Rural Synergy: Reconnecting Bay de Verde's Cultural Landscape in Outport Newfoundland

by

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Dalhousie University is located in Mi'kmaq'i,
the ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

Dedication

For my sister.

Contents

Abstract

This thesis explores the cultural landscape of a small fishing town in Newfoundland whose character has been largely shaped by the sea. A resettlement program in the 1960's, the cod moratorium in 1992, and various stages of migration have devalued outport life and its pluralistic economy, causing rural decline. While many rural regeneration strategies developed by the government emphasize tourism, this thesis proposes a multitude of other sectors for self-sufficiency and growth in outports, including education, ownership, and innovation, using the concept of "Rural Synergy", which this thesis defines as interconnected actions of making, growing, and sharing.

A holistic rural revitalization scheme is developed which preserves cultural practices and mobilizes new frameworks of economic and social development, incorporating micro scale programs of workshops, hydroponics, and co-op market. Ultimately, the thesis engages broader polemics about rural-urban organizations while acknowledging the deep linkages of rural economies in a cultural landscape like Newfoundland.

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Chapter 1: Introduction

> The old man looked down in his dory
> As he stood on the wharf one more time.
> With the wind in his hair, he stood there and stared
> “Look at her now, what a crime!”
> Said, “I can recall when I built her,
> When I lived in the place I called home.”
> ‘Twas a good life back then, but never again,
> ‘Cause now, she’s gone, boys, she’s gone. (Narvaez 1997)

Newfoundland experienced major interruptions that threatened traditional ways of life and economic growth, particularly in the small rural fishing settlements known as outports. Economy modernization prompted the government to implement a resettlement program in the 1960’s that displaced outport communities to growth centres, failing to provide adequate job opportunities for inshore cod fishery while causing social and cultural displacement. The government’s mismanagement and overexploitation of the fisheries imposed the cod moratorium in 1992, further disrupting outport life and its pluralistic economy while ending a set of traditions that had endured for generations.

The song lyrics of “She’s Gone Boys, She’s Gone” exemplify the grief and struggle of outport communities in the moratorium aftermath, in which an old man describes to his young son the way of life his previous generation and himself experienced while grieving the loss of a decent job in the fishery culture in the lives of his son and younger generations (Narvaez 1997).

Chapter 2 examines the history of Newfoundland’s lost outports and the steady decline in population which hindered economic dynamism, while analyzing rural regeneration strategies enforced by the government to mitigate socioeconomic challenges within rural Newfoundland.

The question of the rural is increasingly discussed by individuals due to acute awareness of agricultural production and bifurcation of urban and rural development. This urgency has been addressed by several architects and designers, including Frank Lloyd Wright's rural-urban metabolism in *The Living City*, and Rem Koolhaas' *Countryside* proposal as a place for experimentation.

As a response to this discourse, this thesis explores rural Newfoundland as a place for innovation and self-sufficiency, proposing a multitude of sectors, including education, ownership, and innovation which ensure a diversified and more resilient framework for self-sufficiency and growth in outport Newfoundland, as opposed to government rural regeneration policies. Chapter 3 examines Newfoundland's outport recovery strategies, and it asks, what are the desires of the community in revitalizing outports within economic and social relations?

The cultural landscape of Bay de Verde will be examined, offering unique opportunities for contributing to a larger dialogue regarding the structure of rurality in Newfoundland and North America. Chapter 4 will unlayer the components that make up the cultural landscape, which this thesis identifies as social fabric, vernacular outport, and fishing landscape, and it asks, how does the cultural landscape offer social, educational, and economic opportunities to strengthen a community's sense of belonging?

Using the concept of rural synergy which this thesis defines as interconnected actions of making, growing, and sharing, chapter 5 explores the subject of rural communities through synergistic systems, encompassing self-sufficiency, innovation, food security, labour, and economy, and it asks,

how can rural synergy facilitate the link between landscape and production using micro scale programs of creative workshops, hydroponics, and co-op market?

This revitalization strategy acts as a blueprint for outport Newfoundland and coastal communities by rethinking the rural as the future of sustainable living as opposed to megacities, generating new products, reducing densification in cities, and tackling food insecurity in the years ahead. Chapter 6 integrates macro and micro scale approaches to implementing the rural revitalization framework, encouraging a sustainable route in achieving self-sufficiency within outports and coastal communities.

Ultimately, this thesis attempts to respond: how can the interrupted cultural landscape be reconnected to revitalize the rural economy through modes of education, ownership, and innovation?

Fig. 1. Thesis wish image, revitalizing outports through innovation, education and ownership.

Chapter 2: Newfoundland's Lost Outports

Fig. 2. Women hay-making (The Rooms Provincial Archives Division n.d.-b).

Resettlement Program

Outport Newfoundland is often displayed as the representation of the province and has been essential to the culture and politics of Newfoundland and Labrador, evident in the arts, literature, and music as expressions of the island's cultural nationalism. The pluralistic economy of rural communities surrounded traditional activities of labour and mutual aid, primarily fishing and farming that complemented each other under parallel climatic and economic conditions, further defining the outport as a landscape of production (Omohundro 1985, 1).

Fig. 3. Drying codfish, St. Johns, NL. (Musée McCord Museum 2011).

While outports displayed resiliency and self-sufficiency through modes of production, the reality of the resettlement story, persisted on isolation and hardship, industrialization of fisheries, cod moratorium, arrival of boom-bust industries, and outmigration to cities disrupted the cultural landscape of outports and its way of life. A centralization and industrialization program was imposed by the government in the 1950's to diversify, industrialize and modernize the provincial economy, providing outport communities access to social skills and services while modernizing the fishing industry.

Smallwood's Centralization Programme aimed to provide basic services, such as health care, education, and transportation to all Newfoundlanders, however the cost of provision to 1,200 outport communities encircling the coastline of the province proved to be expensive,

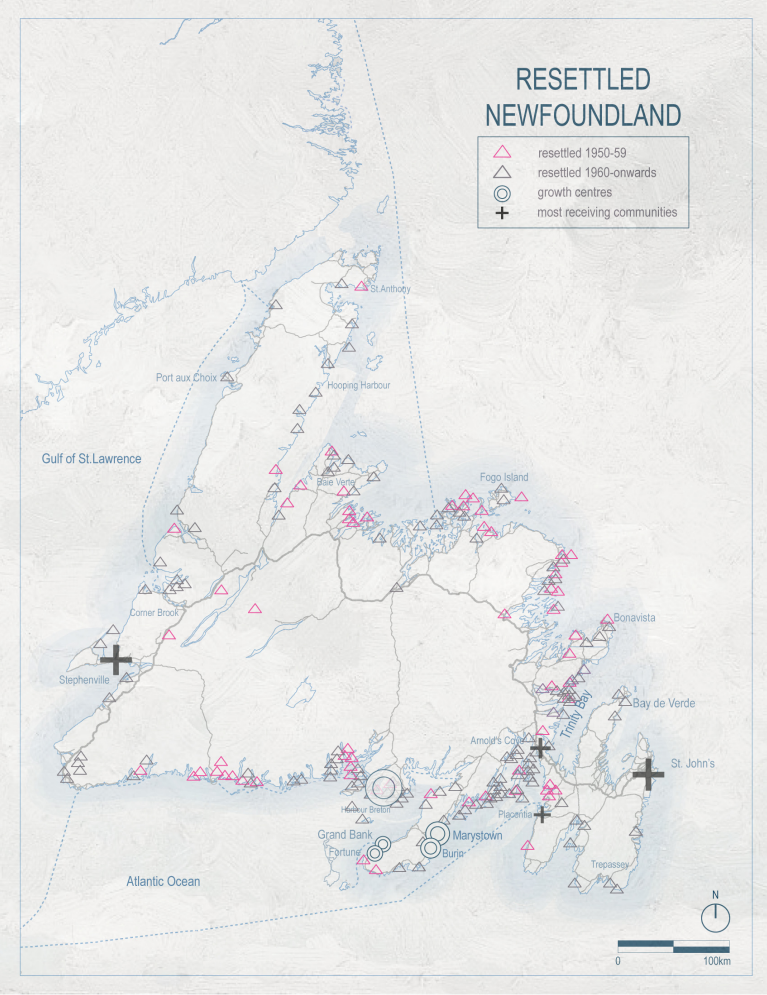

Fig. 4. Map of resettled Newfoundland, highlighting resettled communities, growth centes, and most receiving communities (Base map from GNL 2022, information from Loo 2018).

encouraging relocation of 110 remote communities to central communities (Martin 2006a).

