

# Living Spaces: Local Narratives, Regional Clusters, and Communal Movements

[Shortened Title: Living Spaces Project, RIHN-FS; RIMS-Joint Research; KU-ICEDS]

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[First Draft: January 10, 2016, Updated: December 30, 2016]

## Living Spaces Project: Historiography and the Purpose

*“It is therefore likely that we are entering a historical phase - of indeterminate length - during which population growth will cease to produce economies of scale and may well start producing overwhelming diseconomies. So there do exist justifications for the control of population growth; and as that control is becoming an accepted element in the strategy of global survival it tends to be less and less a matter of calculations and more and more one of values.” [Livi-Bacci 2012]*

The history of mankind is a history of addressing challenges of natural and social disasters [Mauch/Pfister 2009; Fouquet/Zeilinger 2011]. After the Great East Japan Earthquake and the nuclear accident in Fukushima, responses among different countries were crucially varied. Germany regarded nuclear power issues a matter of ethics and declared nuclear phase-out, while Japan remains undecided in the aftermath of the disaster [Murayama 2015]. What lies behind these differences?

This research project aims to take a mathematical-geographical approach to such “environmental decision-making” issues, which could be observed as population-related phenomena, instead of as political and scientific decisions, because historical demography, economic history and sociological family studies have revealed regional demographic diversity in early modern times and heterogeneous developments in the transition to modern uniformity [Parker 1984; Hayami 1986; Imhof 1988, 1990; Mokyr 1990; Pomeranz 2000; Allen, 2005; Saito 2005; Ogilvie 2007, 2010; de Vries 2008, 2013; Muldrew 2011; Kurosu 2012; Murayama/Higashi 2012; Glaser 2012, 2014; Alfani 2013, 2015; Ochiai 2015; Murayama 2016]. Inspired from these studies, this project will pursue local/regional analyses in the long-term period from the 17th century to the present in order to propose new guidelines for the local/regional resolution of global environmental issues.

Considering multiple environmental history perspectives [Hughes 2016] on “living spaces”, comparative studies of Europe and Asia – Japan, in particular – have not conventionally explained the differences in the fundamental background of the “living spaces”: Europe experiences fewer volcanic eruptions and earthquakes than Japan does, and would never imagine exotic “typhoons” to come their way. However, for instance, its struggle with cold summers embracing hailstorms caused the diversion of potatoes from feed for horses to a staple food in the Czech Lands [Pfister/Brázdil 2006, 126]. Europe had to resist cold and freezing winters. Conquering nature [Blackbourn 2006], especially cold winters and cold summers had been the primary challenge in Europe. Europe, especially Northwest Europe,

