An Introduction to the Living Spaces Concept

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https://doi.org/10.26493/978-961-293-399-9.7-28

> The demise of old ways of living can cause anguish, and a deep sense of loss. It is a little like the extinction of older species of animals. [...] This is an issue of some seriousness, but it is up to the society to determine what, if anything, it wants to do to reserve old forms of living, perhaps even at significant economic costs. [Sen 1999, 241]

The aim of this book is to collectively discuss the developmental phases from agricultural societies to industrialized societies and finally to post-industrial low-carbon societies in the cases of Eurasian economies, which have followed different developmental pathways towards modernity from early modern times to the present, although with the dominant presence of small, even tiny, landholder structures. Based on the different economics of environment, we explored changing Living Spaces: Where have florae, faunae, and humans lived in the past? Where do they live today? Where will they live in the future?

First, we applied a comparative approach to the ecological foundations of local case studies. Practices of different economic structures and levels of development can contribute to a broader generalization of modernization processes on a global scale. Second, we focused on rural areas. Local natural resource use, economic systems, and pathways to modernization allowed us to identify traditional economic and environmental management solutions that can serve as models for future rural development policy.

A clear difference between the pre-modern economy and the modern economy is that the latter includes the development of scientific/socio-technological knowledge and global dependence on the use of fossil fuels. The globalized fossil fuel economy emerged in the second half of the nineteenth century and is dramatically changing the contemporary world.

Murayama, S., Ž. Lazarević, and A. Panjek, eds. 2024. *Changing Living Spaces: Subsistence and Sustenance in Eurasian Economies from Early Modern Times to the Present*. Koper: University of Primorska Press.

The two economies have rarely been discussed together. According to Jeffery D. Sachs (2008, 222), his evolutionary scheme of economic development includes two parts: (1) the traditional subsistence economy, and (2) the modernized economy, which evolved from a trading economy to an emerging market economy and on to an innovation economy. The scheme is based on Euro-American, Japanese, and global economic development. The newly economically developed countries all initially belong to a traditional or emerging market economy, which eventually evolves to the second stage. Sachs' scheme can be described as a traditional evolutionary understanding with developmental stage theories.

On the other hand, the early modern or pre-modern world can be viewed from two different aspects. According to Wrigley's argument, the pre-modern era is understood as a transitional period to modern fossil fuel society: (1) as a process of liberation from agricultural constraints in organic economies (Wrigley 2016), and (2) as a process of long-term establishment of differentiated organic economies (over at least hundreds of years), almost as in the case of European and Japanese agricultural histories. However, developing countries have often been unable or have not had the opportunity to complete the development of their own organic economies, as they have been and are being swept up in a short and precipitous time by the global fossil fuel society.

Wrigley's work on the path to sustainable growth opened a new horizon in the history of energy. Subsequently, Paolo Malanima (2020) revealed a unified global history of the earth during the long nineteenth century, from the end of the eighteenth century to the beginning of the twentieth. The history of labour dependent on fossil energy reached its peak on the eve of the First World War. Organic economies, whose ecological foundations varied around the globe, had various long histories based on Living Spaces. However, with the advent of the concept of energy efficiency, the history of production evolved to tell an economically similar global history, introducing the 'Anthropocene' that is currently transforming the Earth.

Paolo Malanima's excellent work following Wrigley's history of liberation from the natural constraints of organic economies to sustainable economic growth would suggest something else, what might be called a 'tragedy' of sorts in environmental history caused by global economic development. It is true that 'animals and humans are poor converters' of food to work (Malanima 2020, 495). But does this history of efficient fossil fuel 'production' really cover the entire spectrum of 'production'?

In the mid-nineteenth century, Marx and Engels used the multi-layered German term 'Verkehr,' which in the German-speaking world in the eighteenth century originally meant service and transportation of materials but evolved into a universal meaning of social contact and dealings, from which the usage of the word to mean sexual intercourse or an association to be established was derived, eventually including the definition 'traffic'. This term, translated simply as 'intercourse' in the following passages in English, may symbolize an economically oriented social change in the nineteenth century. However, such a controversial argument is beyond the scope and role of this discussion chapter (Karatani 2012).

After describing the *German Ideology* from 1845 to 1846, Marx and Engels tended not to use the term 'Verkehrsverhältnisse' ('modes of exchange') which covered material exchange and human intercourse, e.g. physical-material/mental-cultural production/exchange and species' reproduction in the single concept of 'Verkehr', but only the concept of 'Produktionsverhältnisse' ('modes of production'), or economic relations of capitalistic production, in order to identify the fundamental problem of capitalism, which was their main issue in line with the *Communist Manifesto*. This may mark the beginning of the Age of Economy. However, in this book, which takes a broad approach to economic and environmental history, we should be reminded of the following original message of Marx and Engels.

