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Lifelong Learning and Education in Healthy and Sustainable Cities

 Springer

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Editorial

This book aims at bringing the knowledge about the theme of lifelong learning and education for sustainable development and intends to be a contribution to the implementation of Sustainable Development Goals (SDGs) considering the broad field in which it is inserted.

The interface between environment, health, and lifelong learning is fundamental to achieve the sustainable development agenda that highlights critical links between development, the environment, human well-being and the full enjoyment of a wide range of human rights, including the rights to life, health, food, water, and sanitation. It is increasingly evident that due to the rapid demographic development as well as ecological and social challenges, global sustainability goals can no longer be reached without an active role of the cities.

Considering the broad field of topics associated with SDGs, this book is divided into seven distinctive parts: The first is related to the topical issue of Sustainable Cities and then deepens to urban planning in order to address inequality and the effects of climate change. The second part focuses on Healthy Cities and Healthy Environments in order to better understand how cities can be built in harmony with nature thereby connecting cities, rural areas, and with sustainability thinking. The third part focuses on Governance for Sustainable Development through education and the implementation of agendas for the development of healthy cities and environments. The fourth part focuses on the social determinants of health oriented to the SDGs. The fifth part focus on Education and Lifelong Learning for Sustainability, through a multidisciplinary approach presenting the relationship between individual and collective learning. The sixth part focuses on Sustainable Cities; Sustainable Buildings; and Sustainable Infrastructure. The final part of this book concentrates on Energy Security, Access, and Efficiency.

A total of 35 double-blind peer-reviewed papers from Europe (10), Asia (2), Africa (1), North America (4) and South America (18), cover the different subjects related to the above themes of this book.

In the first part of the book, which is related to Sustainable Cities, readers can find four.

The first chapter from Luiz Priori Jr., Marcelo Hazin Alencar, and Adiel Teixeira de Almeida, is entitled; “Coping with Climate Change Effects on Urban Infrastructure—Problem Structuring Based on Value-Focused Thinking Methodology”. This chapter focuses on the effects of global climate change on urban settlements and emphasizes the importance of including climate change mitigation strategies in the planning and management of sustainable urban environments. It suggests a methodology using Value-Based Thinking (VFT) in order to assist in decision-making for governments and communities and is based on seeking to ensure that available resources are implemented in a coherent way.

In the chapter; “Participatory GIS for Urban Sustainability and Resilience: A Perspective of Social Learning and Ecology of Knowledge”, Carolina Monteiro de Carvalho and Leandro Luiz Giatti reinforce the potential of Participatory Geographic Information Systems (PGIS) in terms of promoting learning and social participation in the quest for environmental sustainability in cities. The authors argue that the tool has great potential for educating and empowering citizens, providing better governance and urban settings and, therefore, promoting healthier and more resilient cities.

João Soares, Leila dal Moro, Ulisses Azeiteiro, and Luciana Brandli’s chapter entitled; “The Regional Development Councils of Rio Grande do Sul as a Model of Participated Regional Management. Comparative Case Study”, comparatively analyze the development and application of the Sustainable Development Goals in the region of COREDE, located in Rio Grande do Sul—Brazil and the region of Basilicata—Italy.

In chapter; “Participation in Spatial Planning for Sustainable Cities: The Importance of a Learning-by-doing Approach”, Ann Crabbé, Anne Bergmans, and Marc Craps presents the notion of slow urbanism as an appropriate approach to urban planning processes in order to effectively contribute to the creation of safer, more sustainable and resilient cities. Implementing slow urban planning principles can work for city development and build resilience in case of unexpected (sudden) events. In addition, the authors provide guiding principles for participatory co-creation processes that facilitate social learning in spatial planning processes, such as: (1) organizing participation in the early stages (pre-draft), (2) a facilitating government, aware of the relevance of a reflexive approach and (3) a learning-by-acting in the implementation of new and innovative solutions (spatial).

In chapter; “The Urban Planning Guided by Indicators and Best Practices: Three Case Studies in the South of Brazil”, Vanessa Rocha, Luciana Brandli, Rosa Kalil, and Cristiane Tiepo, addresses the importance of integrated learning (university versus community) in the transformation of cities into healthy environments. First, three polo cities in Southern Brazil were analyzed through urban planning indicators that contribute to a healthier environment. Secondly, successful case studies were carried out at both national and international levels, aiming at the sustainable transformation of cities, analyzing the applicability of the cases to the municipalities studied. Thirdly, interactions with the selected communities, including discussions and learning, were conducted in the face of more sustainable urban planning techniques. The results revealed problems in the current urban planning, especially

in areas and indices of green coverage which are healthy indicators of the urban environment. In addition, and in order to combat climate change and to develop resilience; the inclusion and participatory monitoring of urban planning indicators were seen as essential factors for good management and quality of life in cities.

