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Transformation des territorialités et des urbanités : Une approche par scénario de la planification et de la prise de décision locales à Inukjuak et Salluit, Nunavik

Geneviève Vachon, Mathieu Avarello, Julien Landry et Laurence St-Jean

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Building and Dwelling in Inuit Nunangat

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Résumé de l'article

Cet article porte sur la transformation durable des villages nordiques du Nunavik au regard des notions d'habitation, d'urbanité et de territorialité. Notre approche de recherche en design participatif a abordé les limites des cadres de planification actuels, des modèles de développement exogènes et d'un système de gouvernance complexe en intégrant la relation au territoire et les impacts du changement climatique dans l'exploration de scénarios pour des futurs alternatifs adaptés aux réalités urbaines locales. La recherche illustre ces limites et ces complexités par des scénarios hypothétiques de transformation à Inukjuak et Salluit. En identifiant des futurs plausibles, nous avons formulé des stratégies de planification durable combinant des facteurs interdépendants dans le développement d'interventions basées sur des projets visant à intégrer les pratiques traditionnelles dans un contexte d'urbanisation. Le cas d'Inukjuak illustre l'importance des environnements naturels, des pratiques de consolidation urbaine, de la diversité des usages et de la socialisation, tandis que celui de Salluit démontre la réciprocité entre les variables de conception géomorphologiques, constructives, socio-culturelles et logistiques. L'évolution des enjeux du développement du Nord nécessite d'examiner la pertinence de ces scénarios à partir d'hypothèses alternatives et d'horizons à long terme, dans l'imagination de stratégies partagées de planification durable. La recherche en design, l'utilisation d'outils d'aide à la décision et les cadres participatifs sont questionnés par rapport à leur contribution à l'autodétermination des communautés locales dans la « resituation » de leurs milieux de vie.

Territorialities and Urbanities Transform: A Scenario-Based Approach to Local Planning and Decision Making in Inukjuak and Salluit, Nunavik

Geneviève Vachon,ⁱ Mathieu Avarello,ⁱⁱ Julien Landry,ⁱⁱⁱ
and Laurence St-Jean^{iv}

ABSTRACT

This article focuses on the sustainable transformation of Nunavik's Northern Villages with regard to the notions of dwelling, urbanity and territoriality. Our participatory design research approach addressed the limits of current planning frameworks, exogenous development models, and a complex governance system by integrating the relationship to the territory and the impacts of climate change in the exploration of scenarios for alternative futures adapted to local urban realities. The research illustrates these limits and complexities with hypothetical transformation scenarios in Inukjuak and Salluit. By identifying plausible futures, we formulated sustainable planning strategies combining interrelated factors in the development of project-based interventions to incorporate traditional practices in an urbanizing context. The case of Inukjuak illustrates the importance of natural environments, urban consolidation practices, diversity of use, and socialization, while that of Salluit demonstrates the reciprocity between geomorphological, constructive, socio-cultural, and logistical design variables. Evolving Northern development challenges require that the relevance of these scenarios be examined based on alternative hypotheses and long-term horizons, in the imagination of shared strategies for sustainable planning. Design research, the use of decision-making tools and participatory frameworks are questioned in relation to their contribution to the self-determination of local communities in the "resituation" of their living environments.

KEYWORDS

Nunavik, planning, housing, design research, territory, urbanity, scenario

i. École d'architecture, Université Laval. genevieve.vachon@arc.ulaval.ca

ii. École d'architecture, Université Laval. mathieu.avarello.1@ulaval.ca

iii. École d'architecture, Université Laval. julien.landry.1@ulaval.ca

iv. École d'architecture, Université Laval. laurence.stjean.1@ulaval.ca

RÉSUMÉ

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Cet article porte sur la transformation durable des villages nordiques du Nunavik au regard des notions d'habitation, d'urbanité et de territorialité. Notre approche de recherche en design participatif a abordé les limites des cadres de planification actuels, des modèles de développement exogènes et d'un système de gouvernance complexe en intégrant la relation au territoire et les impacts du changement climatique dans l'exploration de scénarios pour des futurs alternatifs adaptés aux réalités urbaines locales. La recherche illustre ces limites et ces complexités par des scénarios hypothétiques de transformation à Inukjuak et Salluit. En identifiant des futurs plausibles, nous avons formulé des stratégies de planification durable combinant des facteurs interdépendants dans le développement d'interventions basées sur des projets visant à intégrer les pratiques traditionnelles dans un contexte d'urbanisation. Le cas d'Inukjuak illustre l'importance des environnements naturels, des pratiques de consolidation urbaine, de la diversité des usages et de la socialisation, tandis que celui de Salluit démontre la réciprocité entre les variables de conception géomorphologiques, constructives, socio-culturelles et logistiques. L'évolution des enjeux du développement du Nord nécessite d'examiner la pertinence de ces scénarios à partir d'hypothèses alternatives et d'horizons à long terme, dans l'imagination de stratégies partagées de planification durable. La recherche en design, l'utilisation d'outils d'aide à la décision et les cadres participatifs sont questionnés par rapport à leur contribution à l'autodétermination des communautés locales dans la « resituation » de leurs milieux de vie.

MOTS-CLÉS

Nunavik, planification, recherche en design, territoire, urbanité, scénario

Exploratory Research Context

This article presents the results of two design research projects in urban design¹ conducted as part of a research partnership on Northern Indigenous living environments² and involving the villages of Inukjuak and Salluit, Nunavik. Our reflections focus on the challenges of sustainable transformation of Northern Villages in relation to dwelling, urbanity, and territoriality, while examining the real-world limits dictated by current planning frameworks—including the challenges of citizen participation. The

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1. Urban design integrates knowledge, skills, processes, and products at the intersection of architecture, urban planning, and landscape architecture. Through place- and culture-specific analyses, it pertains to the continuation and transformation of urbanity, in all its material, historical, and experiential depth, realized in the urban *project*.
 2. *Living in Northern Québec* aims to collaboratively create concrete future visions for Nunavik Inuit villages, in light of conclusive evidence and shared knowledge, including Indigenous knowledge (www.habiterlenordquebecois.org).

two projects illustrate these complex situations and promising approaches and contribute significantly to current discussions on Northern development and the evolution of urban conditions. The possible transformations imagined collaboratively consider the effects of colonial urbanization and other exogenous changes, including those related to climate, as well as numerous interrelated factors defining *Northern urbanity*. The resulting scenarios highlight the impacts of certain actions on natural and built environments and address the role of Inuit values, aspirations, practices, and actions.

Challenges for sustainable construction and development

The housing challenges in Nunavik Inuit communities—heightened by other broader challenges regarding urban development and climate change—concern shortages and unsustainability, a direct consequence of the application of Southern models, which are ill-suited to Northern climate and cultures. It is now recognized that these environments, designed without Inuit participation, fail to meet their aspirations (Ikey 2016; Nungak 2016). Residential construction, in particular, is caught in a pattern of “urgency”, and is mostly an answer to demographic pressures than it is to Inuit aspirations, notably in relation to modes of tenure, housing diversity, and contribution to the urban or collective experience. The majority of the population lives in social housing built on land belonging to Inuit. In this context, there is little time to reflect upon, plan, and develop locally rooted urban solutions adapted to place-specific needs, resources, and changing climate. The complexity of existing housing production framework and governance systems also limits self-determination.