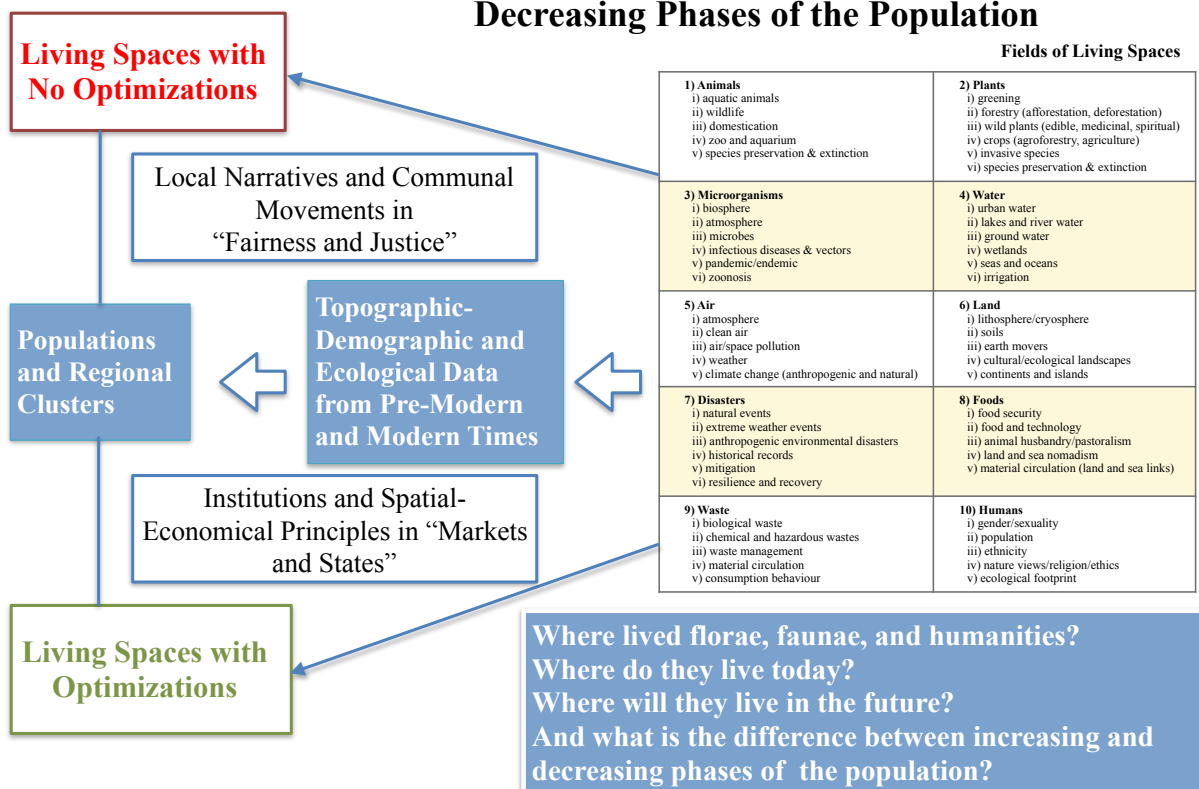
might have found its solution in developing a modern economic society in accordance with “modern ” (i.e. civilized, capitalized and rational) state building [Terao 1996].

In contrast, Japan, located in monsoon Asia, suffers typhoons and other water crises, embraces a volcanic belt in the center and few plains as a result of its mountainous geography, and moreover sits in a seismic area under the influence of the Pacific plate. Even in modern times, many natural disasters can neither be overcome nor completely conquered. Historically, the Japanese people have endeavored to harness nature instead of conquering it, but in the process of modernization, a number of legislations were passed under the name of “conquering natural disasters” as European ideas of conquering nature were adopted as guidelines for national development. In other words, modernization in Japan was a history of changing values – a transition from harnessing nature to conquering nature [Murayama 2016].

If we turn our eyes to the rest of the world, to Asian regions characterized by dynamic rainy seasons, which would make our concept of floods seem irrelevant, or to other regions covered with deserts, we can see that humans and nature have spatially diverted from one another following a similar pattern involving the global use of the Earth’s resources, including forest resources and oil. Through national land development measures, the modern State has introduced railroad and highway networks, water and sewage works for improved hygiene and sanitation, as well as bank protection and dams to prevent disaster and secure water and energy resources. These creations are free of the restraints of the natural environment and are the products of rapid homogenization. The modern world has gained much but has also lost as much.

The process of “modernization” and world-wide urban agglomerations [Livi-Bacci 2012], accompanied by the utilization of global resources, has greatly altered the way humans live, decisively marking the spatial divergence between humans and nature. However, it is rarely acknowledged that the dynamics of spatial divergence between humans and nature is actually under the influence of the spatial distribution of human weight on Earth [de Vries 1984; Hohenberg/Lees 1985]. “Modernization” can be understood to be the process of global homogenization of the environmental management system. In this context, industrialization (or, the emergence of a post-agrarian world), is accompanied by the demographical shift from high fertility with high mortality to low fertility and low mortality, as is currently observed in the dramatic trends of a stagnant level of fertility and rapidly aging society [Imhof 1988, 1990] [Methods and Questions].