The second part of the book concerns Healthy Cities and Healthy Environments.

In chapter; “Nature, People and Place: Informing the Design of Urban Environments in Harmony with Nature Through the Space/Nature Syntax”, Karen Munro and David Grierson, address the dichotomy between the psychological, physical, and emotional benefits nature offers and the growth of the world’s urban population. How do we maintain this vital and valuable human connection with nature in an increasingly urbanizing world? Based on previous preliminary publications, this chapter will update the findings of a new interdisciplinary methodology called Space/Nature Syntax, which was developed and applied in the Arcosanti “urban laboratory” in the Arizona desert, United States. The findings, which support the relationship between visual connectivity, nature and certain social interactions, present a unique understanding of nature’s influence on human interactions with other people and places. The findings also present how the informed design can satisfy the biophilic need and allow the human and essential nature connection to develop, thereby taking steps to understand how cities can be built in harmony with nature.

In chapter; “Public Policies to Live Well (Buen Vivir) in Harmony with Nature”, Vanessa Hasson de Oliveira aims to contribute to a paradigm shift in law and society, abandoning the anthropocentric perspective in favor of affirmative poly-centric bio-politics. For the successful implementation of the proposal, the author deals with the Law of Universal Fraternity by the practice of the action of loving that prevails regardless of law enforcement and becomes immanent throughout the entire legal system.

Marco Akerman, Rosilda Mendes and Francisco de Assis Comarú’s chapter entitled; “Health and the Urban: Multiple Threads Interconnecting Health in the City”, emphasize that urban scenarios are based on problems due to the changes that drive the historical transformations of society, such as increasing urbanization, and the impact on morbidity and mortality rates and the health status of the population. The relationship between “health” and “urban” was analysed with six global agendas. As a result of the analysis, health as a topic emerges in these plans with multiple interfaces, such as; health and environment; migration and health; access to health services; local governance; urban planning and policies; violence; poverty and vulnerability; and equity in health. Some see urban areas as a determinant of health and pursue a basis of evidence for interconnection, while others see health as a weak link to potentially harmful urbanization. There are still many questions regarding the operational framework that crosses health and cities among selected global agendas.

Veruska Prado Alexandre, Claudia Job Schmitt, and Renato Sérgio Jamil Maluf introduce the complex relationships that connect food, health, and the environment at the heart of contemporary food policy in the chapter; “Making Rural and Urban Connections by Integrating Nutrition and Agriculture: A Case Study of Food and

Nutrition Security Instruments”. Healthy food based on sustainable food systems is an important component for connecting cities, rural areas, and sustainability, and is permeated by multiple determinants that require the use of integrated public policy instruments. The authors discuss two of these instruments extracted from the historical construction of a political agenda of the Food and Nutrition Security (FSN) in Brazil: the National School Meal Program (NSMP) and the Brazilian Food Guide (BFG). It analyses how the healthy food and nutritional tools link agriculture and nutrition, and how they define relationships with the notion of sustainability.

Artie Ng, Ben Fong and Tiffany Leung, in the chapter entitled; “Health and Sustainability: Reinforcing Public and Private Engagement through Tertiary Institutions”, propose a conceptual framework relating health and sustainability as responsible actions for the public and private sectors. Exploring the case of Hong Kong as an international city and financial centre, a social science approach was adopted to analyse strategies for health promotion and sustainability. It was found that if accountability is to serve public interests, it should be extended to incorporate the underlying social and health costs associated with the lack of environmental sustainability. Tertiary institutions, including universities, could play a strategic and moderating role as an independent centre to integrate the efforts of government, the business sector and communities, in general, could also enable a dynamic process of health, sustainability and quality of life through recurrent learning, teaching, and research.

The third part of the book concerns Governance for Sustainable Development.