Recently, problems such as gravel shortages, thawing permafrost, and sprawling development have amplified the difficulties related to urban planning. For example, pursuing construction on thawing permafrost involves a costly system of pad foundations that require excessive amounts of gravel. That said, as the permafrost becomes increasingly unstable under an alarming number of established areas (with the risk of subsidence or landslide), we see a door-to-door truck service, supplying drinking water and retrieving sewage—which hardly substitutes for a technically unfeasible underground infrastructure. These problems limit the availability of safe zones for construction and call for reflection on alternative ways of building and planning (Allard et al. 2012).

Despite a form of village development that is standardized, functionalistic, and influenced by exogenous factors, the Inuit way of life is motivated by freedom of movement in this urbanized landscape. In this context, Northern villages can be seen as service points to access health care, education, and businesses connected with the South. The primal link to the Land nonetheless remains essential to the cultural expression of many Inuit who consider that their existence depends on the survival of this relationship (Makivik

Corporation 2014); the discrepancy between dwelling aspirations and available housing is therefore an important issue for building and planning. Indeed, words such as “urbanization” and “modernization” are given a negative connotation by local populations and are perceived as responsible for a certain form of cultural and social failure (Searles 2010).

Thus, there is a pressing need to shift the current housing and village development paradigm (based on an economic agenda and repetitive technical methods) toward a genuinely sustainable process driven by a social agenda and design quality to better address local conditions as well as Inuit culture and aspirations. What strategies can we deploy to adapt Northern living environments to such challenges? How can Inuit knowledge of the territory—as an identity-laden living place—become a key to developing plausible scenarios and realistic means of action?

Collaborative design research for a local planning paradigm

In 2017 and 2018, two teams of design researchers from the Université Laval School of Architecture, members of the *Living in Northern Québec* partnership, collaborated with researchers from other disciplines and Inuit partners in exploring innovative avenues for sustainable and culturally adapted development in two Nunavik villages. Their shared approach hinged on collaborative planning, which provided opportunities for local stakeholders to act as legitimate decision makers in the development of their own living environment. The group’s explorations also tackled territorial and urban challenges, which they drew from to later influence other projects from the partnership’s wide range of intervention scales, from the architectural to the collective (Habiter le Nord québécois 2019).

This context of collaboration arises from the ambivalence and frustration of Inuit regarding colonial and post-colonial planning efforts and feasible scenarios for the future development of their community. The well-documented sedentarization process includes the imposition of federal policies that have deeply affected Inuit practices and well-being, particularly with regard to housing (Duhaime 2017). Despite local actors’ increased agency in the last decades, notably in housing administration, the provincial government continues to maintain control over the decisions being made. The rigid Southern arrangement of street grids with aligned houses is implemented as an economic solution, thereby complicating the affirmation of “typically Inuit” forms of development. At the same time, Inuit practices adapt (Breton and Cloutier 2017). In this shifting context, Inuit feel that their ways and knowledge of the Land are being overlooked in the face of the evolving political landscape. Tools such as masterplans are considered at once necessary (to help identify suitable construction areas), confusing (in their complexity to use and implement), and inadequate (in not sufficiently including local values) to tackle development issues (Snowball

and McDonald 2020). In stating the effects of colonial development policies, the *Parnasimautik* consultation report proposes a vision for regional planning based on land preservation, collaboration among local instances, and the affirmation of Inuit culture and identity (Makivik Corporation 2014).

The design research approach discussed in this paper takes this very context into account and modulates responsive strategies accordingly. Overall, design research is considered as both a problem-solving activity and an evidence-based creative process that enables to imagine, formalize, and evaluate multiple proposals (or *projects*) for living environments. This approach is conducted in a studio setting, with periods of fieldwork involving local stakeholders: group discussions, co-design exercises, interviews supported with graphic material, etc. Design projects thus co-produced are not meant as blueprints for immediate construction; rather, they are to be understood as realistic visions of possible futures and as useful decision-making aids for communities. Their iterative process usually involves knowledge synthesis based on a wide range of data and information, such as demographics, multicriteria mapping of permafrost conditions, building foundation systems and other construction techniques, architectural types, and adaptive strategies to climate change, among others. Related observations and discussions complement data from other research conducted by or involving participants from other disciplines, as well as reports such as *Parnasimautik* (Makivik Corporation 2014).

Concepts, Approaches, and Definitions

Territorialities are constantly mutating. For Nunavik communities, these mutations are inseparable from rapid urbanization, the conditions and consequences of which are the object of many discussions (Société Makivik 2014; Nungak 2016; Brière and Laugrand 2017). Designers and planners are interested in the evolving perceptions and representations of the territory and everyday landscapes because they offer clues about local aspirations and allow for living environments to be adapted accordingly. To develop such projects collaboratively, scenario building is a promising avenue in line with the Indigenous planning paradigm, which relies on local participation to influence decision making. This approach integrates powerful yet accessible means of communication that simulate both reality and projected futures as concrete examples of “possibles”.

It matters at this point to define the vocabulary associated with the concepts developed further along, as these definitions are drawn from Francophone literature and differ slightly from their direct Anglophone translations. The notion of “territory” should not be understood as a geopolitical, bound, and controlled area, but rather as an “anthropic place” that is spatially and chronically associated with a people. In this sense, the

territory is the process and the result, both tangible and imagined, of the interaction between people, the space in which they act, and their practices (Dorais 2008). It is helpful to recall the distinction between space (neutral) and place (meaningful): the geopolitical area is analogous to the notion of space, whereas the *territory* is analogous to the notion of place. In short, *territory* carries both a meaning and an identity and is cultural by definition. By extension, “territoriality” refers to the fact of relating to (or the degree to which) a defined space is imbued with the meaning imparted by the territory; when used in its plural form, the term refers to varying iterations or degrees of expression of the three *people-space-practices* constituents. This use of the term *territory* approaches that of *the Land*, although the latter sometimes excludes the village. The term *urbanity* refers to the fact or the degree to which urban characters are expressed or conjugated within the villages (Desbiens, 2017). *Urbanism*, on the other hand, refers to the discipline concerned with the understanding, concepts, and methods related to the “production” of the urban, while *planning* refers to the logistics and concrete operationalization of the expansion or transformation of the built environment.

Territorialities and urbanity in Nunavik

The sedentarization process of Nunavik Inuit corresponds to a profound rupture with the uses, practices, and representations of their ancestors. This process is shaped by exogenous geographic, social, and political factors that tend to portray the nomad way of life as something primitive needing to evolve and be integrated within the Canadian political and institutional order (Duhaime 1983). Although this shift is often quoted as a cause of social distress in Inuit communities, the combination of its impacts on ways of life is complex and thus remains difficult to identify any one culprit. Still, it is clear that the unyielding aspect of administrative frameworks, mandatory schooling, and the advent of wage labour as a means of subsistence have progressively heightened social tensions by eroding traditional Inuit symbols and power structures (Duhaime 2017; Searles 2010).