### Methods and Questions for Increasing and Decreasing Phases of the Population

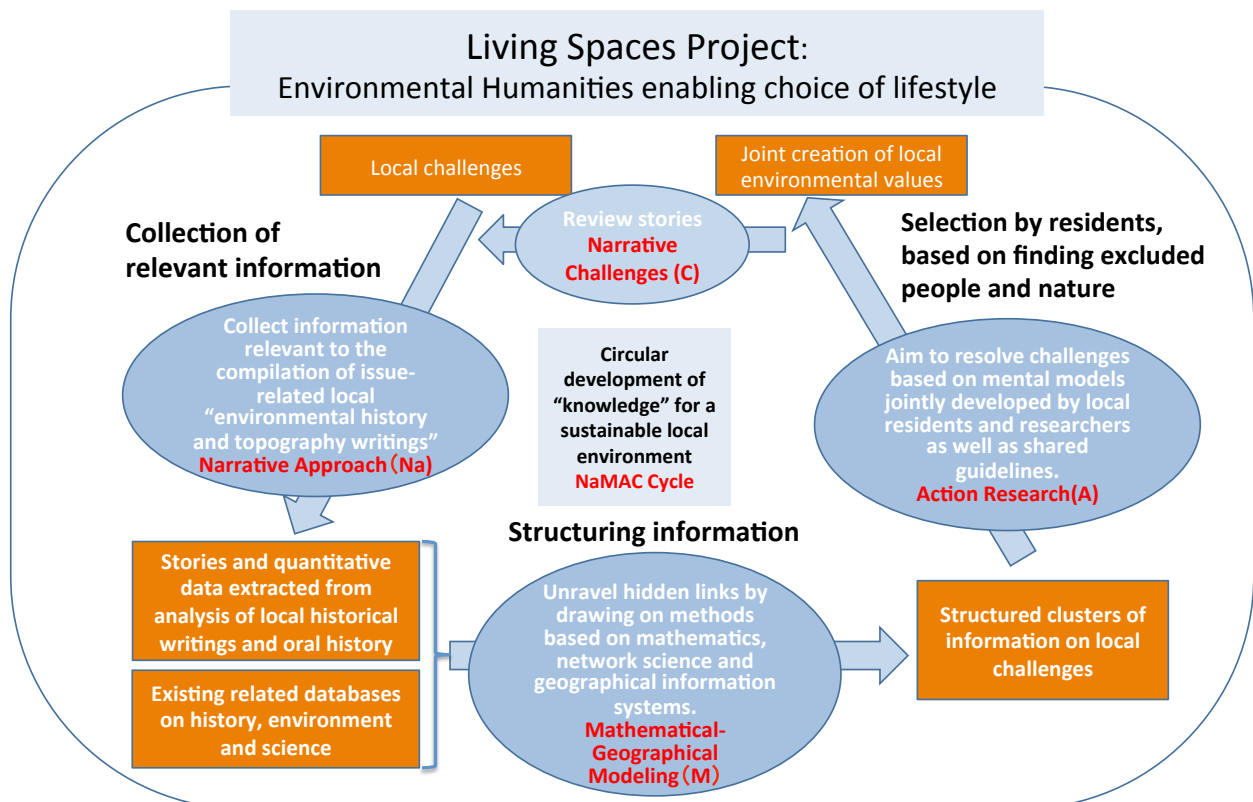


The way people live is more diversified than imaginable, not only on a global scale but also within nations and regions. While great urban agglomerations are formed in countries like Japan, the population is spatially dispersed in Germany. Such patterns of collective living iteratively change with the times and population shifts – as human weights on the Earth - can be understood in the context of temporal and spatial networks. Beginning with Fernand Braudel, and followed by Conrad Totman (1993), renowned scholar of forest environment history, and Osamu Saito, who has pursued economic history studies of the environment [Saito 2014], has indicated that human history is a history of people balancing the “weight of numbers” and the “riches of the Earth” [Saito 2005]. However, the “weight of numbers” is not necessary evenly dispersed. The spatial concentration and dispersion of people has had a decisive impact on nature and has served as an important foundation in terms of social and cultural structure. This is unlikely to change in the future. However, conventional GIS-based analysis and narrative studies of economic and environmental histories have failed to address these dynamics.