Although the programme managed to gather people into larger and easily accessed centres, families suffered from inadequate employment and having difficulty catching equivalent amount of fish as formerly due to unknown fishing grounds. This introduced the Fisheries Household Resettlement Program in 1965, cost-shared between the federal and provincial government to relocate people to designated “growth centres” (Martin 2006b).

The resettlement program aimed to modernize and improve the productivity of the fishing industry by assisting fishing communities engaged in the small-boat inshore fishery to relocate to wharf facilities with larger vessels. The political precedence of a modern society implied that fishers were “Folks living on the fringe of civilization, glorified for their independence and creativity, but considered the antithesis of modernity” (Withers 2012, 3). This is evident by altering the mode of production with frozen industries replacing the salt-cod fishery, and capturing the labour of resettled fishing families.

The “growth centres” further experienced overcrowding, failing to fulfill employment expectations while causing increased pressures on the education system. The resulting arrangement arising from poor social and economic integration within new communities dismantled outport settlements from their once resilient lifestyle into a dependent way of life, relying on food imports which they had once produced themselves, further fragmenting the cultural landscape (Omohundro 1985, 5).

Smallwood’s attempt to centralize and industrialize Newfoundland’s economy greatly reshaped the spatial patterns of settlement through the abandonment of outport communities, generating a contrary outcome of bringing the province closer to a self-supporting market economy, and instead caused social and cultural distress by demolishing their culture, history, and tradition.

Fig. 5. Photograph of house being floated from an outport community on empty oil drums to its new location (Town of Dover 1960).

Cod Moratorium

The productive landscape of outports was further challenged by the cod moratorium imposed by the government in 1992 due to over exploitation and mismanagement of cod fishing, forcing the inshore fishery into decline and putting 30,000 Newfoundlanders out of work (Higgins 2009). Fishers who utilized the coves and bays of Newfoundland to catch and process cod fish with handmade fishing nets and tools were obliged to discontinue, detaching the community's relationship with the sea. The cod fishery has been the livelihood of many of its people, displaying a working landscape observed by the fishing stages, flakes and small boats scattered around the shoreline of the harbour. As Bonnie J. McCay has written,

> Men seek and capture the fish; women process fish and, in some times and places, market fish. In northeastern Newfoundland, women have been critical, though often invisible, in the task of making fish—the labor-intensive and skilled process of converting fresh codfish into a lightly-salted, sun-dried product—the cash crop of Newfoundland's economic history and the source of its value and problems within the world system. (Mellin 2003, 161)

A Newfoundland proverb proclaims; "*You can take the man out of the bay, but you can't take the bay out of the man."* The fishery culture surrounds patience and self-reliance in the face of hardship and uncertainty in which catches, and prices vary greatly from year to year, yet concurrently expresses traditional pride in which fishing extends past catching and processing, encompassing everyday activities and community interactions around fish stages and flakes, such as boat building, fish net making, storytelling, and singing and dancing (Davis 1993, 458).

Fig. 6. Splitting cod fish in Bay de Verde, 1975 (Bay de Verde's Facebook Page 2022).

Devaluation of Outport Life

Post moratorium economic challenges and unpredictability of the sea endured by its citizens disrupted their daily activity patterns, causing powerlessness and displacement within the community. Since the moratorium, the province experienced an aging and shrinking population due to dependence on this single resource industry as the mainstay of its economy, demonstrating the “largest industrial mass layoff in Canadian history” in which many people were compelled to leave the province and out-migrate to cities for better employment (Higgins 2009).

Despite the abandonment of outport communities and decline in population, a hope of returning remains the goal of many, “We shall go away to work, send back money, come back home when things get better” (Baker and Young 2003, 354).

The community’s sense of place rests within the fragmented cultural landscape, revealing the traits and identity of its people. A report from Newfoundland’s Royal Commission on Renewing and Strengthening Our Place in Canada in 2002 highlights many instances of the complications and challenges its citizens faced since the cod moratorium and proposes strategies on renewing the sense of place with the notion of not going back but to “launch out anew”. Strategies emphasize the significance of understanding the past to build a brighter future including, “the inclusion of the history of Newfoundland and Labrador into the pre-history of the Canadian State” and “renewal and strengthening of the artistic and cultural community, both professional and volunteer, to allow for a new flowering of Newfoundland and Labrador creativity” (Baker and Young 2003, 358).

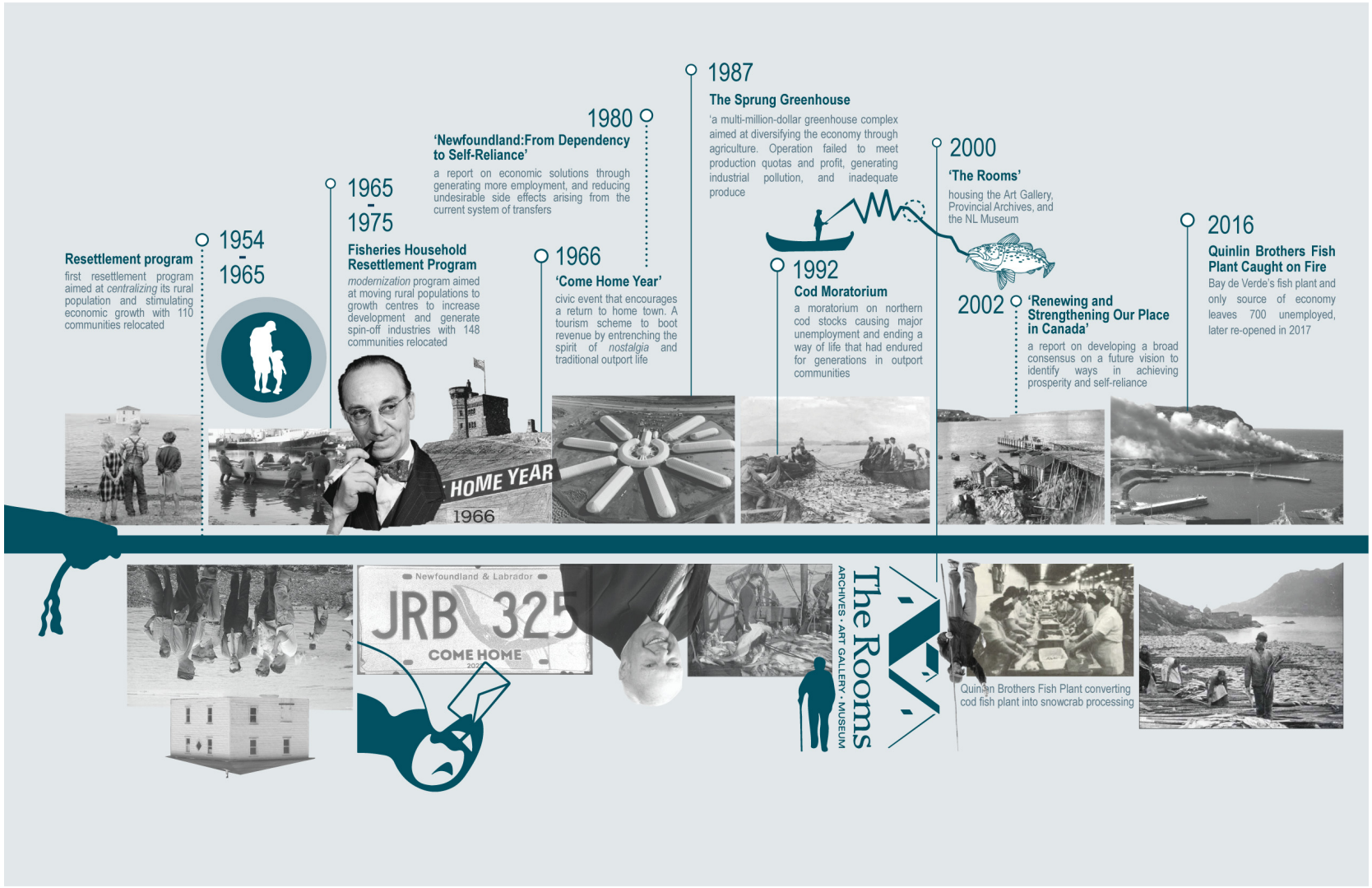

Fig. 7. Timeline of the socioeconomic events witnessed in Newfoundland, affecting many of its people and outport communities (Data from Newfoundland and Labrador Heritage 2022).