Sedentarization has notably affected Inuit perception of and relationship to the Land, which embodies their values, traces, and identity, and alludes to the possibility of travel (Dorais 2008). This perception is changing in accordance with a possible tension between rootedness (the need or desire to anchor down in one place, e.g., the village) and mobility (the opportunity to live and travel freely on the Land) (Landry 2018, 17). As a result, territoriality is influenced by this “balancing act”, as it is a response to the ideological and spiritual challenge of living collectively within a given space (ibid., 2018; Bonnemaïson 1981). According to this viewpoint, villages are not part of the lived and imagined Land, even though “the insertion of an urban environment within the space of traditional routes does not

necessarily dismiss the places where traditional activities occur, it rather re-situates them in a new cultural geography” (Desbiens 2017, 153). This “re-situation” refers mainly to the mutations of the Land and gathering places induced by the establishment of villages. On a greater scale, with the increased contact with the South and with the rest of the world, Nunangat—and the sustained imprint of its qualities and meaning—also participates in this re-situation of Inuit territorialities and the emergence of new territories of interaction. The next paragraphs contextualize the change in territorialities according to different scales.

Since the 1950s, the territoriality of the Land has gone through major structural changes. The Land remains widely viewed as the place that hosts traditional Inuit activities. Although hunting feats and survival heroism permeate the collective imagination (Markoosie 2011; Qumaq 2010), the idea of the Land is shifting from the once perceived totality of elements in relation with each other and with individuals (Collignon 1996, 193). The “holistic” character of this iteration of territoriality appears to be altered in terms of current practices. As Collignon notes, the “territory of Ancestors seems to be reduced to being a mere backdrop, a decor from which the village, the only living space left, detaches itself” (Collignon 1999, 2). Snowball and McDonald (2020), however, caution against an understanding of the Land as two distinct realities: the small Northern villages and the vast wilderness around them. This oversimplification is oblivious to the meaning associated with the peripheral strip of land “which for many Inuit is what they actually call home: the slightly delicately humanized landscape that forms their traditional hunting and camping areas, where almost every family owns a cabin. These special places are the embodiment of the long and intimate relationship between the Inuit’s culture and the natural environment.” (ibid., 4). Self-built traditional cabins are elements that express the attachment to this periphery as “chosen” and invested living spaces, in stark contrast with the “attributed” houses in the village (Breton and Cloutier 2017, 95; Demeule 2021).

Emerging as a new form of territorial expression during sedentarization, the territoriality of Northern Villages embodies the intensity of new social and political dynamics, in sharp contrast with more traditional ones. This new urban reality, where artificial structures and housing take on a prominent role, prepares “new types of relationships to the territory and the community, at multiple geographical scales” (Desbiens 2017, 151). The management of growth, planning, and local resources echoes the complexity of the daily urban life paradigm. This transition toward a shared environment can be understood as a transition from complete control of the dwelling environment (Habraken 1998) to a system where the possibilities for appropriation are reduced. For example, the spatial layout of the village, the interior organization of its houses, and their attribution to families are almost entirely decided by government organizations and are a mismatch with local

practices (Vachon et al. 2017; Brière and Laugrand 2017). In parallel, the notion of public space is better understood in terms of community life, which seems to take root in an organic manner. Informal meeting places, such as the grocery store, the hockey arena, or the church, serve as both destinations and landmarks and are well integrated into daily communal practices. But even though the village is now the default scene of everyday life for a majority of Inuit, “the idea according to which the real, healthy and invigorating life is the one that is lived out on the Land, outside the village, is still far from being irrelevant³” (Brière and Laugrand 2017, 37).

Finally, on a broader scale, the territoriality of Nunavik corresponds to the general idea of The North. The types of exchange in place since the trading posts have been replaced by industrial development and new networks, the intensity of which is linked to the global economy of the 21st century. While mobility on the Land has decreased, trips between villages have increased, as have the frequency of communications and the amount of social interaction. With the new communication structures, Nunavik’s governance appears to be more and more disconnected from physical territorial constraints, in contrast with the traditional system of clans associated with a multiplicity of local territories (Landry 2018). A certain shared urbanity also appears to characterize this “trans-territorial” scale, whereby relationships and transactions intensify at all levels to materialize what Desbiens describes as the “gradual integration of communities into trans-local networks” (2017, 152).

In brief, a rapid shift in the already complex relationship Inuit have with their homeland has defined new territorialities. These could be referred to as the basis of a new Inuit urbanity and go far beyond the obvious expansion of the built environment. By embracing a sedentary dynamic, this new urbanized context, with its open, intensified, and non-culturally exclusive dimensions, can be understood as a new model of contemporary Inuit dwelling in Nunavik that involves both agency and adaptation on the part of Inuit communities (ibid., 2017; Breton and Cloutier 2017). These iterations of the territory (the various territorialities) manifest perceivable characters and qualities: a tangible landscape that presents itself to the urban designer as “matter” that can serve to develop pragmatic projects. From here, the design research approach considers the evolving and complex nature of territorialities by uncovering clues that shed light on visions of the future that are fruitful for both planning and building.

3. Translation by the authors.

Planning through scenarios

Development scenarios are tools to model possible ways of transforming territories. In the context of rapid urbanization and change, the scenario-building process aims to illustrate the complexities involved in achieving sustainable and culturally adequate development (Ratcliffe and Krawczyk 2011).

Indigenous planning and collaborative processes

The Indigenous planning paradigm is based on the decolonization of planning strategies through participative processes that are open to exchanges and to the co-production of knowledge. It aims to protect local cultural, social, political, and economic interests while supporting relationships with and within communities as well as with nature. Indigenous planning enables communities to actualize their aspirations in terms of their own evaluation of their present and future needs. It also aims to produce a high-quality environment based on political autonomy, social cohesion, economic growth with a fair distribution of wealth, the strengthening and protection of culture, and the construction of identity (Matunga 2013; Fawcett, Walker, and Greene 2016).

Collaborative processes are at the heart of Indigenous planning, as they enable a better understanding of the potential and limits of projects while promoting creativity in a climate of mutual trust (Roche and Waaub 2006). They are based on the inclusion of all types of knowledge, recognizing that experience is as valuable as scientific expertise. Therefore, participatory processes are meant to reinforce the legitimacy of decisions, encourage the exchange of opinions and information, and leverage territorial knowledge, even if mobilizing stakeholders at the different stages of the process remains a challenge (Mannell, Palermo, and Smith 2013). In fact, truly ‘genuine’ models of participation counting on citizens’ self-mobilization are difficult to implement, as they aim for optimum rather than perfect participatory processes which can be quite complex, time-consuming, and often impossible to implement, particularly when citizen control is the goal (Cornwall 2008, 278). In such circumstances, consultation is not necessarily a lesser form of participation if the voices of representatives end up highlighting acceptable strategies or even exert pressure to get preferable results (ibid., 2008, 280).

Thus, in a context of accelerating change, increasing complexity, and growing uncertainty, participatory methods offer better chances of finding creative, efficient, daring, and consensual solutions, and correctly implementing them (Ratcliffe and Krawczyk 2011, 646). In our research, collaborative scenario building uses *foresight* to take into account complex planning conditions—either actual or hypothetical—to develop strategic visions. The idea is not to predict the future but rather to better understand it so as to be prepared and ideally influence its outcome.

