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Priority Themes for Swiss Sustainability Research

3.   Thriving Spaces: Sustainability and Spatial Development

Mobility, housing, and individual choices profoundly impact patterns of land use, both in Switzerland and abroad. The concept of thriving spaces relates to how we perceive, use, change, restore, and protect our spaces, and how lifestyle choices and economic activities can be reconciled as part of a sustainable whole. Changing course will require being inspired by the best examples of sustainable land use and developing a shared vision of the way forward.

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Problem statement

A society's use of space is shaped by lifestyles, by technology, and by the economy. Today, over three-quarters of the Earth's surface have been transformed by human activities, and this fraction will only increase as the global population grows by 28% until 2050. Already, 29% of land is degraded, representing a key cause of malnutrition, poverty, forced migration, and conflict for some 1.3–3.2 billion people. Urban sprawl, land degradation, and deforestation continue unabated, driven by livestock farming, raw material extraction, industrial development, and other important factors. With an ecological footprint of around five global hectares *per capita*, Switzerland contributes significantly to these worldwide trends.

Space in Switzerland is under intense pressure, fuelled by conflicting demands for infrastructure, transportation, housing, recreation and tourism, food production, and industry. Some 70–80% of the Swiss population now lives in cities, suburban, or peri-urban areas, which – together with connecting infrastructure – occupy a major fraction of the lowlands. This pressure upon space threatens Switzerland's landscape diversity and biodiversity, and the essential ecosystem services that these provide. It has been estimated that to prevent further loss of essential natural resources at least 30% of Switzerland's land area – encompassing all types of natural habitats – must be protected and used in ways that maintain or restore biodiversity.

Inspired by the 2030 Agenda, *thriving spaces* offers a vision of living environments that meet the resource needs of all people while maintaining the integrity of natural systems. Thriving spaces are places where both biodiversity and people flourish; they are carbon neutral, resilient, capable of regeneration and foster human well-being and social connections. It is a vision intended to show the kinds of adaptation that will be needed for everyone to lead a good life within the constraints of planetary boundaries. Making this vision a reality, however, will require radical changes not only in lifestyles and economic activities, but also in how people perceive and use space, both nationally and globally.

One major challenge will be to develop more holistic strategies for planning and managing the use of space. How we perceive, value, and use land are strongly influenced by our cultural, societal, and economic systems. Conversely, patterns of spatial development also influence social attitudes, lifestyles, and economic activities. These tight linkages mean that competing claims on space can only be resolved if we consider prevailing societal values, particularly relating to individual freedom and environmental concern. Such values, however, often vary widely between rural and urban areas, between economically thriving and marginalized areas, between social classes and between different generations. Progress towards greater sustainability, as envisioned in *thriving spaces*, can only occur if these differences in values, and the concerns and fears they engender, are taken into account in the planning process.

Another challenge is ensuring policy coherence. All too often, there is misalignment – even conflict – between sustainability goals and policies in different sectors such as transportation, agriculture, tourism, industry, and energy. For example, subsidies designed to support a particular goal in one sector often cause harm in another sector. Competing interests also manifest as political divides, which make it difficult to implement the kinds of comprehensive strategies needed for sustainability. Finally, global dynamics can interfere with, and even neutralize, the outcomes of policies developed at a local or national level. Real estate and property markets, for example, have been altered by the growing dominance of the financial sector (financialization), and remote investors may show little interest in incorporating local sustainability goals in their projects.

On the practical side, there are many things that can be done to make the vision of thriving spaces a reality, though research will be needed to determine the most effective options. For example, economic systems and business models need to be harmonized with the vision of sustainably thriving spaces. Opportunities include planning for carbon neutrality, adopting industrial ecology approaches, utilizing smart and digital technologies, and developing a circular economy based on reuse of natural resources. In many places, maintaining the essential services provided by natural systems, such as supporting biodiversity, providing food, and acting as a sink for CO_2, will require restoring degraded land and preventing further degradation. To realize these ideas, however, will require institutional arrangements that ensure close collaboration between stakeholders in urban planning, politics, NGOs, and academia.

Key unresolved questions

Envisioning thriving spaces: The concept of thriving spaces as presented here is very broad. The essential elements of this concept need to be fleshed out in greater detail to provide a basis for public debate, planning, and policy.

Key questions are:
– How do different actors – including citizens, planners, and policymakers – perceive the value of the space in which they live? What role does the aesthetic dimension play in this respect?
– How can we link spaces to well-being, and what are the meanings and narratives of well-being in the context of thriving spaces?
– What are joint visions of thriving spaces, and how do they address the concerns of sustainable development and the 2030 Agenda as well as the need to maintain natural diversity and associated natural resources?

