Theory and Decision Library, vol. 20.)* (pp. 387–427). Springer, Dordrecht.Dordrecht: Springer. https://doi.org/10.1007/978-94-009-9394-5_19
- Tuathail, G. Ó., Dalby, S., & Routledge, P. (Eds.) (1997). *The Geopolitics Reader*. (First edition). London: Routledge. <https://doi.org/10.4324/9780203444931>
- Vogler, J. (2019). Environmental issues. In Baylis, J., Smith, S., & Owens, P., *The globalization of world politics: an introduction to international relations* (pp. 387–403). (Eight edition). Oxford University Press. <https://doi.org/10.1093/hepl/9780198825548.003.0005>
- Weckroth, M., & Ala-Mantila, S. (2022). Socioeconomic geography of climate change views in Europe. *Global Environmental Change*, 72, 102453. <https://doi.org/10.1016/j.gloenvcha.2021.102453>