*Where have flora, fauna, and humanity lived in the past? Where do they live today? Where will they live in the future?*

## Challenge 1: Narrative Check

*“The power of art and story is in its recognition of how our emotional connections with place shape our ecological relationship. This is what has been missing from the top-down, project-managed reforms of river management and legislation. ...’Today we celebrate not, just my story, or your story, but our story about the river, ...’ - stories sharing the river. ... New generations will grow up with shared values for the river. You can’t protect a place if no ones cares about it.” [Muir 2014]*



We enjoy a wealth of material to study. For example, advocates of Satoumi and Satoyama emphasize that human management of nature has enhanced biological productivity and biodiversity. However, while local governments of the Seto Inland Sea, for example, have included the conservation of Satoumi in their policies, they have yet to resolve individual issues, including organic pollution, disruption of balanced nutrient circulation, decreasing seagrass beds, and sea litter. One contributing factor is that these issues go unnoticed by the general public because as Kagawa Prefecture addresses in its Satoumi policy, there is reduced “human-sea interaction”. Humans and nature have come apart and the process of divergence is accelerating. For example, many people merely consider landscapes embracing the sea to be subjects of admiration or conservation, and are not conscious of their personal relationship with the sea or of any connection with their daily lives.

Many participatory programs that have been conducted by local governments as a part of their outreach policy have failed to fundamentally incentivize participants to change their attitude towards nature, as they would be no more than spontaneous guests at an extraordinary event. People of all generations are no longer aware that they are “users” who are ‘living on’ nature and also “fostering” nature. With the idea of co-existence lost, it is difficult to promote a common understanding of issues shared among narrative and mathematical principles for “Living Spaces” in Narrative Approach, Mathematical-Geographical Modelling, Action Research, and Narrative Check [Environmental Humanities]. We will focus on sustained local narratives and customs. This is one of our most important challenges.

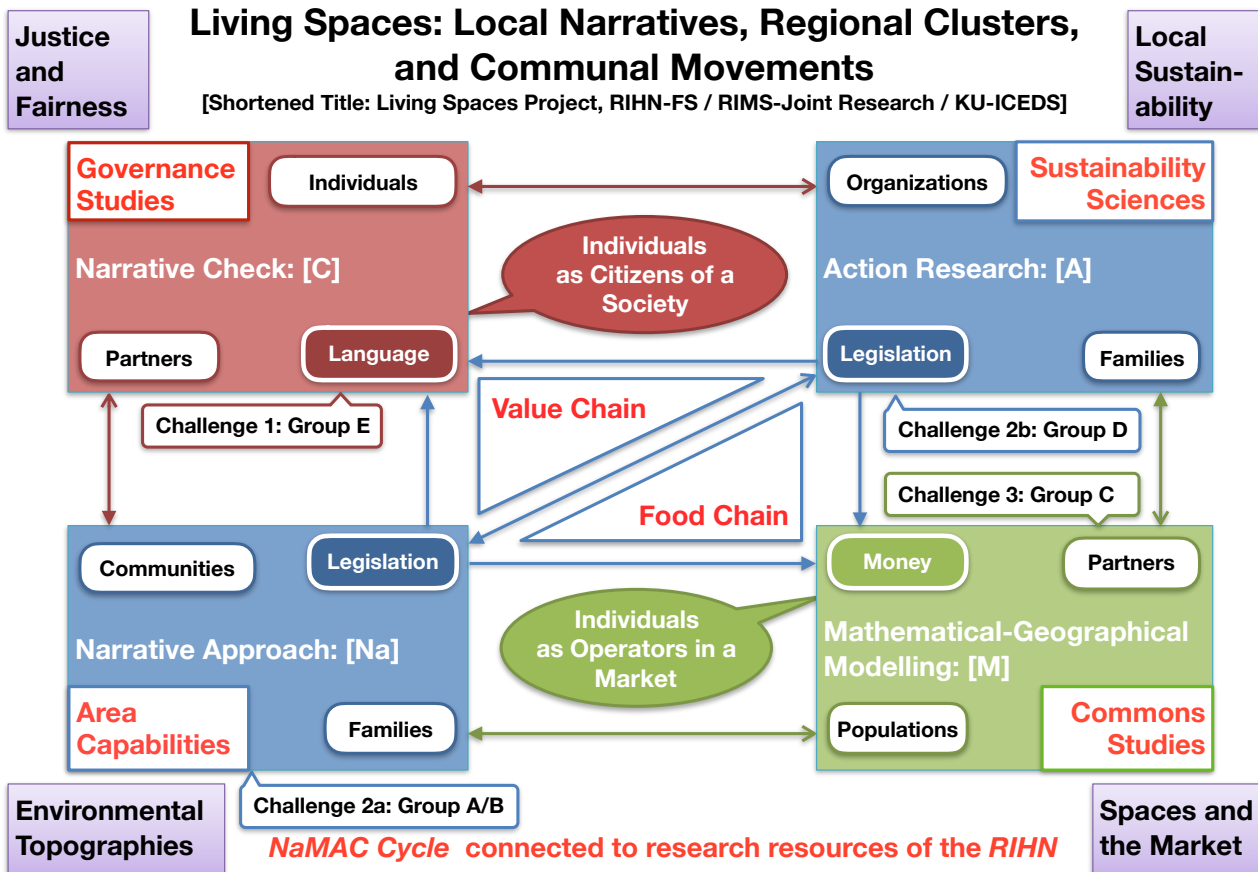
## Challenge 2: Action Research and Human Gravity