Government Rural Regeneration Strategies

Boom-Bust Industries

Efforts to mitigate economic discrepancies encouraged diverse industries by utilizing the province's mineral, timber, and hydro-electric potential for increased productivity. The offshore oil and gas industry initiated during the 1990's has been an approach to stabilize the economy post cod moratorium by encouraging private sectors to create employment and income opportunities, deviating from labor-intensive to capital-intensive extraction and processing (Butler and Hamilton 2001, 9).

Although such industries provided some economic consistency, it is equally unstable due to its limited lifespan, in addition to providing a small impact on its local economy as the province concurrently pertains an informal economy within rural communities, leaving an increased proportion of people jobless. Rural Newfoundland's synergies of informal economy, labour and mutual aid expresses a living and resilient culture through subsistence activities and cash-based exchange of goods and services, including fishing, farming, animal husbandry, knitting, woodcutting, and carpentry to provide for their household and community needs (Butler and Hamilton 2001, 7).

However, the emergence of fishing, mining, and forestry industries as well as technological advancements replaced informal economic activities to facilitate efficient transactions and exchanges, dramatically altering the nature of outports. The cycles of boom-and-bust industries generated consistent trends in rural decline, migration, dependency, and unemployment by adopting an urban structure for economic growth while giving little attention

to rural development. Outports remain a central feature of Newfoundland's settlement patterns and cultural identity, yet economists have viewed them as a major obstacle to Newfoundland's economic growth and any attempts at rural development has been shown not to be inclusive or authentic (House 2001, 12). This is demonstrated by the 1980 report, Newfoundland: from Dependency to Self-Reliance, suggesting policies to mitigate unemployment and government dependency by solely concentrating its efforts on urban centres,

> Within each major peninsula, the services, infrastructure, and related employment opportunities should generally be located in one or two urban centres on, or very accessible to, the Trans-Canada Highway. (McAllister 1982, 161)

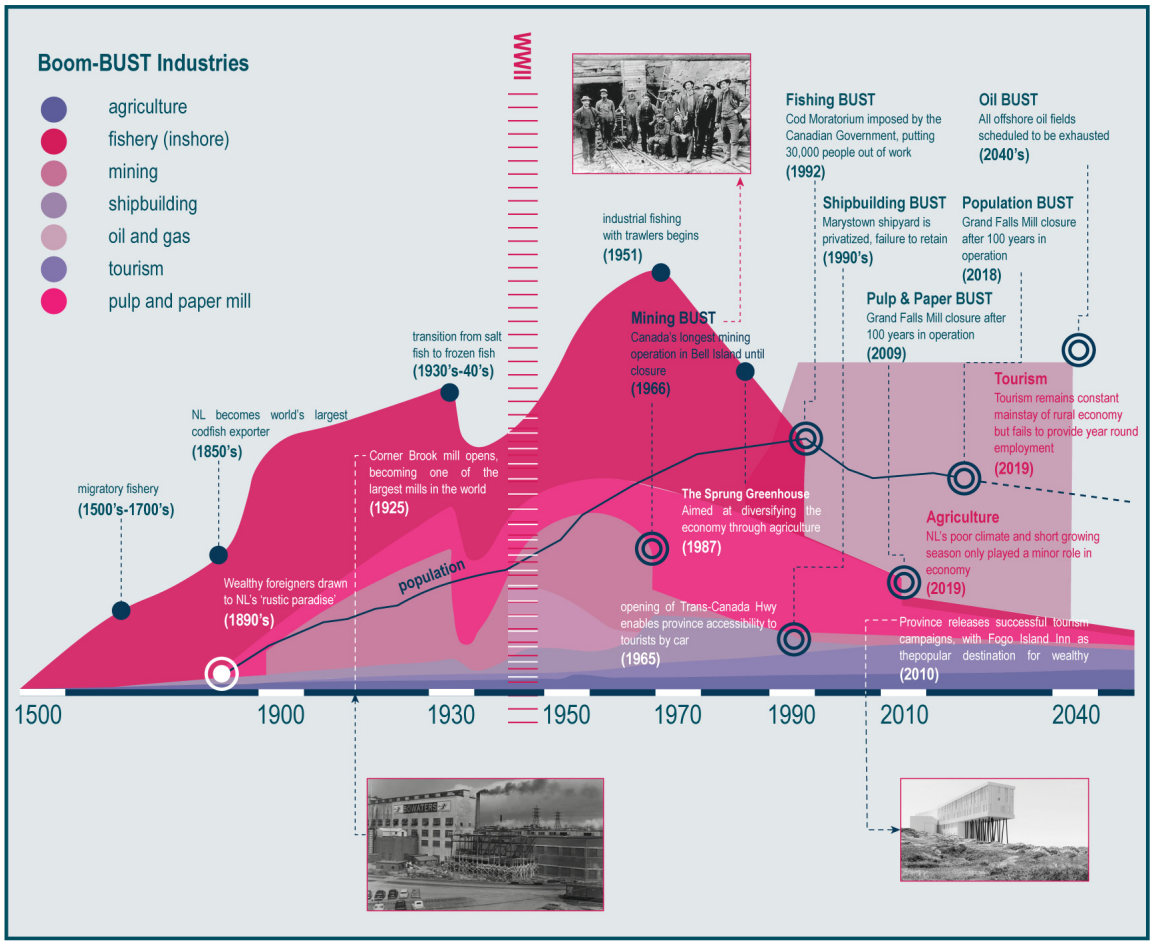

Fig. 8. Chart diagram of Newfoundland's boom-bust industries (Data from Lateral Office 2019).

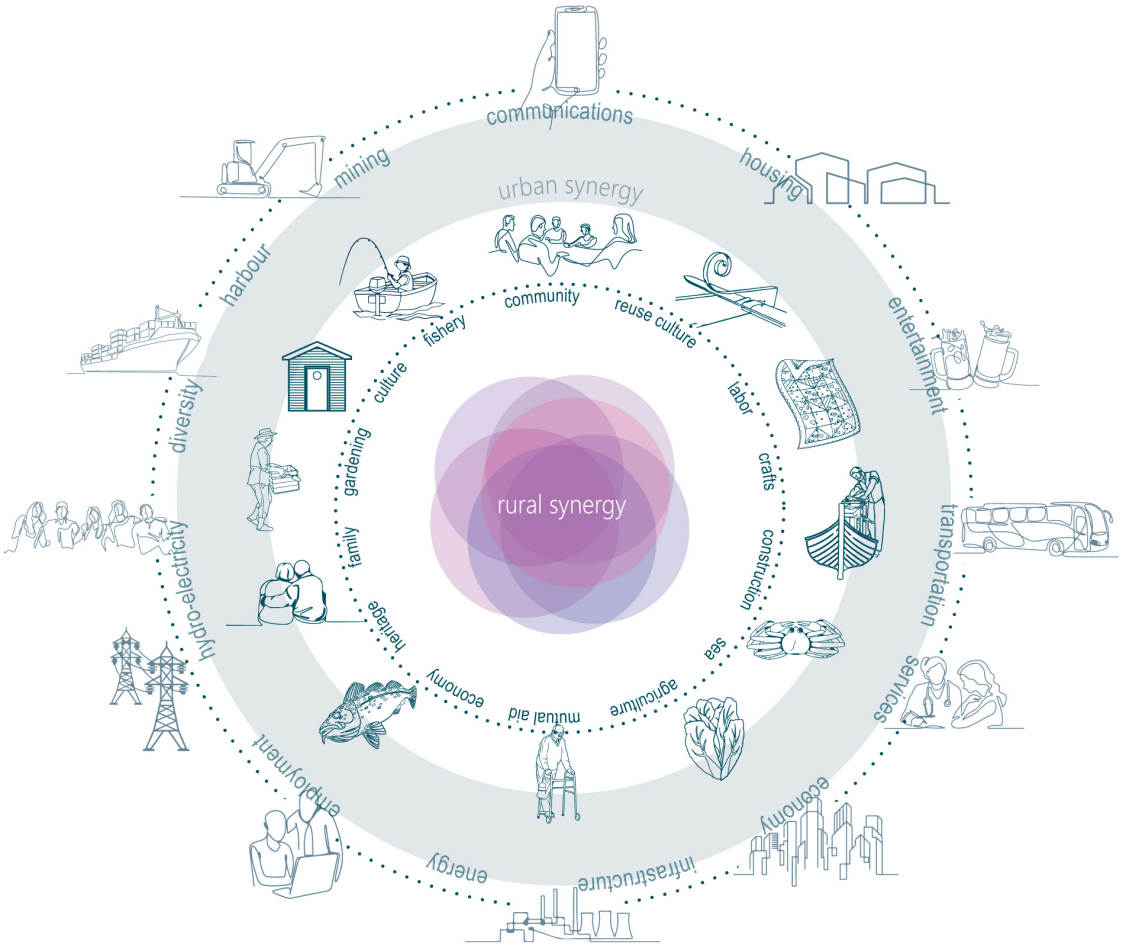

Fig. 9. Diagram of rural-urban synergies, illustrating spatial gaps between both sectors.