> Die Produktion der Ideen, Vorstellungen, des Bewußtseins ist zunächst unmittelbar verflochten in die materielle Thätigkeit & den materiellen Verkehr der Menschen, Sprache des wirklichen Lebens. Das Vorstellen, Denken, der geistige Verkehr der Menschen erscheinen hier noch als direkter Einfluß ihres materiellen Verhaltens. [Marx and Engels 2017, 135]

> The production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men — the language of real life. Conceiving, thinking, the mental intercourse of men at this stage still appears as the direct efflux of their material behaviour. [Marx and Engels 1976, 42]

Production methods in Japan are thought to have changed dramatically under the influence of Euro-American industrialization in the later nineteenth century with the introduction of machinery and fossil fuels. In agriculture, the economy of large-scale farmers began to develop, especially in Hokkaido. However, the economy of small farmers did

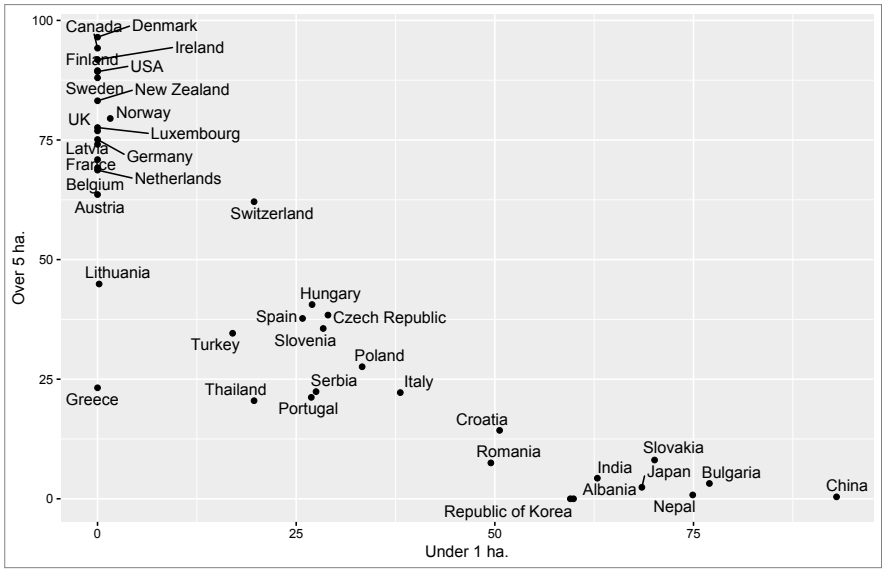

Figure 1 Farm Size of Agricultural Management

Notes The x-axis shows the ratio in percent of farmland in the management scale < 1 ha; the y-axis is the ratio of the farmland in the management scale > 5 ha. Countries were selected based on the availability of farmland management data. *Source* Figure 1 was compiled by original calculation and plotting based on the data derived from table A 2: Agriculture's importance in the economy and labour force, fertilizer use intensity, farm size and women's involvement in agriculture, in Food and Agriculture Organization of the United Nations (2015).

not disappear immediately, but was sustained until recently. The current period of population declines finally began to destroy the traditional peasant economy. Figure 1 is a correlation chart of the ratio between, in percent, of the farmland less than 1 hectare (ha) and the ratio, in percent, of farmland more than 5 ha. On the left side, you can see many countries, with Europe and America leading the way. However, in farmland less than one ha, there are predominantly many countries where it is not counted with land for agriculture. Figure 1 shows not only Japan, but also other Asian countries and Eastern European and Mediterranean countries such as Slovenia and Italy, which are relatively small landholding countries.

Small farms cultivating less than 1 ha of arable land do not exist in the countries that form a group on the y-axis: Canada, Denmark, Ireland, Finland, Sweden, the United States, and others (figure 1). This book is not concerned with these countries, but with the countries where such small-

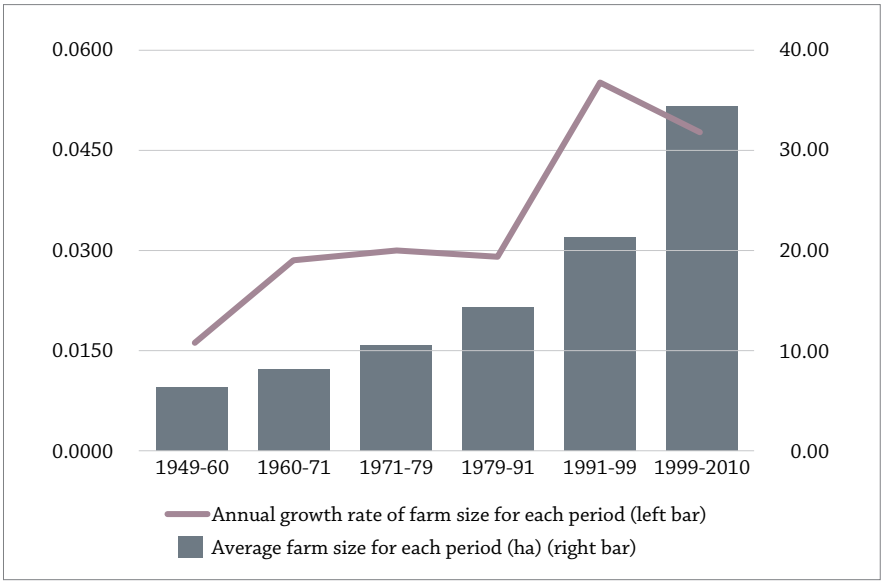

Figure 2 Expanding Farm Size in Hessen, Germany, 1949–2010

Source Figure 2 was compiled by original calculation based on the data derived from Hessisches Statistisches Landesamt (2012b) (1.2 Betriebe). The average value of farm size within the period shown in figure 2 is the average value of the first-year data and the last-year data of each period.