Of scenarios and the territorialist approach

Scenarios are forward-looking analysis tools that guide choices in relation to likely futures, making stakeholders aware of the complexity and incertitude of the issues through exercises of imagination and learning (Ratcliffe and Krawczyk 2011). In addition to highlighting what *will most likely* happen, planning scenarios also touch on what *could* happen (possible futures) and what *should* happen (desirable futures) (Bibri 2018). They are based on the analysis of current and projected data to determine probable future situations (forecasting) or to develop strategies for desirable sustainable development (backcasting) that are paired with conditions, targets, and actions aimed at long-term change. Development scenarios also integrate local elements and situations, such as inhabitants' aspirations and values, architectural quality, and the richness of landscapes—variables that cannot be taken into account by normative prediction models. “Hence, scenarios go beyond objective analyses to include subjective interpretations” (Schoemaker 1995, 27).

During the process of scenario building, appropriate visualization techniques “translate” knowledge and actions into easily understandable and informative representations, which in turn facilitate involvement by eliciting more balanced interactions and heightened commitment (Senbel and Church 2011). Because they are based on social representations, these spatial simulations materialize ideas that would otherwise remain implicit. Indeed, by simulating the results of different actions through realistic and precise images (Al-Kodmany 2001), scenarios enable stakeholders to express a critical point of view while gaining a greater knowledge of relevant issues. Visualizations are also useful to further the social acceptability of projects and reach operational efficiency by relating to planning instruments or frameworks (Sheppard 2001; Poli 2018).

A scenario therefore refers both to a future shaped by a unifying project and to the process itself of combining stakeholders' common, conflicting, contradictory, and creative visions. As modeled by the Territorialist Movement⁴ and its proponents, these future visions put into action territorial *sediments* (i.e., *metaphorical* layers of inherited cultural characters, both material and immaterial) and *deposits* (i.e., potential local qualities to be revealed). These form the basis of collective identity and represent a continuity through new territorialities. Their formulation relies on the knowledge and local materials of the territory, which are understood as a “common good” (*bien commun*) derived from the action of communities

4. Territorialism is an anthropo-biocentric approach to sustainable urbanity concerned with meaningful, co-evolutionary relationships between humans, activities, and territory. The latter's local qualities inform place- and culture-specific transformations through *projects* that support identity, solidarity, and democracy (Magnaghi 2003; Larochelle 2017; Avarello 2021).

through time and encompassing the form of built environments, infrastructure, spaces of production, and cultural landscapes.

In this context, the territorial (by extension, local) project can be defined as the development of places with added value aimed at increasing its sustainability and the well-being of its inhabitants (Magnaghi 2011b). The local scenario is the product of closely observing territorial dynamics to develop strategies that proceed from a profound understanding of local evolutionary patterns rather than from unyielding masterplans. Sidestepping this functionalist and regulatory framework allows for the imagination of possible futures by mobilizing local knowledge through participatory processes, thus giving stakeholders the means to address real situations in accordance with their autonomy, capacities, and solidarity networks. Concretely, the territorialist approach aims to illustrate the complexities inherent to the territory by *projecting* the qualities of meaningful places. The subconscious or spontaneous nature of these qualities justifies their critical affirmation and bolsters their relevance as project starting points. Creating a new territoriality combines these material and immaterial elements to activate identity founded on the culture of places, based on solidarity and working toward a sustainable future (Magnaghi 2011a, 2011b).

Explorations in the Nunavik context align with the territorialist approach, as they are based on the idea that all forms of human territorialization are anchored in their local context and that the *collective project* can be collaboratively and cognitively developed through careful observation of past and present dynamics with the intent of producing meaningful and sustainable living places.

The Cases of Inukjuak and Salluit

The scenarios developed for Inukjuak and Salluit address planning practices outside of decision-making tools, such as the masterplan. Although based on common principles, the two cases differ slightly in their aims and approaches. The Inukjuak project was based on citizen participation to validate possible transformation strategies (forecasting). In Salluit, the simulation of citizen positions and external conditions to define desirable strategies (concrete utopias) was validated by elected officials as a step toward instilling long-term decision-making practices (backcasting).

Imagining Inukjuak's development: From challenges to strategies

In 2017, following a series of consultations, the Northern Village (NV) of Inukjuak⁵ was about to approve the final version of its new masterplan. One

5. Located on the shores of Hudson's Bay, Inukjuak had a population of 1757 inhabitants in 2016, making it the third most populous community in Nunavik.

of its main objectives was to identify new areas for residential growth based on the land's development capacity in relation to permafrost (Allard et al. 2015) and existing construction methods (SHQ 2017). The masterplan proposed that the new houses match the existing types (detached or semi-detached) and be built on gravel pads (see Fig. 1), offering no modeling or images to illustrate the new sectors, their relation to what was already there, and their influence on an increasingly urban territory. Following reflection on the future planning of the village undertaken in 2015 in collaboration with the NV (Vachon et al. 2017), the revision of the masterplan provided an opportunity to question existing paradigms by testing them against a series of challenges put forth by local stakeholders: the effects of unstable ground on the integrity of houses and the security of families, the mismatch between development/housing and citizen aspirations, and the preservation of natural features in relation to territorial practices, among others. How can sustainable planning objectives inform a collective project based on territorial values? How can these values translate into possible and desirable development scenarios, as a complement to the probable future presented in the masterplan?

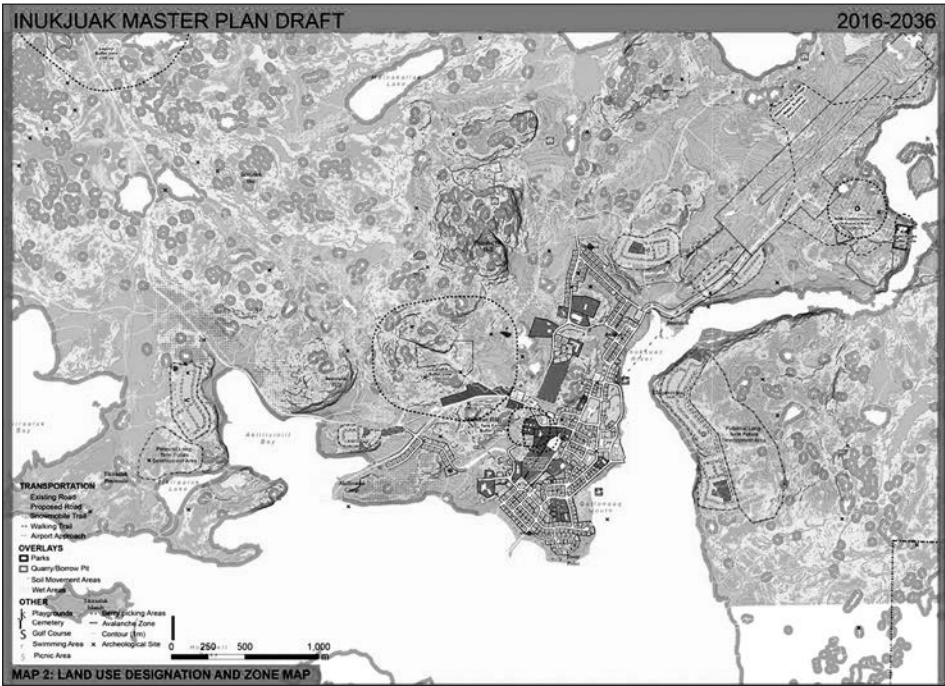


Figure 1. Inukjuak’s masterplan. Source: Kativik Regional Government.