In chapter; “Using the IPBES Conceptual Framework to Study Governance, Institutional Arrangements and Drivers of Biodiversity Loss in two Indian Cities”, Sandhya Chandrasekharan adopts the conceptual framework offered by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) to examine the theme of the Convention on Biological Diversity (CBD) of Cities and Biodiversity in the Indian metropolitan cities of Chennai and Bengaluru. These cities, with populations already comparable to those of the largest urban agglomerations worldwide, face governance challenges related to biodiversity and ecosystems. The research was delineated to explore the institutional architecture and the levels of awareness of biodiversity and ecosystem services. In this context, the real estate housing industry has emerged as a key player in the evolving landscape in these areas.

Maria Cristina Franceschini, Elisabete Agrela de Andrade, and Karina Cimmino, in chapter; “Healthy Cities, Healthy Settings and Education: How do They Work Together to Promote Sustainable Development?” discuss some of the existing agendas for the development of healthy cities and environments, as proposed by the World Health Organization (WHO). They consider the Salutogenic model as an option to promote a paradigm shift towards models that produce life and health at the territorial level. The authors reflect on the role that education can play in the development of healthy and sustainable environments and how education can contribute to an emancipatory and health promoting practice for sustainable development. This highlights some of the connections that need to be built within a context of multiple fragmentations of concepts, agendas, sectors, values, and power.

In chapter; “Education for Sustainability as a Tool to Promote Sustainable Development: An Experience in the South of Brazil”, Cristiane Tiepo, Luciana Brandli, Rosa Kalil, and Vanessa Rocha presents the research that was carried out in three cities of Rio Grande do Sul, Brazil (Passo Fundo, Porto Alegre, and Santa Maria), with the aim of empowering citizens in education for sustainability. As a result, it was possible to identify that few citizens know about important participatory channels, such as “Popular State Consultation”. Individuals active in resident associations and nongovernmental organizations do not have sufficient power to participate in Deliberative Municipal Councils, Public Hearings, courses and training projects, thereby reinforcing the importance of education for sustainability as a tool to enhance local governance.

In chapter; “Right to the City and Public Policies: Current Perspectives of the Judicialization of Environmental Sanitation Policies in Brazil”, Lorena Sales Araújo and Patrícia Borba Vilar Guimarães analyse the challenges of the contemporary city emphasizing its urbanization process and the need to guarantee the right to the city to all adopting the principle of sustainability and the concept of intelligent cities. The authors present how the Brazilian higher courts have positioned themselves in the recognition of the right to the city, as a fundamental right. They analyse a leading case of the Brazilian jurisdiction on the compulsory implementation of public policies in order to improve the quality of the water supply system and sanitary sewage.

In chapter; “Remote but Connected: Ownership-Inspired Behavior-Driven Development [OIBBD] and What an e-learning Governance System for Africa Could Look Like”, Judith Gottschalk and Nicolai Winther-Nielsen present OIBBD, a development strategy designed for e-learning governance in remote areas in Africa to support sustainable education as part of the 2030 Agenda and the Sustainable Development Goals (SDG). It has been found that the use of e-learning technology is one of the keys to the development of sustainable education in urban and remote areas in West Africa. This is due to the reduced demands of students who are well integrated into their rural society. Leadership in this area, and the empowerment in African teachers, can lead to develop ownership in the use of e-learning technology and thus contribute to the achievement of SDG.

In the fourth part of this book, the focus is on the Social Determinants of Health Oriented to Sustainable Development Goals.

Marcia Westphal, Maria Franceschini and Andréia Setti, in their chapter; “How can the Healthy Municipalities, Cities and Communities Strategy Advance the Sustainable Development Goals Agenda? Lessons from Agenda 21 and the MDGs in Brazil”, examine that the Healthy Municipalities, Cities and Communities (HMC) has the potential to link national and international agendas, such as SDG, based on the real needs of the territory and its population. The HMC networks, which are present across the American continent, can play a key role in this process because of its capillarity and potential to mobilize actors at various levels. They can also be strategic in promoting the empowerment and education process to strengthen communities’ capacity to promote sustainable action.

In chapter; “Sustainable Development Goals as a Framework of Education for Healthy Cities and Healthy Environments”, Marija Jevtic and Catherine Bouland present the Education as a powerful tool for contribution to urban health that can drive us to the achievement of SDGs. And vice versa, the SDGs should present a framework for curricula and contribute to literacy, raising awareness, and contribute to excellence in various professions.