scale farming still exists. In Slovenia, the share farmland of over 5 ha is 35.6 percent, while in Japan it is only 2.4 percent. But the difference with the large farm countries is significant. The average farm size in Japan in 2009 was 1.9 ha, in Australia 3023.7 ha, in the USA 198.1 ha, in the EU (average of 27 countries) 13.5 ha, in Germany 45.7 ha, in France 55.8 ha and in the United Kingdom in 2007 58.8 ha.[1]

At this point, it should be noted that a decisive change in agricultural scale is also taking place in Germany. For example, the expansion of farm size in Hesse, a German state, has accelerated since the 1980s. While in 1949 the average farmland was 5.8 ha, by 2010 it had increased to 43.0 ha. In 2012, the average for Germany was 55.8 ha and for Hesse 43.0 ha (Hessisches Statistisches Landesamt 2012a). There was no change in the average between 2010 and 2012. The average farmland size in Germany is somewhat smaller compared to other European countries. However, it must be considered that the extent of this farmland expansion is not

1 Norin-Suisan-Gyo no Genjyo ni tsuite [About the current state of agriculture, forestry and fisheries] 2010.

constant. As can be seen from figure 2, which shows the annual growth rate of farm size, the change seems to have been observed only since the 1980s.

The history of farm size in Hesse may give us an opportunity to reflect on what issues we should focus on in the countries where small-scale farming still exists. First and foremost, we should not overstate the differences noted in figure 1, because small-scale farming was prevalent until the end of World War II even in areas where large-scale farms dominate today. There must be a reason why the small farming families survived. Moreover, the process of their gradual decline should be analysed. Living Spaces determined by ecological and climatic conditions would be spatially differentiated; therefore, the optimal size of farmland could vary depending on farmers' choice of agricultural products. Could consumer demand and technological development or economic growth be determinants of farm size?

The case of Japan may be typical, but it is only in recent years that the old way of small farming and the traditional way of life are disappearing along with their hydrological and environmental base. The devastation of mountain villages in Japan is particularly severe as the country becomes a society of declining population, driven by a falling birth rate and an aging population. Sen's point quoted at the beginning of this article is correct. However, the argument that the old historical period or the Industrial Revolution is the key to the transformation of the working environment and living standards has been challenged by new economic history research findings in recent years. The dramatic changes in the Living Spaces in mind may be found in much later periods. Once again, it is time to question the meaning of long-term economic growth.

Osamu Saito[2] considers four factors of economic growth in the early modern period – capital, division of labour, technology, and population – as stated by J. Mokyr. These factors affect the elements of Living Spaces: the settlements of the inhabitants, the agricultural fields, the forests, the rivers and the mountains, the network of economic resources, and the transportation system. Let us restate these four factors: (1) How was capital accumulated and what was its relationship to economic growth? (2)

2 Saito (2010, 4): 'By "Smithian growth", however, I mean something different from Joel Mokyr's definition, which embraces both static and dynamic gains. Also, Mokyr denotes just one source of economic growth, others being Solovian, Shumpeterian, and Boserupian: with this typology, one can periodize history as moving from the Malthusian to the Smithian, then on to the Shumpeterian.'

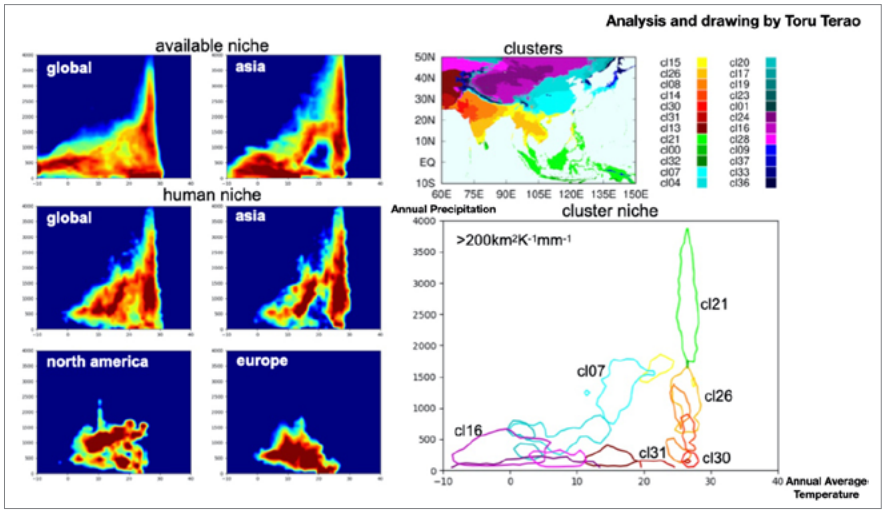

Figure 3 Living Spaces in European and Asian Climate Pattern: Precipitation and Temperature