Spatial development: In Switzerland, federal planning law is designed to encourage inward urban development, including better use of vacant land, higher densities, and the creation of attractive urban green and blue spaces. Yet the consumption of land via urban sprawl remains high (0.69 m² per second in Switzerland [2]), fuelling continued loss of green spaces and biodiversity. In particular, effective instruments are lacking that recognize and protect the quality of landscapes outside of settlement areas. In addition, spatial development also needs to tackle social divides, e.g. the consequences of gentrification. Overall, questions around social diversity, quality of life, sustainable habitats, and spatial development must be addressed.

This leads to the following questions:
– What are appropriate, socially inclusive strategies, concepts, and instruments to address densification and inward settlement development, protect and revalue un-

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2   www.bfs.admin.ch/bfs/fr/home/statistiques/espace-environnement/
utilisation-couverture-sol/evolution.html

built areas, ensure adequate biodiversity, and safeguard essential ecosystem services?
– How can the quality of life in urban areas and other living environments be improved for everyone, in particular the socially disadvantaged?
– How can the instruments of spatial planning be put to work in the service of climate protection and adaptation to climate change?

Dealing with urban–rural divides and unequal opportunities: Rapid demographic changes, such as those triggered by inward migration or industrial decline, can lead to economic disruption and social and political unrest. Recent research illustrates that linguistic divides are disappearing in Switzerland. However, the language-based *Röstigraben* is giving way to new regional divides between cities and agglomerations, on the one hand, and smaller rural communities, on the other. As a result, social inequalities between and within regions are rising. Overall, spatially manifested frictions, such as the urban–rural divide, have been increasing in recent years and need to be better understood. Differences in consciousness and other roots of the problem – often related to social, cultural, and economic opportunities (or lack thereof) – need to be addressed. We must particularly consider how global challenges such as mass migration and industrial restructuring are linked to these locally manifested political divides.

Key questions include:
– What are the drivers and social consequences of the urban–rural divide? What are the roles of globalization, digitalization, demographic changes, etc., and who are the 'winners' and 'losers'? How does social inequality manifest itself spatially and what are the implications for thriving spaces?
– How can we build better links between urban/core and rural/peripheral spaces? What form could sustainable urban–rural/core–periphery partnerships take?
– How can we solve these issues without exhausting natural resources?

Tackling the underlying causes of unsustainable lifestyles: Current lifestyles lead to excessive consumption and resource use, both in Switzerland and abroad. High levels of resource consumption and mobility lay claim to ever more land and cause pollution and greenhouse gas emissions. We need to understand how we can foster more sustainable lifestyles despite structural constraints and strong public demand for mobility. Structural conditions that induce mobility can be found in the ways our economies have developed (tertiarization, location of industries, models of work, etc.). Individual behaviour and incentives (infrastructure, low-cost fossil fuels, and subsidies, etc.) have encouraged unsustainable mobility. New solu-

tions are needed to transform these complex underlying conditions.

Concrete questions:
– What are key causes of unsustainable lifestyles? What are the underlying institutional, political, and structural arrangements that lock them in? How can widely accepted sustainable lifestyles be fostered?
– What are new visions for how communities can meet essential needs and enable well-being (e.g. the '15-minute city' in which all necessary functions such as work, shopping, leisure, etc. are walkable and accessible on foot or by bike)?
– Can such visions enhance or even replace our current ideas about how to develop urban and peri-urban spaces? What can we learn from the COVID-19 crisis to reconceptualize mobility in sustainable ways?
– Will digitalization (e.g. teleworking, integrated mobility services, 'industry 4.0') lead to further land consumption or will physical proximity assume a new role in the context of an increasingly digitalized society?

Implications of (economic) cost transparency on thriving spaces: Many aspects of spatial development entail (e.g. ecological) costs that are not internalized. In some cases, political actions such as subsidies produce costs that are not accounted for. Examples include the use of pesticides that spread into surface and ground waters, or transport systems that create noise and emit pollutants. Internalizing such external costs and creating positive spillovers are key to move forward. Measures such as congestion pricing, carbon taxes, and payment for ecological benefits appear to have great potential. One way of moving forward may be to establish positive incentives for the creation of ecological benefits. We should also consider new approaches such as that of a 'sharing society' or circular economy and how they could reduce externalized ecological costs.

Questions include:
– What are the external costs, including those arising abroad, resulting from our economic and private activities related to use of space, especially for ecosystems, their diversity, and the ecosystem services they provide?
– Which framing conditions are needed to create cost transparency and internalize external costs related to how various actors use land and space? Which incentives have the potential to create ecological benefits?
– How can the internalization of external costs be implemented politically, e.g. road pricing in the case of mobility?