Roberto de Almeida and Patrícia Carvalho, in chapter; “Healthy People Living on a Healthy Planet—The Role of Education of Consciousness for Integration as an Instrument of Health Promotion”, present the Integrative Health approach to the socio-environmental responsibility. This has been applied in the context and experience of Itaipu Binacional—Cultivating Good Water program for health awareness and promotion through the articulation of human needs related to the multidimensional aspects of health, social life, natural environment, and sustainable development. Based on awareness education, the expected result of the Integrated Health Promotion is an increase in the social capital of communities and a greater commitment to the values and principles of a new human logic, that of *Homo sustentabilis*. Educating awareness regarding integrative health principles facilitates learning how to take care of yourself, others, and the environment.

In chapter; “Achieving Sustainability in the City of Winona, Minnesota (USA): A Case Study”, the authors Bruno Borsari, Neal Mundahl, Anne Morse, Pat Mutter and John W. Howard present the challenges and opportunities to pursue sustainable development in Winona, Minnesota, USA, and is based on seven SDGs, specifically: urban agriculture, composting, parks and green-field conservation, urban landscaping to attract species of pollinators, water quality, sustainable tourism, and recycling.

In chapter; “Education and Lifelong Learning Sustainability: Windows of Opportunities Found in Brazilian Experiences that Address Agenda 2030 and Advocacy for Health Equity”, Dais Gonçalves Rocha, Maria Paula Zaitune propose the fulfillment of the Sustainable Development Objectives, creating a dialogue between the literature and the successful experiences found in Brazil. These experiences are inter-sectorial actions and urban planning strategies linked to the international agendas for health promotion and SDGs.

In the fifth part of this book, the focus is on Education and Lifelong Learning for Sustainability.

Jean-Pierre Schweitzer and Susanna Gionfra, in the chapter; “Nature-based Education for Resilient Cities”, addresses nature-based education with green infrastructure (GI), including protected areas which present an opportunity in the context of the environmental and socio-economic challenges faced by urban citizens.

Petra Kuenkel and Alina Gruen in their chapter; “Co-creation for Sustainability as a Societal Learning Journey”, explore the relationship between lifelong individual and collective learning, with a particular focus on learning in multi-stakeholder collaboration, that enhances systemic change towards sustainability. The authors suggest a methodology—the Collective Leadership Compass—as a guiding tool for transformational change processes in multi-stakeholder collaboration.

Adriana Gelpi, Rosa Maria Locatelli Kalil, Wagner Mazetto de Oliveira, in the chapter; “Lifelong Education: Citizenship Lessons for Life in more Sustainable Communities?”, analyse the integration and implementation of concepts of urban planning and sustainability in the school community.

In chapter “Live-long Learning as a Sustainability Strategy”, Christopher A. Haines explores why we need to start with understanding ourselves and our thinking, and then how we should turn it into a lifelong learning attitude in order to progressively expand our knowledge and expand our capacity to regenerate society and our built environment.

Chris Willmore, James Longhurst, William Clayton, Hannah Tweddell, and Amy Walsh in the chapter; “Young People’s Role in Creating Sustainable Cities”, draw upon the award-winning Bristol Green Capital: Student Capital research data, the Bristol Learning City project and well-being, and relational thinking literature. This is done in order to explore the relationships between SDG 4, “learning, engaged activity and well-being”, and “the significance of partnerships”, SDG17, as an outcome in its own right. They argue that the capacity of young people to play a role in SDG11, “developing city sustainability” is undervalued.

In chapter; “Climate Change, Education for Sustainable Development in Urban Educational Landscapes and Learning Cities. Experiences and Perspectives From Osnabrück”, Gerhard Becker presents a model of sustainable development in six dimensions as a theoretical basis, with education as an independent dimension, and applies this model to the thematic area of climate change education for sustainable development (CCESD) in the city Osnabrück, Germany.

Carolina Sampaio Marques, Nathália Rigui Trindade, Rodrigo Reis Favarin, Suelen Geise Telocken and Marcelo Trevisan, in the chapter; “Institutional Management and Teacher Perception in Strengthening Education for Sustainability”, addresses Sustainability Education, and focuses on transformative approaches to the integration of principles sustainable development.

In the sixth part of the book, the focus is on Sustainable Cities & Sustainable Buildings and Sustainable Infrastructure.

In chapter; “Promoting Sustainability: The Role of Smart Cities”, Madhavi Venkatesan focuses on the economic elements that both promote and enable sustainability consistent with the attribution of a smart city. Quality of life parameters, along with intergenerational resource allocation and ecosystem preservation, are assumed as a focus in the implementation of consumer education programs targeted as a foundation for smart economic development.