The first step in the design research initiative was an exchange of information with local actors during the Spring of 2017. These meetings, held in Inukjuak, involved citizens (families, elders, groups of women, students) and representatives of local organizations (NV, Kativik Regional Government, Avataq Cultural Institute, and Landholding Corporation) (Fig. 2). By tackling issues related to development and governance, the discussions helped define values linked to territory and dwelling and identify planning goals. Design proposals generated during the collaborative studios⁶ helped determine or confirm the aspirations of Inukjuammiut in terms of housing and community life. The existing construction methods and 3D modeling of the masterplan's intentions were also the subject of many exchanges.

As a result, the citizens expressed genuine interest in more sustainable practices, such as using pile foundations instead of gravel pads to reduce financial and environmental costs. In fact, they agreed that the current construction methods overlooked the natural landscape. The large amounts of gravel used to level house lots and gridded streets therefore influenced the residents' perception of their community as being dusty, repetitive, standardized, and monotonous—and not responding to the ecological and symbolic wealth of the Land. Safety issues relating to unstable ground and steep slopes were also voiced, as were designated “buffer zones” which aimed to protect residential areas from invasive land uses, such as the airport or the tank farms. Furthermore, the preservation of culturally sensitive sites, such as berry-picking areas or cemeteries proved to be as important to Inukjuammiut as was maintaining physical and visual ties to the Land.

6. The design proposals were elaborated in Université Laval studios involving *Habiter le Nord québécois*'s Inuit partner organizations and citizens between Fall 2015 and Spring 2017. They were used as discussion supports during meetings. See *Habiter le Nord québécois* (2019).



Figure 2. Consultation, Inukjuak Community Center. Citizens discuss planning challenges and desired qualities for the built environment using visual documents. Inukjuak, March 2017. Photo: Laurence St-Jean.

Concretely, the discussions identified new criteria and desired qualities that should be included in the projects. One such parameter alluded to the proximity of housing in relation to services in the village center (such as community buildings, the grocery store, or the school). Access to these amenities should be within short walking distances, especially given the weather. A variety of housing models was wished for, in addition to generous, nearby common spaces. Indeed, many citizens dreamed of measures that would encourage self-built adjustments to the generic house models to better serve the evolving needs of households (such as the need for more interior storage space).

The compiled information and data oriented a scenario-making process involving four design strategies. First, the preservation strategy echoes the desire to preserve the natural cover by cutting down on the use of gravel pads. A system combining utilidors⁷ and pile foundations allows for houses

7. Utilidors are above-ground utility corridors of insulated pipelines that carry water and waste. While not in use in Nunavik, this system is present in Nunavut and other circumpolar territories (Sheppard and White 2017). Nunavik organizations are

and other buildings to be sited independently from the street grid, with close relation to topography and fragile vegetation. Houses are arranged into clusters in a staggered pattern to open views toward the Land and let in swaths of preserved natural cover, thereby facilitating movement toward the center of the village for pedestrians, snowmobiles, and ATVs. The use of gravel pads is restricted to a few access streets, with shared parking lots to preserve both nature and resources (Fig. 3).



Figure 3. Preservation strategy. 3D model of the view from a new residential area toward the village center, with preserved natural cover. Design: Landry and St-Jean, 2017.

The consolidation strategy optimizes the use of vacant or underused lots located near community services. Diverse types of houses are inserted in existing neighbourhoods to offer a more varied choice while respecting the privacy and security of each household. The houses are built on existing pads and are connected to new utilidors, which help reduce the presence of service trucks in more populated areas (Fig. 4).

The third design strategy, diversity, involves creating a balanced mix of houses, businesses, and community services. The diverse offer in terms of single- and multi-family homes is further detailed by varied tenure options to fit with different needs: social housing, private rental or property, co-ops, co-housing, and other collective alternatives. This diversity is in line with the evolving choices and residential trajectories of recomposed or multi-generational households, seniors, homeless, people living on their own or sharing apartments, and childless couples, etc. It also encourages the use of common spaces to promote different forms of solidarity and knowledge transmission between families, generations, and individuals.

The fourth strategy, based on meeting places, creates a comprehensive network of safe and comfortable spaces for socialization. Existing areas

discussing the possibility of implementing the utilidor system in certain areas, as a complement to service by trucks.

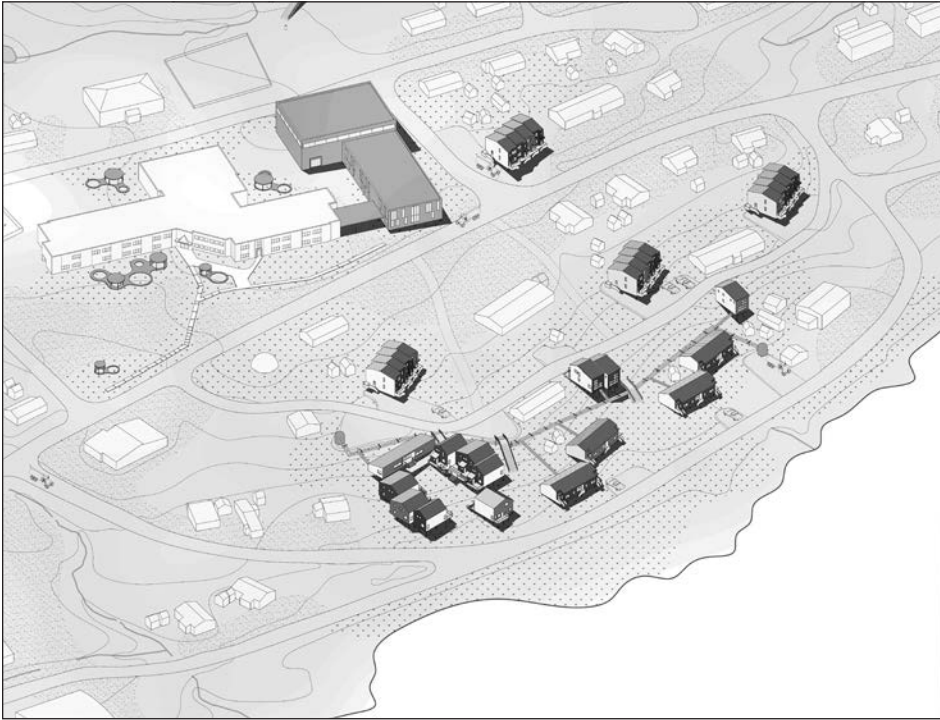


Figure 4. Consolidation strategy. New houses are added in the village center, with utilidor and pile foundations. Design: Landry and St-Jean, 2017.

where people naturally congregate are renovated to become welcoming meeting places. For example, porches added to the grocery store or the arena potentially offer convivial, informal gathering spaces (Fig. 5).