Rural Regeneration

The difficulties of enhancing the economic prospects of Newfoundland through diverse industries encouraged a shift of focus to increase efficiency and self-reliance through rural regeneration. The Big Reset government report published in 2021, proposes a transformational plan for the province to tackle climate change and technological challenges by perceiving rural communities as epitomes of innovation and self-sufficiency, utilizing the “strengths of small rural communities beyond resource industries, major projects, and social services…looking inward at strengths and resources and outward for investment and markets” (McKinsey & Company 2019, 130).

It further emphasizes the need for green projects, technologies, and expertise to achieve its goals of an economic recovery plan, which suggests integrating architecture by implanting infrastructure to house these sectors to tie characteristics of the economy and society together. Continuous efforts have been made to address rural urgency within the province, publishing several articles and policies, including *The Sustainable Outport: A Model for Community Development?* article by J. Douglas House, proposing several strategies and modifications to make outports more economically viable and self-reliant, such as self-built housing, strong local government, and sustainable employment creation programs. According to House,

> The environmental movement and the call for sustainable economic development that is environmentally sound have created a new appreciation of the merits of spreading human populations among several small communities rather than concentrating them in large cities. (House 1989, 29)

Cultural Tourism

Although economic diversification efforts through boom-bust industries have proved to be flawed, tourism have made visible impacts on rural economy, generating wealth by attracting tourists to rural landscapes, architecture, and outport culture. The hope of returning home to outports has been expressed by several communities who were forced to leave for better employment and services, and in turn has shaped the nostalgic view of tourism in Newfoundland (Overton 1984, 85).

Fig. 10. Come Home Year poster, 1966 (Higgins 2012a).

The government promoted a Come Home Year tourism scheme in 1966 to diversify the economy and facilitate rural employment by inviting its citizens to experience the beauty and serenity of outport communities while reconnecting to the old way of life (Higgins 2012a). Although this proved to be an economic success and signalled tourism development within the province, the lack of year-round employment due to climatic barriers as well as commodification of outport culture posited several problems within rural communities, including limited job opportunities for young people.

Fig. 11. Road map of NL in a tourism package (Higgins 2012a).

Fogo Island

A social enterprise in Fogo Island has expanded the margins of tourism by adopting a strategic model for building economic and cultural resilience through social businesses and charitable programmes, emphasizing the dual role of preserving and celebrating heritage (D.W. Knight Associates 2008, 78). A holistic approach concentrated on community revitalization ensures the Island's social sustainability, integrating modern infrastructure and cultural programs, including workshops, artists residence, and a luxurious hotel to bring together designers, craftspeople, artists, and

people from all around the world while instilling pride in traditional ways of making (Fogo Island Inn n.d.).

The lack of year-round employment and commodification of local culture persists within Fogo Island's geotourism scheme, creating tensions between the seasonal nature of fishing-based employment culture and the speed and pressure of the commercial tourism industry (PhiLab Network 2018). Hiring local people into the commercialized hospitality industry demanded substantial amount of money and time invested in training to produce high quality products for a quality tourism experience, and the risk of turnover impacted the organization's operations (D.W. Knight Associates 2008, 85). Additionally, tourists brought environmental concerns through carbon emissions and trampling of the natural landscape, further reducing its sense of place and social interactions (Smith 2016, 41). The branding of Fogo as a remote and non-industrial attraction

Fig. 12. The X-shaped structure of Fogo Island Inn takes on a modern approach to outport vernacular, integrating stilts as a distinct feature of fishing stages (Fogo Island Inn n.d.).

Fig. 13. Squish Studio Artist's Residence in Fogo (Fogo Island Inn n.d.).

Fig. 14. Fogo Workshops (Fogo Island Inn n.d.).

Fig. 15. Long Studio office in Fogo Island (Fogo Island Inn n.d.).

is marketed to tourists for financial profit, questioning the meaning of rural resilience as "reducing something sacred to something that can be consumed" (Smith 2016, 42).

Despite the growth and success of stimulating cultural production in Fogo Island, the risk of such initiatives failing could impact the local businesses dependent on them, therefore Fogo's model for economic and cultural resilience may be difficult to reproduce in other rural communities in Newfoundland, demanding affluent investors and targeting wealthy visitors. While many rural regeneration strategies developed by the government emphasize tourism, the lack of year-round employment and commodification of outport culture persists, hampering community resilience and self-sufficiency, while disconnecting the cultural landscape.

The reconfiguration of labour practices observed in outports, from engaging in self-supporting activities of catching and handling cod fish, along with subsistence farming, to engaging in industrialized fisheries, and cultural tourism by showcasing and celebrating remnants of outport culture and architecture suggests drastic shifts of economic and political values embedded within the rural built environment, influenced by the cod moratorium and various stages of migration. Furthermore, existing synergies of labour and mutual aid persist throughout a timeline of economic and cultural distress, further suggesting the resilience of outport communities.

Fig. 16. Photograph of Bay de Verde.

Chapter 3: [Unlayering] the Cultural Landscape

Bay de Verde

Outport communities display similar cultural landscapes, sprang up in coves and bays along the Newfoundland coast near cod fishing grounds, and are characterized by fishery culture, subsistence activities, mutual aid, and labour. Bay de Verde is a small outport community located approximately two hours north of St. John's, nestled between two hills, with one side sloping down to the harbour, known as the Foreside where fishing boats are moored, and the other side is a steep slope towards the ocean, known as the Backside where fishing stages were once located (Town of Bay de Verde n.d.).

The town is enclosed by a few outport communities, including Old Perlican and Carbonear, as well as Baccalieu Island, an ecological reserve for sea bird colonies which is approximately 5km away.

Mainstay of Economy

The cod fishery was the backbone of the town's economy, performed in small boats within rowing distance, and cod traps which was the main fishing technology up until the cod moratorium in 1992 (Town of Bay de Verde n.d.). Amidst depleting cod stocks, the community saw the emergence of snow crab fishery in the area which has proven to be the savior of outport communities, along with trawling for shrimp which has also become abundant in the waters of Newfoundland. Bay de Verde currently operates on a seafood processing plant as its primary industry, keeping