In chapter “How Technologies Contribute to Urban Sustainability: The Case of Curitiba—Brazil”, Paola Saraiva, Lauro Ribeiro, Inara Camara, and Thaísa da Silva evaluate the city of Curitiba, the capital of the state of Paraná (Brazil), and considers a model of intelligent Brazilian city focusing on physical, social, institutional, and economic infrastructure in an innovative sustainable development.

In chapter; “Communication as a Tool for Expanding Social Participation: The Case of the Rio Operations Center”, Alexandre Hojda and Pedro Reis Martins highlight the relationship between the use of Information and Communications Technology (ICT) and the social participation in the city of Rio de Janeiro. Through

the social and mediatic engagement strategy of Rio Operations Center, an urban command and control centre launched in 2010 to assist the logistic city management, the authors present four perspectives on the communications strategy: (1) press companies engagement in the city's operational routine; (2) the use of web-based social media tools to engage citizens; (3) partnerships with urban mobility mobile applications and (4) live video broadcasts on the internet to communicate crisis situations.

In chapter; "Sustainable Housing Through Sustainable Planning Practices: Challenges and Opportunities for Formal Housing Provision in Nairobi, Kenya", Collins Sasakah Makunda evaluate the rapid population growth and urbanization in Nairobi, Kenya. This growth has resulted in enormous pressures on the city's urban infrastructure, chiefly in the transformation of the low-rise single family housing units, mostly bungalows, to high-rise multi-family housing units, in the form of high-rise apartment blocks.

In chapter; "Yueqing's Healthy Future: A Case Study in Design Planning for Healthy Urbanization", Linda Powers Tomasso, Cristina Contreras Casadoc, Judith Rodriguezc, Jie Yina, and Julia Kane Africab analyse urban health in a context of regional population transition in China. The themes in this chapter include; resilience of urban climate change, urban mobility, and strategies for healthier buildings to optimize urban health, and long-term sustainability in the process of urban growth and development. The authors focus on how China's economic ascendancy can facilitate more sustainable models of future urban development.

In the final part of the book, the focus is on Energy Security, Access, and Efficiency.

In chapter; "Greening of Greek Islands: Community Wind Approach at Skyros Island", Constantina Skanavis and Aristeia Kounani examine how attitudes of the inhabitants of an Aegean island towards wind energy can be affected by community ownership of the wind. Skyros Island was chosen as the region where a giant wind farm investment was being proposed, however after opposition from the inhabitants, the facility was delayed. The author's assess whether community owned wind power increases residents' acceptance of small-scale wind farms as a solution to the island's energy sufficiency and overall sustainability encouragement.

Amanda Lange Salvia, Luciana Londero Brandli and Marcos Antonio Leite Frandoloso, in their chapter; "Prerequisites for Energy Sustainability in Municipalities in Rio Grande do Sul, Brazil", discuss the energy matrix and the electricity consumption in Southern Brazil. The study presents the results of the energy work package on the project prerequisites for the sustainability of municipalities in Rio Grande do Sul.

Last but not least, in chapter; "Public Energy Policy in Cabo Verde", Luzia Mendes Oliveira uses quantitative methods to understand how knowledge, attitudes, practices, and perceptions of citizens may influence the viability of the strategy to achieve 100% of electricity production from renewable sources, by 2020 in Cabo Verde. It concludes that, although the new policy has the necessary conditions to succeed, specific socio-demographic factors should be considered in order

to; reduce national Greenhouse Gas emissions, improve the security of supply, alleviate poverty, and achieve nationwide access to electricity.

Given the variety of research, this book offers a diverse thematic, multidisciplinary, and geographic diverse overview of some current research and action projects in Lifelong Learning and Education in Healthy and Sustainable Cities. In addition, the chapters address some important challenges to the achievement of the SDGs. Furthermore, the book gives critical insights to the discussion around at multiple spatial, temporal and socio-political scales, and the multiple dimensions of the SDG practiced, in a multidisciplinary dialogue.

We would like to take this opportunity to thank all the authors who submitted their manuscripts for consideration of inclusion in this book. Additionally, and since the peer-review was a double-blind process, we also thank the reviewers who have taken time to provide timely feedback to the authors, thereby helping the authors to improve their manuscripts, and ultimately the quality of this book.

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