Climate protection and adapting to climate change: It is predicted that built-up areas in Switzerland will suffer from more frequent extreme weather events such as heatwaves and

heavy precipitation, which will lead to increased surface runoff. On the one hand, sustainable urban development should include measures that facilitate adaptation to these effects of climate change. On the other, further measures for climate protection must be taken in order to increase the resilience of the biosphere. These measures include reducing CO_2 emissions and strengthening ecosystems in urban areas by increasing their biological diversity. Blue and green areas as well as smart urban layout will be key to keeping such areas liveable.

Important questions are:
– How can built-up areas be developed based on their natural surroundings and landscape in order to adapt to climate change and assist climate protection?
– How can spatial development be supported by dialogue between experts from a broad range of academic and non-academic fields with different perspectives on the implications of climate change?
– What are concepts of resilience for thriving spaces that enable adaptation to climate change?

Realizing thriving spaces: Taking action in sustainable urban development is not easy. New governance and planning approaches capable of identifying and resolving conflicts of interest need to be developed. Observing the principle of participation in decision-making, citizens need to be proactively engaged in these processes. Such participation could raise awareness about how human activities are dependent upon, and also influence, nature. In addition, experts from science and practice – including fields as diverse as urban planning, architecture, political science, biology, geography, etc. – need to be engaged in respective partnerships. They need to help decision-makers and citizens in understanding the complex nature and relationship between the various topics associated with thriving spaces. In addition, such approaches could also help to build a shared understanding of the importance and relevance of transformative change for each individual and society as a whole. Experimental instruments such as test planning, real world laboratories, and pilot projects that promote public participation need to be mainstreamed.

Concrete questions:
– How can we as a democratic society develop the necessary decisions for sustainable land use and thriving spaces?
– How can citizens be more strongly engaged in sustainable urban development?
– How can pilot formats like test planning, real-world laboratories, and pilot projects be used for collectively realizing desirable, sustainable thriving spaces?
– What new governance approaches are needed to address conflicting goals and interests?

– How can inclusive processes to realize thriving spaces be shaped, and how can climate protection and adaptation to climate change be made integral parts of them?

Expected relevance for Switzerland and internationally

There are many areas of policy in Switzerland that have spatial implications. Some of these are cross-sectoral, such as the New Regional Policy (NRP) and the agglomeration policies, while others are sectoral, including economic, agricultural, energy, transport, environmental, and financial policies. To a large extent, these policies are inadequately aligned and pay insufficient attention to sustainability goals. In some cases, they even directly conflict with each other. Research is urgently needed to help develop policy frameworks capable of supporting overarching sustainability goals. Answers to a variety of questions are particularly important: To what extent should the goals of the Swiss Sustainable Development Strategy guide federal government and the cantons in their funding decisions? How can budgets be aligned with sustainability goals? Can public policy become more mission-oriented when it comes to public investments resulting from these programmes? What about synergies and conflicts between the policies, subsidies, etc.? How can policymakers dynamically adapt their programmes to changing conditions such as increasing risks and uncertainties due to climate change?

The cross-cutting concept of *thriving spaces* introduced here can significantly improve people's understanding of conflicting objectives regarding the use of space and provide innovative ideas for more sustainable futures. Switzerland's democratic and federalist structure offers the opportunity to test innovative approaches.

Links with the other thematic areas that need to be addressed

The use of land and water resources for *food production* may compete with or reinforce visions of thriving spaces – food production and spatial issues are inseparable. Key questions centre around whether and how strongly food systems are divided from other uses of land or are integrated in settlement structures, e.g. in the form of vertical farming structures that challenge the notion of agriculture being based solely on use of land areas. This example also shows that such solutions can simultaneously contribute to improved climatic conditions in settlement areas, including cities.

Thriving spaces are closely linked with property and land use rights both in Switzerland and abroad. The process of financialization noted above highlights how strongly issues around land, resources, and space are permeated by the dominant thinking and power of the financial system. This trend is leading to more social inequalities, land grabbing, and generally more ecological degradation. Further, it is an expression of Switzerland's strong global interdependencies. The way we deal with our space is strongly interlinked and dependent on where the products we consume are manufactured and which country provides the respective space. How can promising models of *green* and *just economies* consider the global perspective of thriving spaces?

Social *values, visions,* and *pathways* are fundamental to realizing the ideal of thriving spaces and for addressing issues of protection and use of space. Our spaces are the result of societal visions. Spatial planning has a long tradition of working with visions. To change values in a direction that makes realization of thriving spaces possible, a change in perspective and consciousness is needed in terms of how we view our relationship to nature. However, broader debates on such a change in perspective have largely been missing to date. It could be worthwhile to examine the underlying values shaping such visions, and investigate which actors share and influence them. Dealing with explicit, known values must also be complemented by efforts to learn more about *implicit* values that influence how landscapes are produced and reproduced. One interesting research area could centre on kinds of transformations that happen in spaces and how underlying values change in the process.

Key literature

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