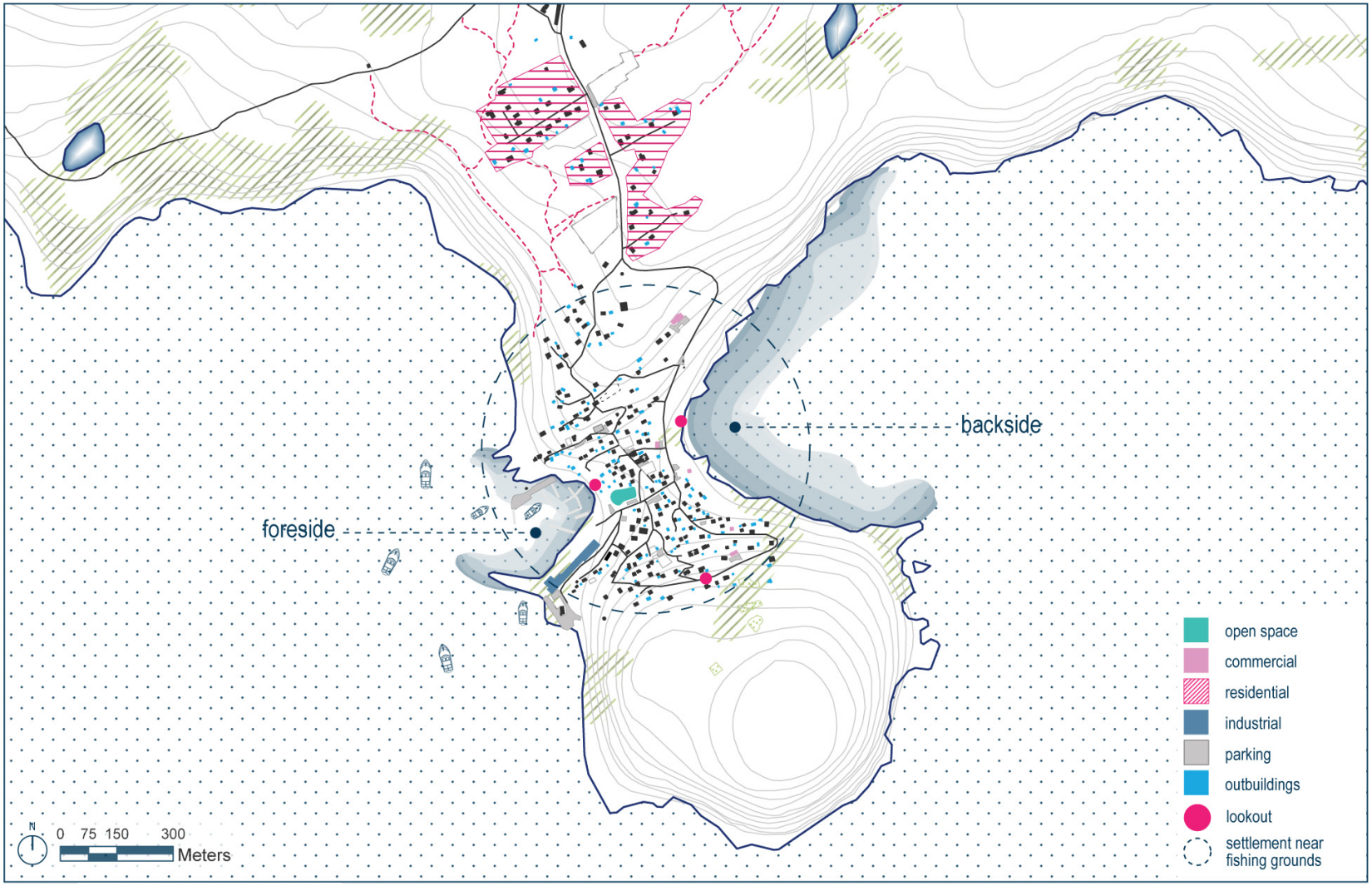

Fig. 17. A map of existing programs within Bay de Verde, in which most activities are held within the Foreside and Backside (Base map from GNL 2022).

Fig. 18. Quinlan Brothers Fish Plant in Bay de Verde.

the outport viable by adapting to shifts in the global-market environment and marine ecology, and it is one of the largest producers of seafood products in Newfoundland and Labrador (Town of Bay de Verde n.d.). The plant is a family-owned business, mainly processing snow crab, along with shrimp, halibut, mackerel, squid, monkfish, capelin, lobsters and cod, packaging canned fish and clams, as well as fresh and frozen fish to export to 20 countries in North America, Europe, Asia and Scandinavia (Hitchcock 2020). Consequently, the plant generates over 5 million pounds of shrimp and crab shell by-product waste each year, transported to a landfill disposal site (Quinlan Brothers Limited 2015, 4).

Seasonal employment pertains the plant during the spring and summer months, employing people from Bay de Verde, neighbouring communities, and foreign workers from outside the province, displaying high activity levels during the fish plant season. However, a massive fire took place in 2016 destroying the fish plant and putting 700 employees out of work (Sampson & Tobin 2016). This forced many people dependent on the fish plant, including neighbouring communities to search for work in other places, such as Nova Scotia and New Brunswick, proving similar economic dependencies on a single industry as the cod moratorium event.

In 2017, a two-storey fish processing plant replaced the previous one that was destroyed by the fire, designed with maximum durability and functionality, and foundations built on piles to provide a stable base for the building (Marco Group n.d.). Additionally, new equipment and machinery were added which reduced processing jobs as it became

Fig. 19. A replica of a root cellar near the Heritage House.

highly automated. Bay de Verde engages in seasonal tourism as its secondary industry by offering whale & iceberg watching tours, hiking trails, and a Heritage House which displays a traditional fish store, flake, twine loft and root cellar for an authentic experience of its fishing culture (Town of Bay de Verde n.d.).

Other sources of employment within a reasonable commuting distance is a nearby hospital in Old Perlican while other residents are compelled to leave the town for short periods of time to obtain full employment in other areas.

Local Conditions

The census population for Bay de Verde in 1991 prior the cod moratorium was 680, later declined to 398 in 2011, and 350 in 2021. The median age was 52 in 2021, whereas for St. John's it was 42, and for the province it was 48. Additionally, there was 12.6% of the population who migrated out of Bay de Verde between 2001-2006 (Statistics Canada 2022). These statistics provide an outlook to the future direction of Bay de Verde and rural Newfoundland, demonstrating a wide gap between rural and urban population.

The steady decline of Bay de Verde's population forced many residents to leave, becoming part of the province's stream of outmigration from rural communities, whereas the people who were determined to stay are engaged in the fish processing plant or mobile working through lengthy "rotations" in distant hydro-electric projects, oil sands, or supply ships and oil rigs in the Atlantic (Gazette 2022).

The Village at the End of the Road is a documentary by George Gmelch and Dennis Lanson which took 5 years

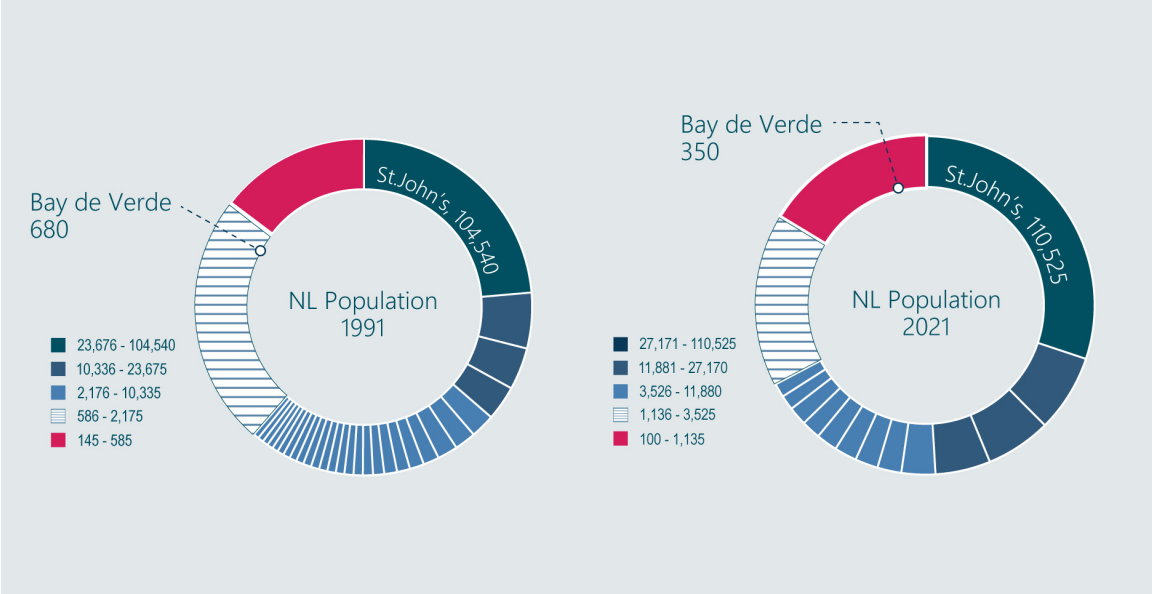

Fig. 20. The decline in rural population, represented in pink, is evident post cod moratorium, particularly the drastic decline witnessed in Bay de Verde (Quantitative info from Statistics Canada 2022).

in the making, documenting Bay de Verde's residents' determination and attachment to their outport life, while speculating the future of the town and Newfoundland's coastal communities (Center for Independent Documentary 2022). Many residents have expressed their concerns for the future of the town considering the instability of the fishing industry becoming unsustainable for young people in the long run, and according to a young resident of Bay de Verde:

> The future of Bay de Verde concerns me a little because we only have like 300 people living here, and most of those are pretty old… the only thing that we've got keeping Bay de Verde alive is the fish plant…if that falls through, then there's not really going to be a reason for people to live here… generations of families have lived and grown up in Bay de Verde, so why would you want to abandon that? For me it's kind of a sense of self. (Center for Independent Documentary 2022)

Food production and accessibility poses another concern for the future of Bay de Verde, in which one convenience store exists within the community, supplying everyday

products but does not sell fresh produce. According to Sydney Knapman, a resident in Bay de Verde,

> The nearest Walmart or a large grocery store is an hour away, and some people in Bay de Verde or Old Perlican or Red Head Cove don't have access to vehicles so you can only imagine how hard that could be trying to get everyday items like food or toothpaste,… two hours, an hour up and an hour back, that's quite a ways to go just to run a household. (Center for Independent Documentary 2022)

Another documentary by an Estonian anthropologist, Joonas Plaan investigates the impacts of global climate change on people living in rural fishery-dependent communities, such as Bay de Verde. His *A Year in the Field* documentary captures the town's fishery culture and daily activities, such as hunting moose, carpentry, dancing, folk singing, shed celebrations, and fishing for crabs and lobsters.