Author Toru Terao. *Notes and sources:* Toru Terao visualized demographic distribution patterns over Eurasia following the method of Xu et al. (2020). They investigated the distribution of population, the climate niche, within the available climate space on the globe. The population data Toru Terao utilized is the estimate for 2015 from the History Database of the Global Environment (HYDE) 3.1 (Klein et al. 2010). For the climate data, WorldClim 2.1 (Hijmans et al. 2005; Fick and Hijmans 2017) is used. All the terrestrial areas are redistributed in the MAT-AP space to show available climate space over landmass (figure 4a). Similarly, we visualize available climate spaces for Asian (60-150E, 10S-50N), European (10W-60E, 30-70N), and North American (170-50W, 25-70N) regions (Figs. 4b-d), the global and regional demographic distributions over the MAT-AP space, which is termed the human climate spaces.

How did the division of labour develop and what was its relationship to market growth? (3) How did technology – especially scientific technology, accompanied by social technology – contribute to economic growth? (4) How should we consider the role of population?

H. D. Thoreau, A. Smith, J. Schumpeter, and E. Boserup refer to these four factors in their basic discussions of economic growth in their respective fields. Saito points out the need to move from Malthusian limits to growth to Smith's division of labour and to take a chronological view of Schumpeter's growth paths (Saito 2008, 51–54). Indeed, it seems reasonable to assume that socioeconomic development worldwide has occurred along this developmental path, but this growth has been accompanied by spatially and locally complex processes determined by habitats.

Table 1 Elements of Living Spaces

1) Animals	2) Plants
i) aquatic animals	i) greening
ii) wildlife	ii) forestry (afforestation, deforestation)
iii) domestication	iii) wild plants (edible, medicinal, spiritual)
iv) zoo and aquarium	iv) crops (agroforestry, agriculture)
v) species preservation and extinction	v) invasive species
	vi) species preservation and extinction
3) Microorganisms	4) Water
i) biosphere/photosynthesis/energy	i) urban water
ii) atmosphere	ii) lakes and river water
iii) microbes	iii) ground water
iv) infectious diseases and vectors	iv) wetlands
v) pandemic/endemic	v) seas and oceans
vi) zoonosis	vi) irrigation
5) Air	6) Land
i) atmosphere	i) lithosphere/cryosphere
ii) clean air	ii) soils/fertilizer
iii) air/space pollution	iii) earth movers
iv) weather	iv) cultural/ecological landscapes
v) climate change (anthropogenic and natural)	v) continents and islands
7) Disasters	8) Foods
i) natural events	i) food security
ii) extreme weather events	ii) food and technology
iii) anthropogenic environmental disasters	iii) animal husbandry/pastoralism
iv) historical records	iv) land and sea nomadism
v) mitigation	v) material circulation (land and sea links)
vi) resilience and recovery	
9) Waste	10) Humans
i) biological waste	i) gender/sexuality/social capital
ii) chemical and hazardous wastes	ii) population/family
iii) waste management	iii) ethnicity
iv) material circulation	iv) nature views/religion/ethics
v) consumption behaviour	v) ecological footprint
	vi) education

In Eurasia, Europe has a much lower population density (22 people per square kilometre; Soumu-sho Toukei-kyoku 2013, 24) than Asia (132 people per square kilometre; Soumu-sho Toukei-kyoku 2013, 32). But such a simple discussion immediately fails if one does not limit space to residential areas only, but also includes mountain areas, lakes, rivers, and oceans. Let me first make a brief comparison of climate patterns between Asia and Europe: figure 3 shows only the differences in Living Spaces due to the distribution of precipitation and temperature. The spread of human settlements differs greatly between Asia and Europe. In Asia, the Living Spaces are composed of a wide range of regions, from low to high temperatures and low to high precipitation. There is a big difference between Asia and Europe. The concept of Living Spaces covers the full range of space-place issues: (1) residen-

tial places such as cities, towns, and villages and their socioeconomic, geographic, and climatological conditions; (2) sources of various resources and their transportation; (3) geographic dimensions of cultural identification; (4) nature-induced disasters and disaster-prone areas; (5) the Earth and changing natural conditions.

Table 1 was originally prepared when the author was president of the Association for East Asian Environmental History (AEAEH) and held the 3rd East Asian Environmental History Conference (EAEH 2015) in Takamatsu, Japan. The conference was attended by researchers from all over the world who are mainly concerned with the environmental history of East Asia. Each session was organized according to the interests of each participant in different research topics and issues. The goal was to form research groups among academics based on their research interest instead of national identities. The table was compiled with Akihisa Setoguchi (past president of the East Asian Environmental History Society), Anne McDonald, and others.