*“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. The elimination of old species that are ‘better’ able to cope and multiply can be a source of regret, and the fact that the new species are ‘better’ in the Darwinian system of comparison need not be seen as consolation enough. This is an issue of some seriousness, but it is up to the society to determine what, if anything, it wants to do to preserve old forms of living, perhaps even at significant cost.” [Sen 1999]*

Our second challenge is to revitalize networks that have become fragmented by administrative borders within which local governments have individually implemented policy measures. On the other hand, the great merger of local governments in the Heisei period (1989-) caused borderlines to disappear, incorporating “regions” into larger administrative units with completely different regional characteristics. Regional issues should be approached in the context of specific naturally or historically formed relationships, for example, in the context of the wider Seto Inland Sea, or various networks defined by sea-land (mountain) relations, historical sea routes, human-human or human-nature relations. Redefining regions should shed light on new challenges [NaMAC Cycle].

The UN World Population Prospects forecasts that the aging of the population will occur globally. There will be no exceptions around the world. Embracing transitions in demographic composition and increased interregional discrepancies, we are faced with the second challenge of how to define the “quality” of life in the regional context, and how to conserve nature as we sustainably continue the process of identifying and sharing concrete visions and agenda.

For example, Hinase in Okayama Prefecture has proved that fisheries can make a successful revival amid the significant decline of domestic fisheries. The local fisheries cooperative played a central role, with both scientific and technological support from the Satoumi Research Institution (“Satoumiken”), a NGO with which the International Consortium for Earth and Development Sciences (“ICEDS”), Kagawa University, has also entered into partnership. In Hinase, the local community acknowledges the important role played by the community. Given significant decreases in fish catches, fishermen, citizens, scientists and the local government joined hands to increase *zostera marina*. In 2007, its coverage area had



successfully expanded from 549 ha in 1989 to 1221 ha, and the community continues to thrive to improve the local oyster harvest and other fish catches [Tanaka 1998, 2014]