Plaan documents the main concerns of Bay de Verde's community, asking several residents, "What are the biggest changes you are seeing here?" and many fearfully answer that "people are gone". His research concludes with an understanding that climate change is often observed through social and cultural implications and settings, and in rural Newfoundland it is the cod moratorium:

> Locally people perceive climate change differently than climatologists…climate change is embedded in social cultural settings, they understand it only through what is happening in their communities…the decline in population, increase in fish prices or increase in crab prices and then later decline in crab quotas. (Plaan 2020)

Moving Forward

Despite the community's fear of population decline, many remain in Bay de Verde because of their resilience and community empowerment. Although mobile work persists as a survival strategy for this town and other outport

communities, people are searching for new ways to remain in their homes:

> What we need to do is try to come up with some ideas to keep them [people] in this area two days instead of an overnighter, times have changed and will continue to change…Bay de Verde is home, it's where we grew up, it's where our families came from and it's where we made our living, where we raised our children. There's a rugged beauty and peacefulness here in Bay de Verde that I don't think I could find anywhere else in this world. Its just home, its home to me. (Center for Independent Documentary 2022)

Several strategies are proposed by the Town of Bay de Verde Council to mitigate population decline and revitalize the community, promoting recreational programs and activities, upgrading waterfront infrastructure, and developing a business-friendly environment by increasing communication and celebrating local successes (Town of Bay de Verde 2010). Concurrent projects are taking place to achieve these goals, such as expanding the Heritage Premises within Bay de Verde for tourists, as well as pursuing boardwalk additions at the waterfront to accommodate its fish plant industry.

Fig. 21. Boardwalks and industrial material culture permeating the stagnant harbour of Bay de Verde.

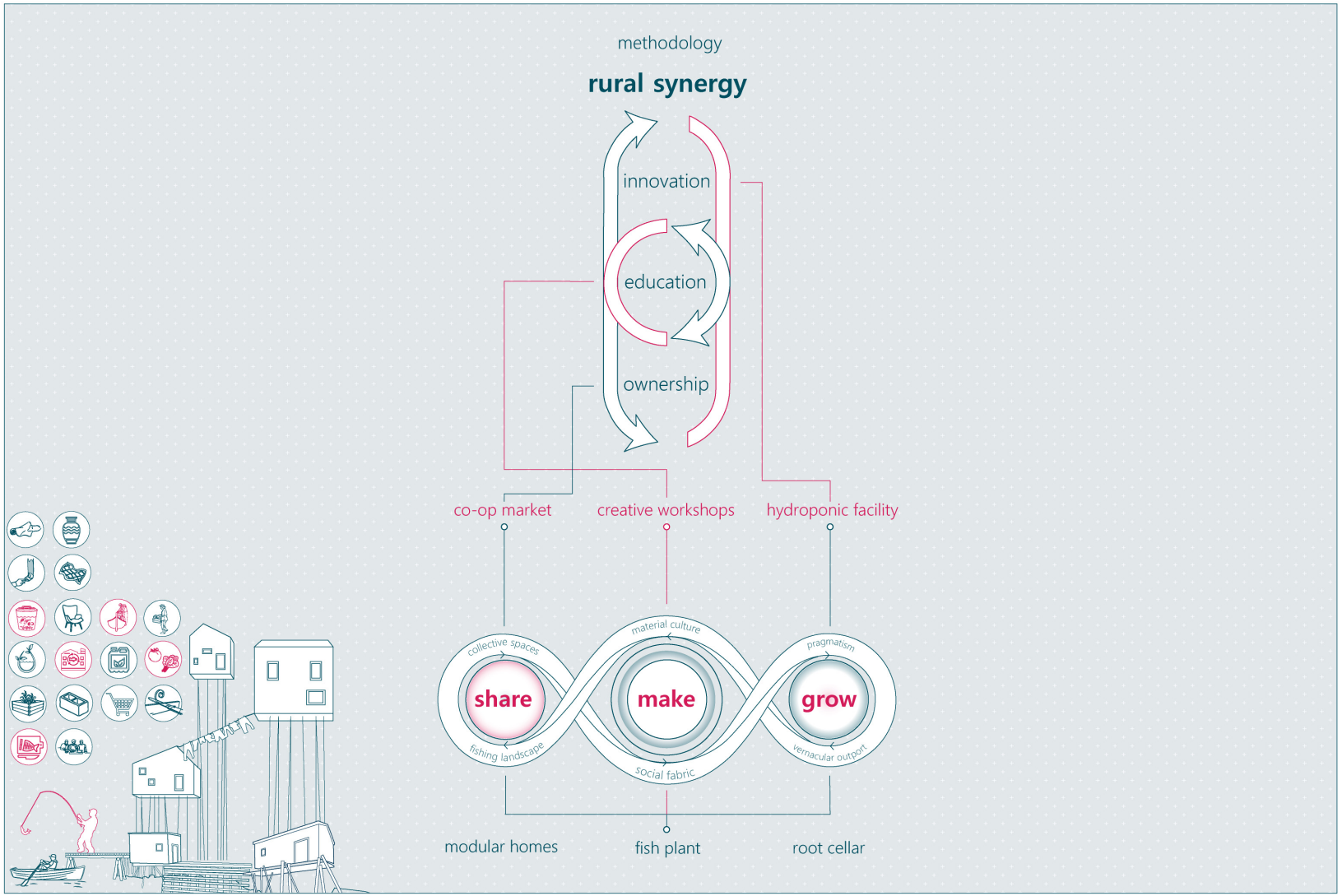

Fig. 22. Diagram illustrating the components constituting proposed research and design methodology.

Methodology

Cultural landscapes are narratives of culture, providing economic, social, and educational opportunities to strengthen a community's sense of belonging. Bay de Verde's cultural landscape is the backdrop for the social and economic challenges endured by its community, in which rural abandonment and population ageing continue to threaten the livelihood of its community.

This thesis will unlayer and analyze the components that make up Bay de Verde's cultural landscape, including the social fabric, vernacular outport, and fishing landscape through social and spatial analyses to reconnect the interrupted landscape while encouraging new opportunities for cultural growth. These terms and methods will be further discussed and explored in the following chapters, using mapping analysis, online data, literature review, and site observations as tools of analysis.

Social Fabric

The social fabric of Bay de Verde is defined by its collective spaces and material culture, representing the sense of community and their relationship with the landscape. The collective spaces are identified by the places where community activities are performed, such as dancing, boat building, and fishing, and are examined to inform strategies for site interventions which can strengthen the sense of community.

The material culture is identified by the everyday objects used to define the cultural landscape, such as lobster and crab traps, fish nets, and fishing boats and are examined

Biscuit Box: A fourth generation house in NL, with two storeys, a central half hall, and a flat roof. The term derives from the rectangular boxes used to ship hard biscuits.

Cod tongues: A traditional appetizer in NL, made from a small muscle from the fish's neck.