To help with their dissemination, the scenarios were presented on a website (Landry and St-Jean 2017) to eventually become a decision-making aid, similar to another co-evaluated tool (Vachon, Pinard, et al. 2017; St-Jean 2018). The scenario-building process has indeed sparked debate on existing models for planning and housing. Scenarios combining these design strategies thus encourage discussions on what is possible and what is desired, stimulating imagination and creating interactions between existing paradigms, values, and *deposits* that appear to not be fully optimized by conventional methods.

Strategic scenarios for Salluit

This design research project examined the ways in which designers and planners could organize and simulate the wide variety of potentially conflictual citizen positions and external conditions, namely, geomorphological and climate constraints. By defining and mapping this process as a multivariate

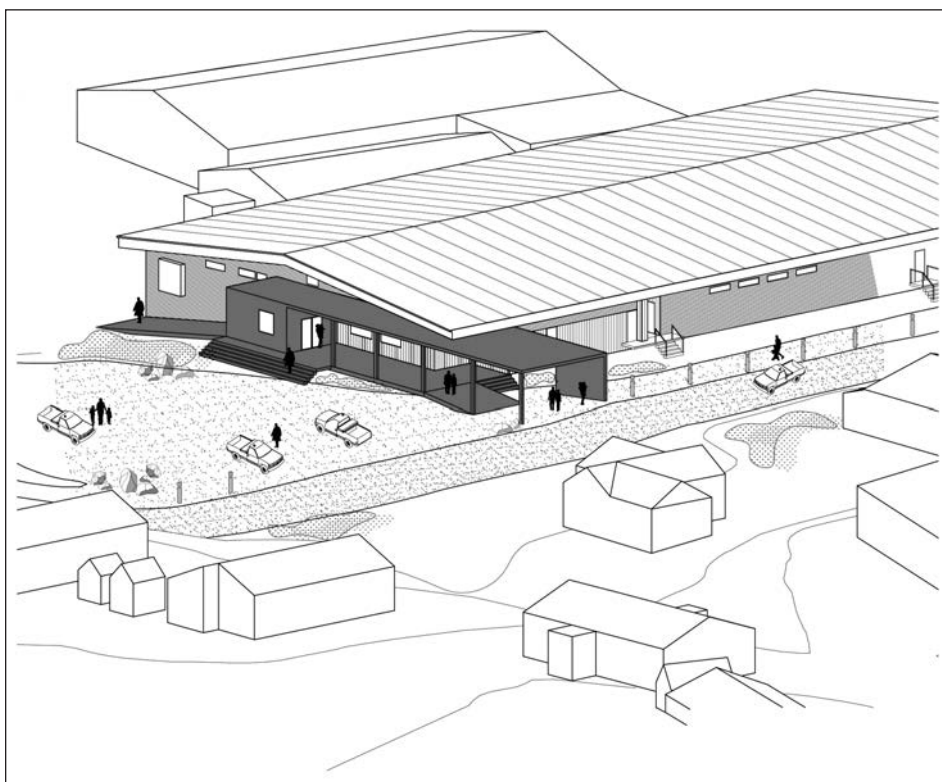


Figure 5. New meeting place. Porch added to Inukjuak's coop store. Design: Landry and St-Jean, 2017.

equation, these simulations explored how design strategies, political or value-oriented motivations, and technical constraints could combine and materialize into coherent scenarios.

The planning challenges in Salluit⁸ lent themselves well to this multivariate approach. This project was developed just as Salluit's masterplan was being revised by the Kativik Regional Government (Fig. 6). In addition to the above-mentioned challenges, the specific local constraints included the instability of the geological deposits on which the oldest and most populous part of the village sat (Allard et al. 2015); a gravel shortage and the unsustainability of operating the near-depleted gravel pit adjacent to the local drinking water source (which limited further "pad-sprawl"); and the existing village form, which was divided into three minimally linked sectors⁹, largely impacting the access to community infrastructure. The effects

8. Salluit is one of the northernmost villages in Nunavik, bordering on the Sugluk Fjord, just off of the Hudson Strait. Its population was 1483 in 2016.

9. Referred to as Salluit 1, Salluit 2, and Area 41 (sometimes Salluit 3) (Fig. 6).

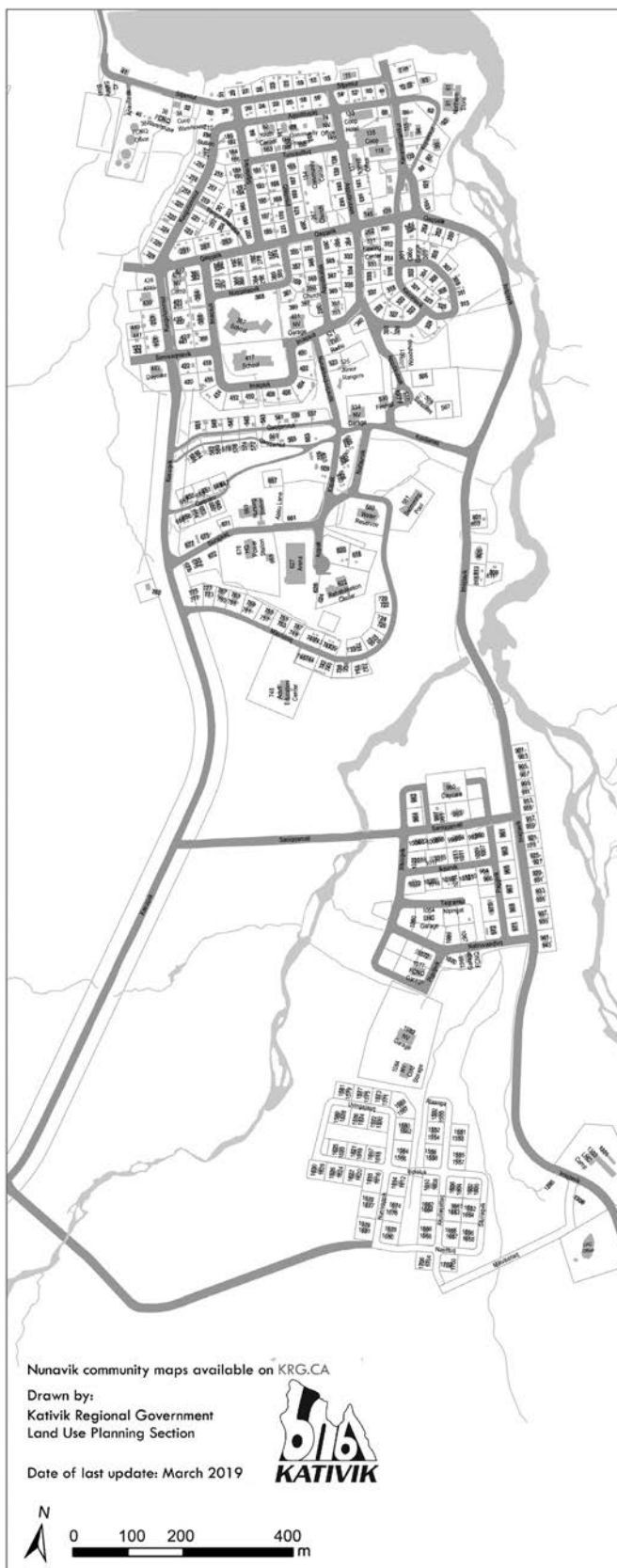


Figure 6.
Salluit's masterplan.
The original sector to the North is referred to as Salluit 1; the middle sector as Salluit 2; and the southern sector, linked to the airport road, as Area 41. Source: Kativik Regional Government, March 2019.

of these constraints were heightened by climate change, the predictions of which constituted major variables in the scenarios. In fact, in a “critical” scenario, a sufficient shift in temperatures on a 60-year horizon could be the tipping point¹⁰, causing a relocation of houses located on unstable thawing permafrost. Identifying stable and connected grounds was therefore a key objective in the development of strategic scenarios.