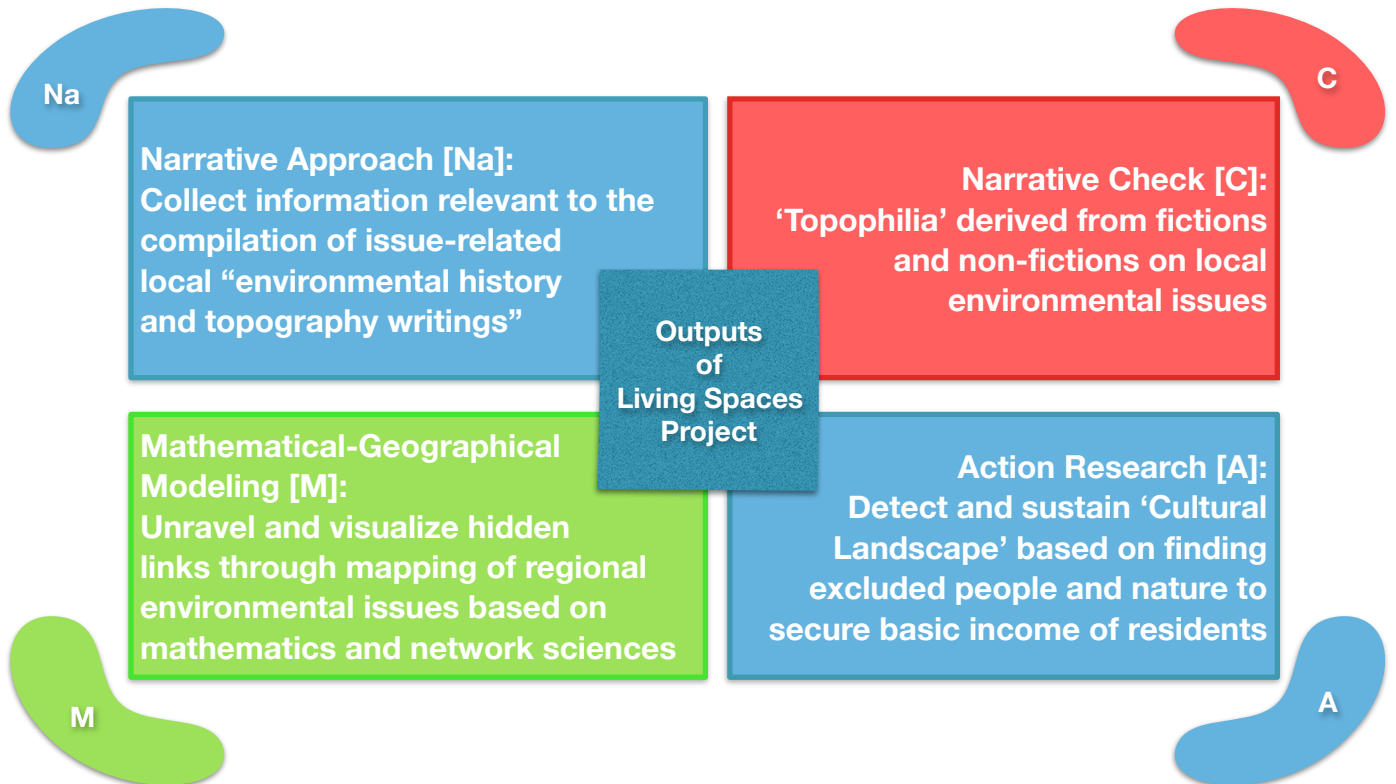
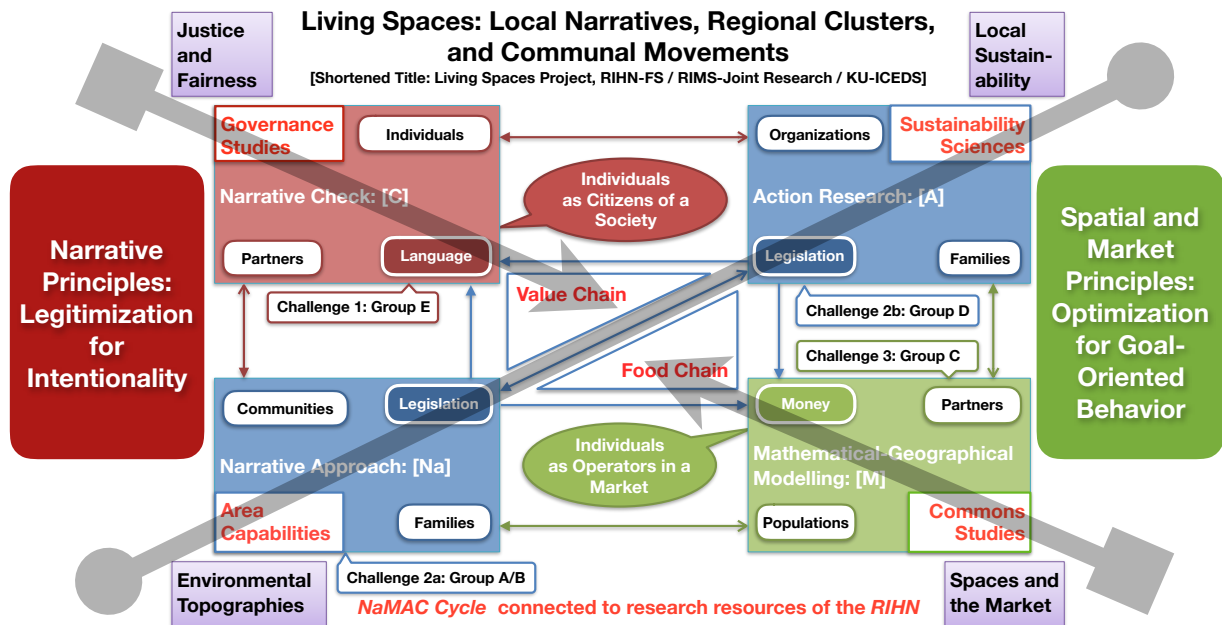
In Hinase, the revival of local fisheries is sustainably linked with nature conservation. What was the key for a traditional community to gain new support for its revival in times when most Japanese communities are on the verge of disappearing? Satoumiken's efforts are underpinned by the mobilization of fishery technologies and wisdom nurtured by the local community, the composition of which has yet to be studied. This successful case study can be a starting point in revealing the mechanism of 'human gravity' in the preservation and succession of social technologies in times when various local practices and cultures have been lost in unsuccessful attempts to sustain them or as a result of neglect.