The Living Spaces Approach (LiSA) is a holistic approach that is the antithesis of the analytical segmented approach. However, the approach does not exclude an analytical segmentation and could combine some different analytical dimensions. Table 1 shows the elements of Living Spaces divided into ten overarching themes: (1) animals; (2) plants; (3) microorganisms; (4) water; (5) air; (6) land; (7) disasters; (8) foods; (9) waste; and (10) humans. Each topic has an original approach as academic fields have developed along the lines of disciplines relevant to the topic. However, depending on the selected theme, several academic approaches from different unrelated fields may be combined into one innovative approach, adding a new dimension to existing academic fields. In this sense, LiSA is an innovative approach to local and regional studies and fieldwork.

This innovative approach to historical and contemporary studies allows for the creation of a new study of transport relations between humans and nature, using multidimensional disciplines, depending on the issues to be addressed. However, a contemporary of Marx and Engels, Friedrich Heinrich Riehl, never saw such a deep connection in 'traffic'. Riehl used this three-dimensional word, encompassing material exchange, intercourse, and traffic, entirely without sceptical and critical thinking, although he did introduce the influential term 'the whole house', meaning the management of a German family's home (Riehl 1854). At one time, a leading German medievalist, Otto Brunner, developed Riehl's concept as a social history of the family, but was heavily criti-

cized by social and agricultural historians because the concept seemed ideological and was hailed by the Nazis as representative of the ideal German family (Jütte 1984; Opitz 1994).

Brunner not only developed the concept from Riehl's journalistic essay, but also derived ideas from historical sources on rural farming: 'Hausvaeterlietratur', which contains almost all the elements of Living Spaces. He introduces as the context *Georgica curiosa oder Adeliges Land- und Feldleben* (an encyclopaedic textbook on all aspects of domestic and agricultural life for nobles) by Wolf Helmhards von Hohberg (Brunner 1980, 104). However, LiSA differs from this kind of holistic understanding of a closed territory subject to cultivation because it starts from the idea that each element should have its own place and space: we do not want to discuss a single habitat, but multiple habitats.

Secondly, while 'the whole house' delimits the habitats within a closed terrain that changes structurally within a society, the habitats are constantly changing in the interplay between nature and humans: 'Economics is literally doctrine of the oikos, of the house in the most comprehensive sense, of the "whole house", to speak with Wilhelm Heinrich Riehl, who described these social entities, now only partially alive in peasant life, at the moment of its disintegration or, nevertheless, its resignation.'[3] The term 'the whole house' encompasses almost all the elements of Living Spaces, but can only symbolize one aspect of the structural and conceptual history of humanity and society.

The 1960s marked a milestone in historical research, because now not only the family but also the environment became the subject of historical research. Historical demographic research took a new step. Sixty years have passed since then. Brunner's theory of the whole house was also a precursor of this era. However, there were many mythical debates at the time, such as the nineteenth-century view of the family, which was incorporated into the 'curse', i.e., the historical shift from the extended family system to the nuclear family system. Many of these debates have been rehashed in later studies. On the other hand, family history research, which once flourished, is no longer as present as it once was. As Claudia Opitz noted, the interest of German historians shifted from structural and conceptual history to the history of interests and sensibilities and to defining a field in which progress was expected. In the mid-1990s, Opitz

3 Brunner (1980, 104, 109): *Die Kategorie des 'ganzen Hauses' verschwindet* [The 'whole house' category disappears]. See also Trossbach (1993) and Groebner (1995).

even suggested that it was better not to engage with Brunner's concept (Opitz 1994, 97). Joachim Eibach also developed discussions in 2011, on which an edited book was published in 2020 (Eibach 2011; Eibach and Lanzinger 2020).

At first glance, the refocusing on people as internal nature seems to be a human-centred view of history, but from an environmental history perspective it reflects the need to develop a new discussion of the relationship between humans and nature. In other words, although trends may have led us away from direct research on the history of global environmental problems, historical research on environmental consciousness has become mainstream. In this sense, while even Marx and Engels cut off their conceptual world from 'Verkehr', it may be time to return to 'Verkehr'. The direction of Eibach et al. can be judged as environmental history along this line because the relationship to physical backgrounds is more observable in the representation of individual sensibilities than in the structural problems of society. The LiSA in this book presents not only human self-understanding through historical materials, but also the changing natural environment described in historical materials and current information. We need a new perspective on how to incorporate the natural and quasi-natural world to write economic and social history. But how can we understand too diverse and scattered arguments and historical evidence in an integrated way?

Historical research is still tied to the language of each country and is usually conducted in groups within a country, making it difficult to have cross-national discussions. While it is possible to obtain figures for universally extensible statistical indicators such as fertility, mortality, or core GDP, it is far from easy to deal with cultural events that involve different narratives. The same is true for the study of environmental history. The diversity of ecological and climatic environments on Earth is subtly argued in historical studies, including economic history and even environmental history. Different lifestyles may or may not be optimal anywhere on the planet. Minor and subtle differences that are important to coherent human life are often ignored.

Looking to networks such as the Social Science History Association and the European Social Science History Conference, it was expected that the ten groups would work across national boundaries and regions in the future. However, the AEAEH, which has transformed itself into the Asian Association for Environmental History (AAEH) in July, 2023, has not yet successfully developed these issue-based networks.