The project was conducted in three parts. First, visual tools were developed to model and map as many relevant design variables and transformation timelines as possible. Second, different major planning hypotheses were identified with local elected officials and other experts to define relevant avenues for scenarios. Third, one main orientation was selected to develop three interconnected scenarios, which were then combined into one alternative masterplan.

The idea that urbanity can be represented as the complex combination of many inter-related factors and variables (Desbiens 2017, 152) constituted the starting point of the project. *Variables* were grouped into major *themes* (geomorphology and climate, urban form, urbanity and territoriality, housing and construction, and infrastructure), which were further broken down into the main *values* they could adopt (i.e., the *urban form* variable could take one of many *values*, such as a grid pattern, a concentric pattern, etc. (Fig. 7). Represented in a uniting scheme to assert the fact that their variation influenced one another, these interdependencies pointed to certain design choices while facilitating the evaluation of their repercussions on the citizens’ aspirations. For example, it became obvious that construction without pads implied having different foundation types and allowed for new urban forms, but impacted the distribution of services as well as social interactions and neighbourliness.

10. Based on predicted temperature changes of superficial permafrost, it appears plausible to expect a rise in its temperature, reaching close to -2°C (its thawing point) around the year 2080 (Leblanc, 2013). Thawing of the permafrost, under these conditions, equates to a significant loss in stability, considering current foundation types.

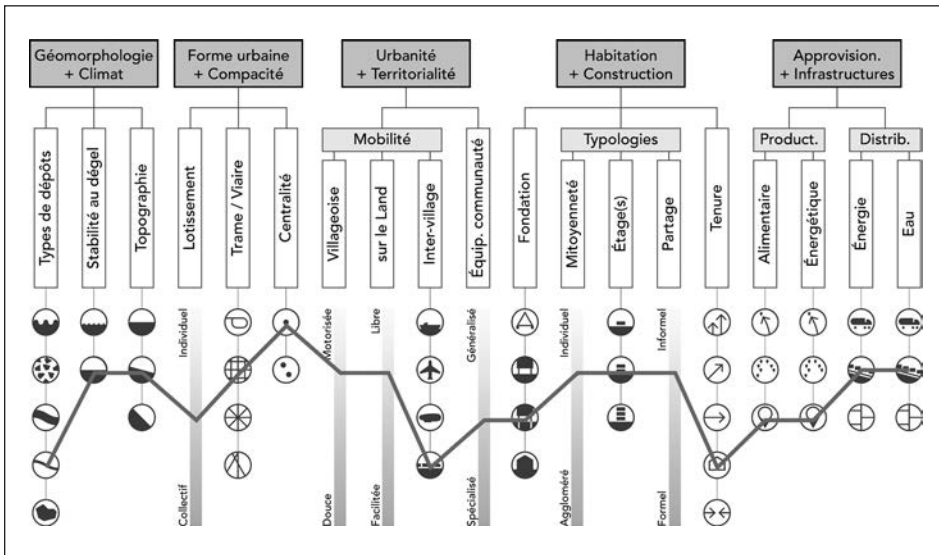


Figure 7. Variables and their main values grouped into five themes. Source: Avarello, Gauthier, and Delucinge, 2018.

These interdependencies became relevant once *hypotheses* were formulated to orient coherent avenues of development (Fig. 8). These hypotheses would ideally be formulated by citizens, either directly or through the mediation of planning professionals during collaborative design sessions¹¹. Due to logistical constraints, the hypotheses were developed by the designers and validated by elected officials and local planning professionals¹² during a field trip—bearing in mind that they were to represent a vast array of considerations (technical, cultural, political, etc.). Each hypothesis could then be illustrated schematically to produce visualizations of the *possibles*.

The consensus among the consulted professionals and locals was that two general orientations were relevant to produce an alternative masterplan. First, geomorphological hypotheses—applying technical solutions referred to as “cut and fill” (producing minimal amounts of gravel) and “mountainside” (adapting to Salluit’s typical sloped bedrock formations)—were to define the technical approach. Second, a sociological hypothesis on the idea of “living

11. This possibility was modeled and a tool was developed to confront various citizen inclinations regarding socio-economic orientations, governance, provisioning, and general urban development practices.

12. The expert committee included academics in the fields of architecture, urban design, planning, geography, and geomorphology. The local professionals and stakeholders—KRG, the Salluit NV, and Qaqqalik (Salluit’s Landholding Corporation)—were met in Kuujuaq and Salluit in April 2018.

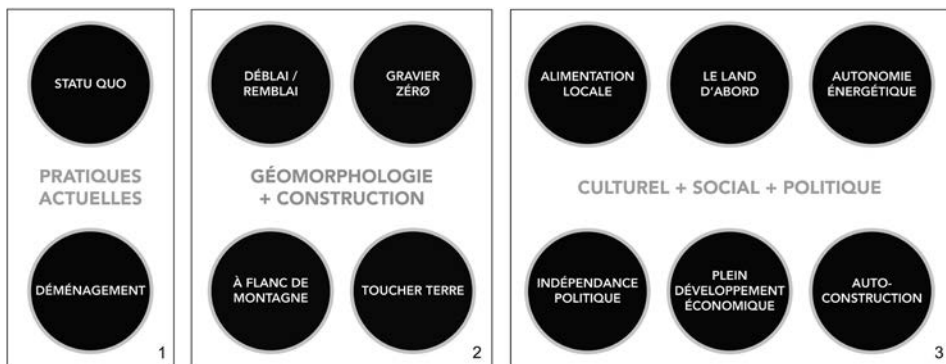


Figure 8. Hypotheses grouped into three main considerations. These hypotheses were generated to emulate a variety of potential local intentions and were grouped into three categories: those maintaining current practices (1); those concerned with technical (geomorphological, constructive) solutions (2); and those related to cultural, social, or political endeavours (3). Source: Avarello, Gauthier, and Delucinge, 2018.

closer together” was to imagine higher densities, directly impacting urban forms and construction along a 60-year timeline. Three solutions were thus proposed: the consolidation of the center on existing pads, the cutting-and-filling of major roads on appropriate ground, and the creation of small-scale walkable stairways adapted to the topography.