Fish and Brewis: A traditional Newfie meal introduced on sea voyages, made with cod and hard bread or hard tack

Flake: Raised wooden platform used for drying fish while acting as a bridge between land and sea

Jiggs Dinner: A traditional meal often eaten on Sundays in Newfoundland, consisting of salt beef, turnip, cabbage, potato, carrot, pease pudding

Linnet: Net from twine

Longer fence: Fences used to keep livestock out of gardens or meadows to protect crops

Longer: Wood (in the round) used for braces, fences, bedding flakes, bridges, boughing, and tools

Outport: Small isolated coastal community, often inaccessible by road around the inlets and bays of Newfoundland

Paling fence: Fences located mainly in front yard or for enclosing gardens

Pound: Enclosure made from boards, used for keeping animals in a stable or for curing cod fish in a fishing stage

Punt or Rodney: Small Newfoundland wooden boats typically used for hook and line fishing or squid jigging

Riggle / riddle fence: Fences used as a barrier to keep things in or out of an enclosed space, without the use of nails

Root cellar: A structure, partially underground used for storing food (vegetables and fruits) at a low temperature and stable humidity to prevent spoilage throughout the year

Saltbox: A second generation house in NL, with one-sided sloped roofs and colonial facades. The term derives from the wooden lidded box people traditionally used to store salt

Scrunchions: Traditional Newfie dish made from bite-sized pieces of pork fat or salt pork rinds fried until crispy

Seal Flipper Pie: A traditional savoury pie eaten in NL, made from harp seal flippers, and cooked with vegetables and thick gravy

Slip: An individual parking space for a boat, enclosed on three sides for a one-way access.

Stage: A shed along the shoreline used by fishermen to land their fish, tie their boats, store their fishing gear, and build flakes to dry their fish.

Steam chest: long, sealed container used to steam wooden planks for making them malleable

Trap berth: Near-shore location for setting cod fishing traps

Trap skiffs: Small fishing boats used for hauling cod fish

Trawler: A large fishing vessel used to operate fishing trawls by dragging a fishing net to catch fish.

ft / store: Outbuilding associated with the fishery, usually with a loft for mending nets on the top floor

Fig. 23. Catalog diagram comprising elements of social fabric and material culture pertaining outports' cultural landscape (definitions reworded from Mellin 2003).

to inform innovative strategies to preserve objects through creation and transformation. Diversely, methods to preserving and strengthening Bay de Verde's sense of community and material culture is integrating multifunctional programs which enhances circulation flow, while simultaneously generating new products by carefully transforming material objects into new creation.

Fig. 24. Bay de Verde residents engaging in boat building near the harbour (Bay de Verde's Facebook Page 2022).

Collective Spaces

The name Bay de Verde is of Portuguese origin, meaning green bay, referring to the abundance of grass that grows there in the late spring and early summer (Town of Bay de Verde n.d.). Bay de Verde's cultural landscape can be observed and experienced through the community's fishing culture:

- Spring: Fishing boats are launched into the water, and fish plant work season is at its busiest.
- Summer: Cod fishing season begins, in which the community engages in catching and cooking cod fish, and summer celebrations are performed outdoors.
- Fall: Fishing boats are hauled out of the water, and fish plant work season is quiet.
- Winter: Town is isolated, and Christmas celebrations take place in houses.

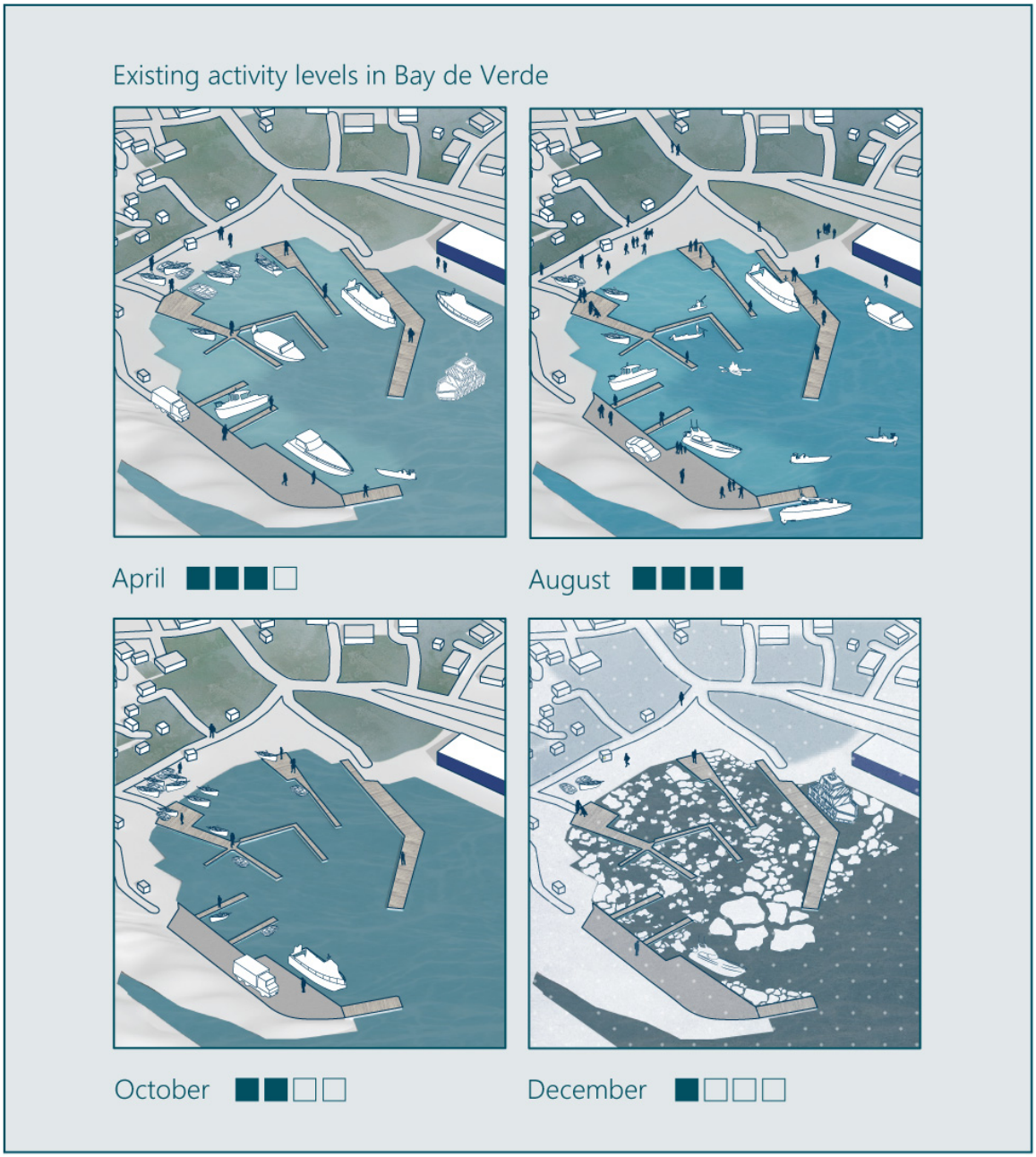

Fig. 25. Perspective diagrams illustrating existing activity levels in Bay de Verde.

Fig. 26. Quilt Festival showcased in the Catholic Church of Bay de Verde (Town of Bay de Verde 2022).

Bay de Verde's collective spaces are identified by its fishing activities, such as cod and crab fishing, boat building, and net making, which engage the harbour at the Foreside, and celebrations, such as quilt festivals, and Come Home Year, engaging the empty lot at the Backside, as well as subsistence activities, such as gardening, carpentry, and woodcutting, engaging the space in between, thus creating community cores near the Heritage House and Catholic Church. Bay de Verde's sense of community is significant amongst its residents, and cultural events and celebrations are an informal way to encourage community participation.

Identified community spots propose strategies to link the Foreside and Backside year-round by introducing infrastructure which engages community events while preserving traditional practices and skills amid winter isolation and population decline. Multifunctional programs are integrated within the landscape to encourage better circulation flow between the Foreside and Backside as opposed to existing circulation patterns in which the landscape is divided into sectors and are informally labelled with specific programs: a space for fishing, a space for festivals, and a space for subsistence activities and outbuildings, further limiting circulation flow and keeps the town stagnant.

Fig. 27. Community events taking place near the Heritage House (Town of Bay de Verde 2022).

Material Culture

Fig. 28. Multiple lobster and crab traps are observed in every corner of the landscape.

Bay de Verde's material culture is explored to develop a better understanding of how the community enculturates the landscape. Everyday objects that define the cultural landscape can be preserved through creation and transformation, in which the creativity of its productive processes resurges the objects back to life. The cultural identity of outports is tied to their material culture, informing the community's activities and practices held from day to day, however rural abandonment and population ageing threatens the existence of material culture, and is likely to dissolve into the landscape if not preserved.

Fig. 29. Fish nets, lobster traps, and buoys sitting near the harbour.