On the other hand, twenty-seven networking groups are active under the European Society for Social Sciences and History, regardless of nationality (as of September 2020; European Social Science History Conference n.d.). These academic activities began in 1996 when the first academic journals on environmental history appeared. There were groups that participated from the beginning as academic meeting societies, groups that originally existed but later disappeared, or newly formed groups. Since academic societies are grouped together with a social science approach, the direction of today's research can be seen in the organization of the groups: Africa, Antiquity, Asia, Criminal Justice, Culture, Economic History, Education and Childhood, Ethnicity and Migration, Family and Demography, Global History, Health and Environment, Labour, Latin America, Material and Consumer Culture, Medieval, Oral History and Life Histories, Politics, Citizenship and Nations, Religion, Rural, Science and Technology, Sexuality, Social Inequality, Spatial and Digital History, Theory and Historiography, Urban, Women and Gender. These twenty-seven groups may see the reasons and motivations for their ongoing activities in their own methodologies and areas of interest, in existing historical research groups, or in contemporary social issues.

Two world-class academic journals have been published in environmental history research, first developed in the 1960s: *Environmental History* (an American journal founded in 1996) and *Environment and History* (a European journal founded in 1995). Furthermore, the World Environmental History Conference has been held once every five years since 2009. Many panels and sessions have been organized at the conferences of the European Environmental History Society, held biennially, the American Environmental History Society, held annually, and the World Environmental History Society. There have been, of course, various trends in research themes.

Considering the different themes that had been addressed to date, we came up with sixty-five keywords to cover as many topics as possible. These keywords can be found in table 1, where five or six sub-items (keywords) are provided under each overhead item: (1) Animals, (2) Plants, (3) Microorganisms, (4) Water, (5) Air, (6) Land, (7) Disasters, (8) Foods, (9) Waste, (10) Humans. The fifty-five keywords and ten overhead items as keywords amount to sixty-five keywords. We also kept in mind the wide range of socio-economic history, geography, meteorology, and other related academic journals that cannot be listed herein.

Table 2 Book Chapters and Elements of Living Spaces

Elements of Living Spaces	Chapter	Part I				Part II				Part III			Total
		1	2	3	4	5	6	7	8	9	10	11	
1) Animals	i) aquatic animalså												0
	ii) wildlife												0
	iii) domestication	1		1			1						3
	iv) zoo and aquarium												0
	v) species preservation & extinction												0
	Total			2				1				0	3
2) Plants	i) greening	1											1
	ii) forestry (afforestation, deforestation)	1	1			1							3
	iii) wild plants (edible, medicinal, spiritual)												0
	iv) crops (agroforestry, agriculture)	1		1		1	1		1	1	1	1	8
	v) invasive species												0
	vi) species preservation & extinction												0
	Total			5				4				3	12
3) Microorganisms	i) biosphere/ photosynthesis/energy											1	1
	ii) atmosphere			1							1		2
	iii) microbes												0
	iv) infectious diseases & vectors	1											1
	v) pandemic/endemic									1			1
	vi) zoonosis												0
	Total			2				0				3	5
4) Water	i) urban water								1				1
	ii) lakes and river water	1				1					1	1	4
	iii) ground water	1										1	2
	iv) wetlands	1										1	2
	v) seas and oceans								1		1		2
	vi) irrigation	1		1						1	1	1	5
	Total			5				3				8	16
5) Air	i) atmosphere										1	1	2
	ii) clean air												0
	iii) air/space pollution												0
	iv) weather	1									1	1	3
	v) climate change (anthropogenic and natural)			1						1	1		3
	Total			2				0				6	8
6) Land	i) lithosphere/cryosphere							1					1
	ii) soils/fertilizer	1				1	1	1	1	1		1	7
	iii) earth movers												0
	iv) cultural/ecological landscapes			1				1			1	1	4
	v) continents and islands												0
	Total			2				6				4	12

Continued on the next page

Table 2 *Continued from the previous page*

Elements of Living Spaces	Chapter	Part I				Part II				Part III			Total
		1	2	3	4	5	6	7	8	9	10	11	
7) Disasters	i) natural events	1				1					1		3
	ii) extreme weather events										1		1
	iii) anthropogenic environmental disasters												0
	iv) historical records		1						1			1	3
	v) mitigation			1									1
	vi) resilience and recovery	1										1	2
	Total	4				2				4			10
8) Foods	i) food security						1			1	1		3
	ii) food and technology	1	1	1		1				1	1	1	7
	iii) animal husbandry/ pastoralism	1											1
	iv) land and sea nomadism												0
	v) material circulation (land and sea links)								1	1	1		3
	Total	4				3				7			14
9) Waste	i) biological waste								1				1
	ii) chemical and hazardous wastes												0
	iii) waste management								1				1
	iv) material circulation								1	1			2
	v) consumption behaviour	1											1
	Total	1				3				1			5
10) Humans	i) gender/sexuality/social capital	1			1				1		1	1	5
	ii) population/family	1	1		1		1		1		1	1	7
	iii) ethnicity			1				1					2
	iv) nature views/religion/ ethics			1				1					2
	v) ecological footprint							1		1			2
	vi) education							1					1
	Total	7				7				5			19

Perhaps the logic of exclusion is almost absent from this list. Each chapter of this book may deal with only one item, or it may deal with several. To determine which are addressed in each chapter, the authors were asked to check off each relevant item. The number '1' was included so that each column can be summed. As table 2 shows, there are relatively few chapters on animals, microorganisms, air, or waste. However, it can be observed that this book has developed discussions by combining the elements of Living Spaces in a comprehensive manner.