## Challenge 3: Mathematical-Geographical Principles for Living Spaces

*"Whatever we understand and enjoy in human products instantly becomes ours, wherever they might have their origin. I am proud of my humanity when I can acknowledge the poets and artists of other countries as my own. Let me feel with unalloyed gladness that all the great glories of man are mine."* [Tagore 1928/1999]

The "Living Spaces Project" will draw mainly on methodologies from nonlinear sciences and network sciences in mathematical and physical studies, and based on a local/regional environmental history approach of data collection, we will employ mathematical geographical modelling to visualize the spatial divergence of humans and nature. The outcomes of the study will be made available on a unique platform truly combining the humanities and sciences and open to a wide audience not only including scholars but also the general public, in pursuit of a

## NaMAC Cycle and Environmental History Axes



future that will be fostered based on multi-generational values (Challenge 1) and human-nature interaction (Challenge 2).

When we employ mathematical-geographical modelling in understanding the spatial relationship between humans and nature in early modern and modern times, we can observe developments in environmental consciousness in relation with various local measures that have been historically implemented. Although the level of precision in traditional Japan is varied among different “guns” (=counties) of the Edo period, early modern topography [Mizoguchi 2002; Berman et al. 2016] is one of the most important historical materials used in this research project, as it is available for many counties. We have already analyzed a few counties to date and expect that we can perform nationwide and global comparisons through mathematical geographical modelling [Murayama et al. 2013]. Comparisons of domestic regions with diversified climatic conditions will provide insight for international comparisons to be conducted in the future. Furthermore, even in times of spatial divergences between humans and nature, or in post-agrarian times, agriculture has not been completely abandoned. The industrial revolution can be observed, on the other hand, as an agricultural revolution, and thus it is important to observe how the abandoned pieces survived decadence and instead evolved [Environmental History Axes].

## Goal of the Project

We will develop a universal tool based on Japan-Europe comparisons and promote comparative studies of Europe and monsoon Asia, and even wider areas. We will take a narrative approach as well as a local/regional environmental history approach to strategically include people and matters described in mathematical-geographical models derived from historical and on-going topographic compilations. Then, we will perform action research in pursuit of intimate special interactions between humans and natural dynamics, or in other words, the establishment of new “living spaces.” We expect that our studies will ultimately lead to the compilation of “local environmental histories of the zest for living” in every local/regional society and nature, and to reconsider modern economic growth and human development fundamentally [NaMAC Cycle\_Outputs].

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