The Compact Environment proposition introduced a short-term solution to the scarcity of gravel. Because most existing houses were built on adjustable screwjacks, they could be moved closer to the streets or to each other, freeing up space to build small dwellings in between for family members, thus sharing the lots for storage and daily activities.

The Cut and Fill proposition (Fig. 9) applied to areas of till deposits, where bedrock depth was only a few meters. The shallow excavation of stone, gravel, and sand could free up just enough materials to be used as backfill for main streets, thereby allowing for the “sculpting” of carriageways in uneven terrain perpendicular to the direction of the slopes. The resulting streets could thus support trucking (to feed partial Utilidor systems) and all other means of transportation. Indeed, these wide spaces are ideal for large constructions, such as community facilities, stores, and apartment buildings for young adults. As the bedrock was close to the surface, these buildings could be built on piles, reducing the need for gravel to a minimum.

The Mountainside Walkways proposition (Fig. 10) involved taking advantage of Salluit’s sloped terrain for the downhill distribution of residential services—mainly water and fuel—through shared networks resembling utilidors under walkable platforms. These connected platforms would not only facilitate access to all dwellings on foot but also introduce interesting sheltered spaces for shared storage or personal use around the



Figure 9. Cut and fill for lively main streets. The Cut and Fill solution proposes wide, level streets and produces just enough gravel to support large-scale community and apartment buildings. Source: Avarello, Gauthier, and Delucinge, 2018.



Figure 10. Mountainside walkways. The Mountainside Walkways propose a more human-scaled environment shielded from high winds and facilitating small-scale activity. Source: Avarello, Gauthier, and Delucinge, 2018.

houses. These structures could thus be built on piles, further eliminating the need for gravel; all to preserve the natural state of the lots, which provide individual access to all dwellings in informal ways. A thin house plan was thus specifically developed to comfortably sit on slopes, with a varying number of stories to accommodate various densities and a wide range of preferences and family sizes.

All three scenarios were combined into one alternative masterplan imagined as the continuation of Area 41 (Fig. 11). Here, the general configuration of intersecting main streets and walkways produced a logical hierarchy of spaces, from the fully public to the domestic, and adhered closer to the collective aspect of the spaces around the houses.

These scenarios offer relevant solutions and orientations for a sustainable and resilient urban environment. Of interest is that the premise of a type of solidarity materialized in urban and built forms differs greatly from Salluit's current urbanity. The potential of combining the ways in which territorialities transform—as experienced and desired by the citizens—with other technical variables could lead to a more appropriate “resituation” of local urbanity. To ensure this appropriateness, it is deemed timely that a platform be created to enable direct citizen participation in the planning of the villages; one that could generate processes that encourage the expression of values, hypotheses, and desires associated with an effectively developed living environment.

Toward an Inuit Urbanism

Current planning approaches in both the North and the South tend to organize complex urban systems into separate issues (distancing the physical from the economic, the social from the environmental, the qualitative from the quantitative, etc.) when in fact, their combination seems to be a far more appropriate way to support long-term sustainability, resilience, and well-being. For example, the effect of climate change on community dynamics is a key impetus for innovation in community planning, as scientific knowledge points to the need for multilevel (intersectoral and interdisciplinary) action (Ahern, Cilliers, and Niemelä 2014). Furthermore, current planning orientations are often formulated as short-term resolutions to crises or devised to fit within political mandates, and unfortunately tend to maintain practices and decision-making tactics in a status quo.

At the other end of the spectrum, scenarios are neither snapshots nor prognoses but rather synthesized images in dilated or shifting time that translate a range of potential choices for transformation, their cumulative effects under certain conditions, and the multilevel actions needed to implement them in an appropriate and engaging way. As instances in Nunavik are revising their approach to masterplanning, considering a



Figure 11.

Alternate plan for Salluit, 2080. The 37-hectare development (nearest bottom) applies alternative ways of building on bedrock and light slopes. The design's main difference with the existing part of the village is its density: close-knit house clusters support solidarity. The area could house up to 1030 dwellings—about three times more than is possible with current construction and planning methods. Source: Avarello, Gauthier, and Delucinge, 2018.

paradigm shift in planning could help seize opportunities for innovation through community-inclusive approaches. In this regard, collaborative scenarios are highly useful to render problems, uncertainties, and even threats more understandable by promoting the exchange of data and, more importantly, by initiating a co-learning process among experts and stakeholders. Here, the role of planning professionals is not limited to the elaboration of land use plans but also notably extends to the co-development of platforms where locals can engage and contribute their insight, ingenuity, and values at every step of the process, thereby taking charge of the direction of change. In Inukjuak, citizens, professionals, and elected officials actively participated in forums to validate the orientation of design hypotheses to help imagine a scenario of village consolidation. In Salluit, elected officials took part in a discussion on how to best integrate this knowledge and its repercussions as a legitimate input in the on-going planning process.

These concerted actions confirm the relevance of territorialist principles that accompany the entire process of the urban project, from the theoretical to the political. These principles are based on the idea that the territory and a “fundamental humanity”, manifested in local energies, constitute the core of meaningful *places*, the understanding of which can orient their reproduction. Through time, territorial characters have generated dwelling forms and habitus spontaneously, which can be observed and reinterpreted to logically and critically guide the transformation of urbanity. With all that in mind, collaborative scenario building (even with its inevitable limits) is an important ally of planning professionals in maintaining a sustainable continuity of local identity through necessary transformations.

That said, finding ways to mobilize all stakeholders beyond academic projects remains a challenge. Collaborative processes require many iterations to evaluate and adjust co-developed ideas along the way. The above-mentioned experimentations shared information and supported exchanges in different forms: leaflets available at the Town Hall, posters and 3D models exposed in community buildings and discussed in public forums, and a website, among others. However, these tools for knowledge transfer do not fully engage. More thought and research should go toward elaborating appropriate platforms to ensure adequate exchange, transfer, and expansion of knowledge, direct participation, and the mobilization of stakeholders to help translate values, hypotheses, and citizen aspirations into relevant and meaningful innovations, visions, and actions.

In this perspective, the project *Doing things differently: An atlas of best practices and opportunities for culturally acceptable and sustainable living environments in Nunavik* (Vachon, Allard et al. 2019) is ongoing with the community of Kangiqsualujuaq and other partners. However, the challenges of distance, heavy workloads, over-solicited key actors, and other constraints (including those imposed by the Covid-19 pandemic) have forced us to

examine mobilization and exchange alternatives, such as online social networks and videoconference platforms (local bandwidths permitting). Video formats for testimonies and points of view, drawings by local artists, and other adapted mediums are also being explored with the community to form a useful compendium of co-produced ideas (including planning scenarios) that is part digital depository and part social media exchange.

If accessed and championed by citizens, these alternatives for development may foster commitment and confidence in choices regarding difficult challenges, particularly during the transition toward better adapted and more sustainable urbanization practices. Ultimately, a territorialist approach to collaborative design research aims to reinforce Inuit urbanism or Arctic town planning (Nungak 2016), which should refer to a specific way of organizing the qualities of an ever-transforming urbanity that is understood as the expression of human presence and interaction and is actualized through self-determination.

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