Identifying the individual elements is not the only goal of this approach. LiSA can also clarify various issues related to the individual elements or combinations of elements. In setting the three components of

Table 3 Book Chapters and Issues of Living Spaces

Issues of Living Spaces	Chapter	Part I				Part II				Part III			Total
		1	2	3	4	5	6	7	8	9	10	11	
Subsistence	food basket	1				1			1		1		4
	water supply	1								1		1	3
	health care and medical treatment								1				1
	management of infectious diseases	1											1
	family demography	1	1	1			1						4
	dwelling safety					1				1		1	3
	avoidance of quarrels, struggles and wars			1									1
	Total	7				5				5			17
Sustenance	family strategy and integrated peasant economy	1	1	1	1		1	1					6
	local administrative capacity	1				1						1	3
	fiscal state policy	1	1								1	1	4
	agricultural and manufacturing productivity	1		1		1	1		1			1	6
	technological development	1		1		1		1	1				5
	capital accumulation	1											1
	market and commercial development	1							1		1		3
	natural disasters and risk management	1	1			1				1		1	5
	inter-regional/national political risk management					1						1	2
	Total	15				12				8			35
Changing Living Spaces	minimum life security area		1			1				1	1	1	5
	heat energy supply area												0
	local knowledge and educational system		1	1				1	1			1	5
	urban-rural relations	1	1		1				1		1		5
	city systems								1		1		2
	trade and transaction area	1		1			1				1		4
	biodiversity and productivity development	1				1						1	3
	disaster-prone and safety area	1				1				1		1	4
	hydro-climatological c onditions			1						1		1	3
	climate change									1			1
	Total	11				8				13			32
	Total	16	7	8	2	10	4	3	8	7	7	12	84

Table 4 Regional Differences of Discussed Issues

Issues of Living Spaces	Chapter	Europa				Japan					South Asia		Total
		1	2	4	11	5	6	8	9	10	3	7	
Subsistence	food basket	1				1		1	1				4
	water supply	1			1					1			3
	health care and medical treatment							1					1
	management of infectious diseases	1											1
	family demography	1	1	1			1						4
	dwelling safety				1	1				1			3
	avoidance of quarrels, struggles and wars										1		1
	Total	8				8					1		17
Sustenance	family strategy and integrated peasant economy	1	1	1	1		1				1	1	7
	local administrative capacity	1			1	1				1			4
	fiscal state policy	1	1						1	1			4
	agricultural and manufacturing productivity	1			1	1	1	1		1	1		7
	technological development	1			1	1		1			1	1	6
	capital accumulation	1											1
	market and commercial development	1						1	1				3
	natural disasters and risk management	1	1		1	1				1			5
	inter-regional/national political risk management					1				1			2
	Total	17				17					5		39
Changing Living Spaces	minimum life security area		1			1			1	1			4
	heat energy supply area												0
	local knowledge and educational system		1		1			1		1	1	1	6
	urban-rural relations	1	1	1				1	1				5
	city systems							1	1				2
	trade and transaction area	1					1		1		1		4
	biodiversity and productivity development	1			1	1				1			4
	disaster-prone and safety area	1				1				1			3
	hydro-climatological conditions				1					1	1		3
	climate change				1								1
	Total	12				16					4		32
	Total	16	7	3	11	10	4	8	7	12	7	3	88

this book: subsistence, sustenance and changing Living Spaces, table 3 shows how each chapter narrows down the issues in each context by targeting the elements and items of Living Spaces. As shown in table 3, this book addresses twenty-six topics.

Table 3 divides the topics into three sections and shows which topics are covered in each section. Regarding subsistence, only the food basket was discussed in each section: social and economic contexts; resource use; natural variables. Almost all the issues of sustenance were covered in the chapters of each part, excepting fiscal state policy and capital accumulation. Finally, changing Living Spaces could not contain the discussions on heat energy supply area. Clearly, future research in this area is desirable.

Although there is a relatively large amount of research on Japan and Europe in this book, there is one topic that has not been addressed in either region: 'the resolution of disputes, struggles, and wars'. On the other hand, the regional study of South Asia has only two chapters. Therefore, many of the themes have not been fully developed. These include 'local administrative capacity' and 'fiscal state policy', which are part of the section of sustenance, and 'family demography' in the subsistence sector.

Comparing Europe, Japan, and South Asia, the difference in the existence of administrative data is significant. While there are significant differences within Europe and between Europe and Japan, there are also fundamental differences in historical data and current regional information on colonized areas. Even when the same academic question is asked, the evidence for the argument itself varies widely. However, this means not only that international comparative research is difficult, but also that it is important to find ways to overcome the imbalance highlighted by table 4.

At first glance, the elements of Living Spaces may look like a multi-faceted list. It is indeed multi-faceted and interrelated, pointing to specific problem areas and issues. However, as noted earlier, academic areas where there is insufficient research accumulation can be highlighted as areas where future progress can be expected. As before, future environmental history research will involve economic history research, social history research, general history research, archaeology, and other disciplines. The concept of Living Spaces, including its components and various combinations of components, helps identify relevant topics and, thus, disciplines. A multidisciplinary field of environmental history can develop as a new form of ecological research that incorporates geography, meteorology, network science, and many other related fields, and can then feed back into socioeconomic history research as a new topic. In

this sense, this book can be seen as an attempt to take a comprehensive multidisciplinary approach to history and present studies in Eurasia. Not only in Asia, but also in Europe and the United States, such an academic approach that combines historical and contemporary field studies in a Living Spaces concept has not been done before.

Let us revisit the theme of this book. Why did we choose Living Spaces as our research target? In other words, why 'Living' and why 'Spaces'? History is mainly concerned with human history, but humans are not the only living organism on Earth. Microorganisms, bacteria, or viruses at the boundary between living and non-living organisms should be an important topic of historical research. But this book could not deal with such topics, while crops (agroforestry, agriculture) are treated in several chapters from an economic-historical perspective. We should be able to have further discussions when we ask ourselves to what extent crops can be discussed as living organisms and not as commodities.

Why spaces and not a single space? This point has already been explained. Places and the spatial relationships of their components are closely related to the concept of 'transport', which was the research goal of early Marx and Engels. Transportation systems that link cities to other cities or rural areas, and even rural areas to other rural areas, show that space and local networks have multiple spatial relationships. The concept becomes even more complex when human relationships are included. Cultural commonalities associated with spatially distinct territories are important themes in both environmental and economic history, but the relationship has even deeper implications: the fact that local administrative capacities in South Asia have not been fully explored in the Asian studies in this book has very important implications for habitats. Whether it is historical research or current fieldwork, research cannot move forward without materials that provide sufficient information.

Finally, it seems that we can find a point of contact with J. R. Hicks' theory of administrative revolution, based on his *Theory of Economic History*. We are the first to take up his argument, which has not been discussed, mainly because of the difficulty of discussing modern history retrospectively. It is also necessary to understand modern society in the historical context of state formation and national development, focusing on Europe and the United States. Hicks points out that it is the 'administrative revolution' that can explain the historical breakthrough in all the historical events discussed: It was the First World War (1914–18). In the colonized territories, the nation's 'governments discovered – to their as-

tonishment and sometimes to their dismay – what power, what economic power, what power over their own peoples had come into their hands' (Hicks 1969, 162). Regional administrative power did not develop sufficiently, and in other developed countries local and regional-level administrative power eventually came under the control of overwhelming foreign pressure on national governments.

I think this is a question of environmental decision-making: is it an individual, a company, a government, or an international organization, including local governments? The mechanism of decision-making and its impact on the environment should be critically different between corporate and government agencies and smallholder economies that are struggling to improve and conquer the environment in front of them. It has never been recognized that for the actors who determine these environments, the Living Spaces are different from each other. The Living Spaces of a nation and the Living Spaces of an individual cannot be identical. In the study of environmental history, these issues, which have already been discussed in a fragmented manner, have never been systematically discussed in conjunction with economic history research. This hypothesis needs historical evidence in the future.

> Au total, les problèmes d'environnement, plus que toutes les autres contradictions des sociétés économiquement développées, renvoient à une réflexion sur l'autogestion. [Attali and Guillaume 1974, 197]
>
> [All in all, environmental problems, more than all the other contradictions of economically developed societies, refer to a reflection on self-management.]

Acknowledgements

I would like to take this opportunity to thank the members of the Association for East Asian Environmental History (http://www.aeaeh.org): when the first World Congress of Environmental History was held in August 2009, there was still no organization in Asia or East Asia to discuss environmental history. Since then, this congress was the starting point for AEAEH to organize biennial congresses on environmental history in East Asia from 2011 onwards, and we have learnt a lot from them. The author himself, as one of the presidents of the association, organized the third international conference on environmental history research in Takamatsu, Japan, in October 2015. Since then, further congresses have been built up, and next year we are preparing for the launch of an Asian Association for Environmental History. A new research group, The

Historical Association for Environmentally Local Economy (HAELE), is also being set up (Living Spaces Project n.d.). This chapter has been considered as part of those preparations and during individual workshops and conferences and would not have been born without the advice of many colleagues and friends. But of course, all discourse is the responsibility of the author himself.

This study is the first result of an ongoing project, which is funded by Grants-in-Aid for Scientific Research (B) (20H01523), supported by the Japan Society for the Promotion of Science from April 2020 and by a JSPS/MESS bilateral project from April 2019 to March 2022.

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