Existing material culture within Bay de Verde is evident in every corner of its landscape, permeated with cod and crab traps, fish nets, fishing boats, buoys, wooden spools, outbuildings which are typically used for storage, and remnants of lumber and construction materials. Certain objects that define the town's fishing culture, such as lobster traps and fishing nets can be utilized and transformed into new products, such as furniture, hammocks, and canopies by learning the creative process of its production to explore alternative uses, giving the object a new meaning while retaining its cultural identity.

Several designers have explored ways of reusing such objects, including Asa Pringee, a furniture designer who transforms lobster traps into colourful furniture and chairs.

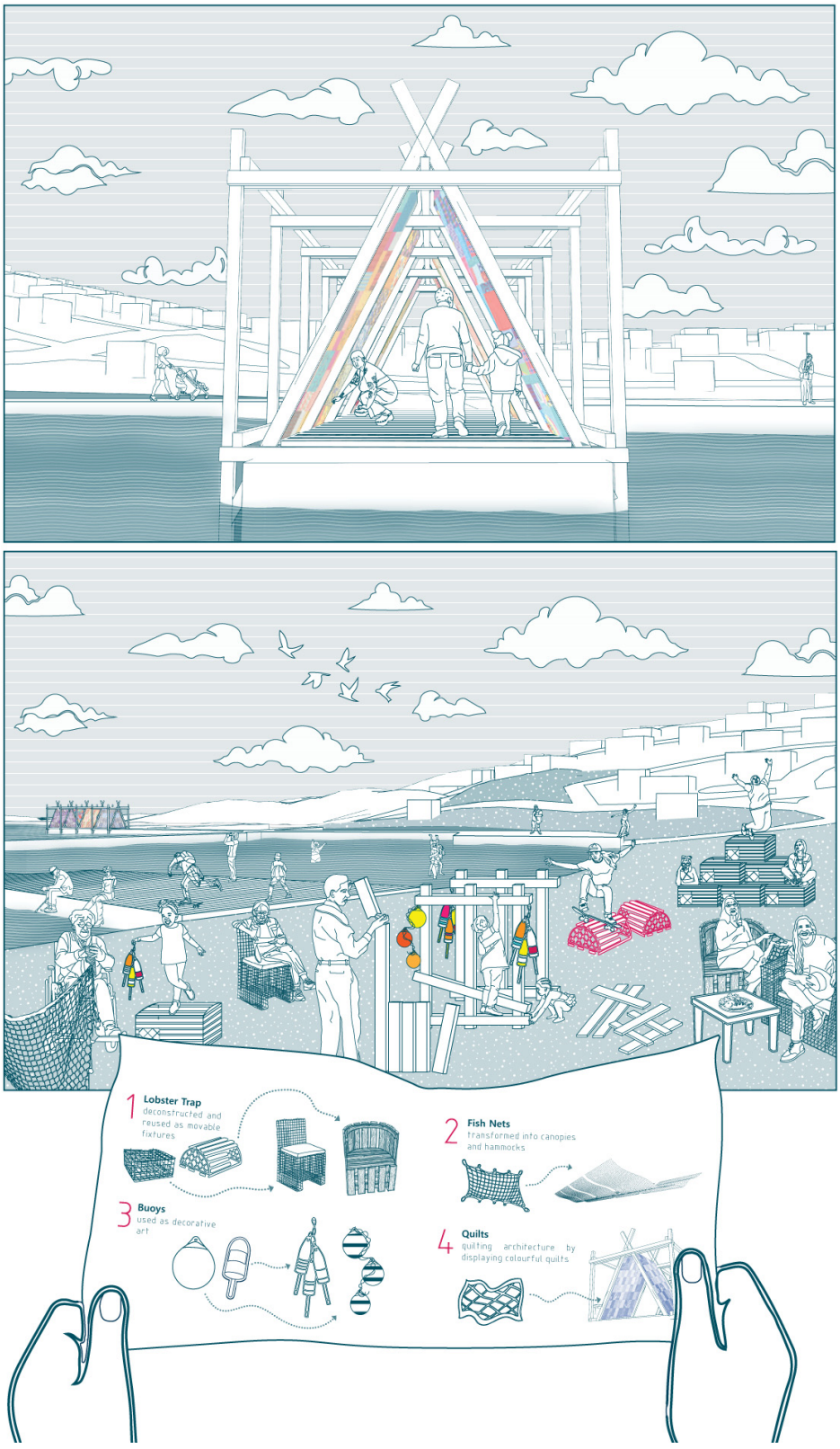

Fig. 30. Drawing of reusing existing and discarded objects found within site into new production as a method of preserving material culture while generating rural income.

Vernacular Outport

Fig. 31. Discarded materials are reused for constructing outbuildings.

The vernacular outport examines building materiality through Bay de Verde's reuse culture, in which the materials and building techniques used have a minor impact on the landscape by using reclaimed materials from other buildings to replace or add to existing buildings. The existing reuse culture is employed to encourage contemporary material substitutions by transforming industrial by-products, such as crushed lobster and crab shells into bio-bricks and decorative tiles, to expand on rural economy while promoting a modern vernacular which speaks to local crafts and skills.

Materiality: Re-use Culture

Fig. 32. A shed reconstructed using remnants of old materials.

The reuse culture is evident in several outport communities and has been practiced for generations. It represents existing rural synergies of mutual aid and labour, in which rural communities have been compelled to fend for themselves due to their remote locations and lack of services, including making their own furniture and building their own boats and houses from materials found in site. This [system] is still practiced in several outports, such as the town of Tilting:

> Houses were turned into outbuildings, most often stables or twine stores, if they were no longer used as dwellings… Outbuildings were often constructed from materials salvaged from other buildings. (Mellin 2003, 148)

Bay de Verde similarly engages in reuse culture, in which houses and outbuildings in need of renovation reuse materials from vacant buildings to replace worn out parts of the structure. Although resulting structures might not be aesthetically consistent with its surrounding buildings, it is a representative of outport identity and workmanship. Architecture typically mirrors the traditional practices of a

place, and the material palette acts as a communication tool of its culture. Existing socioeconomic challenges of rural abandonment and population ageing have led to encouraging and developing material expressions aware of its threatened cultural identity. Bay de Verde's fish plant is what keeps this outport viable by processing tons of shellfish yet it remains an unstable industry for the years ahead.

Fig. 33. Terrazzo-like tiles made from seashells (Crook 2020).

The existing reuse culture is employed by proposing an alternative method to disposing fish waste at sea, in which the fish waste is reused and transformed into biomaterials and profitable products, simultaneously benefiting its rural economy. Additionally, these products can act as small-scale secondary building materials for facades and interiors, representative of its fishing and reuse culture.

Fig. 34. Crushed seashells form a material with the hardness and texture of stone (Crook 2020).

The transformation process emulates the simple equipment and materials used in the Sea Stone project led by Newtab-22, in which natural binders and dyes are used with crushed shells to create a sustainable material that resembles concrete. This process begins by manually grinding shellfish shells using a mortar and pestle, then it is mixed with dyes and natural binders, such as sugar and agar, later molded into the desired shape and then left to harden (Crook 2020). The resulting product is a solid stone-like material which can be used as material substitutions or additions for small-scale projects, such as façade screens, ceramics, decorative tiles, and tabletops. This further encourages the rural community and young people to explore and utilize existing resources, such as industrial by-products to innovate and create.

Fishing Landscape

Bay de Verde's fishing landscape is the backdrop for the

social and economic challenges endured by its community. The cod moratorium and steady decline of rural population have threatened ways of life and cultural practices causing remnants of fishing stages, material culture, and outbuildings to be dissolved into the landscape.

Additionally, the existing harbour at the Foreside has undergone severe changes due to industrialization of fisheries, replacing traditional fishing stages and practices while disconnecting the community's relationship with the sea. The fishing landscape is analyzed to peel back the layers, and work with deletions as much as additions, creating a dialogue between past and present moment, such that the coexistence may reinform cultural activity patterns that can be sustained within the rural revitalization framework. A map overlay analysis is employed to reveal Bay de Verde's landscape characteristics prior the cod moratorium in comparison with existing conditions to inform new site intervention (see fig. 35).

Interrupted Landscape

Outport establishment was characterized by the inshore cod fishery, attracting families to spread around the bays and coves of the province to take advantage of good access to fishing grounds, raw materials for logging and construction, and spaces suitable for large scale drying of fish. Their settlement patterns surround the sharing of spaces and resources, in which families both live and work in one space and share a variety of resources, including cod fish (Pocius 1991, 18). However, the modernization of fisheries in the late 1960's prompted new values in which daily life patterns did not depend solely on the commonality of resource space.

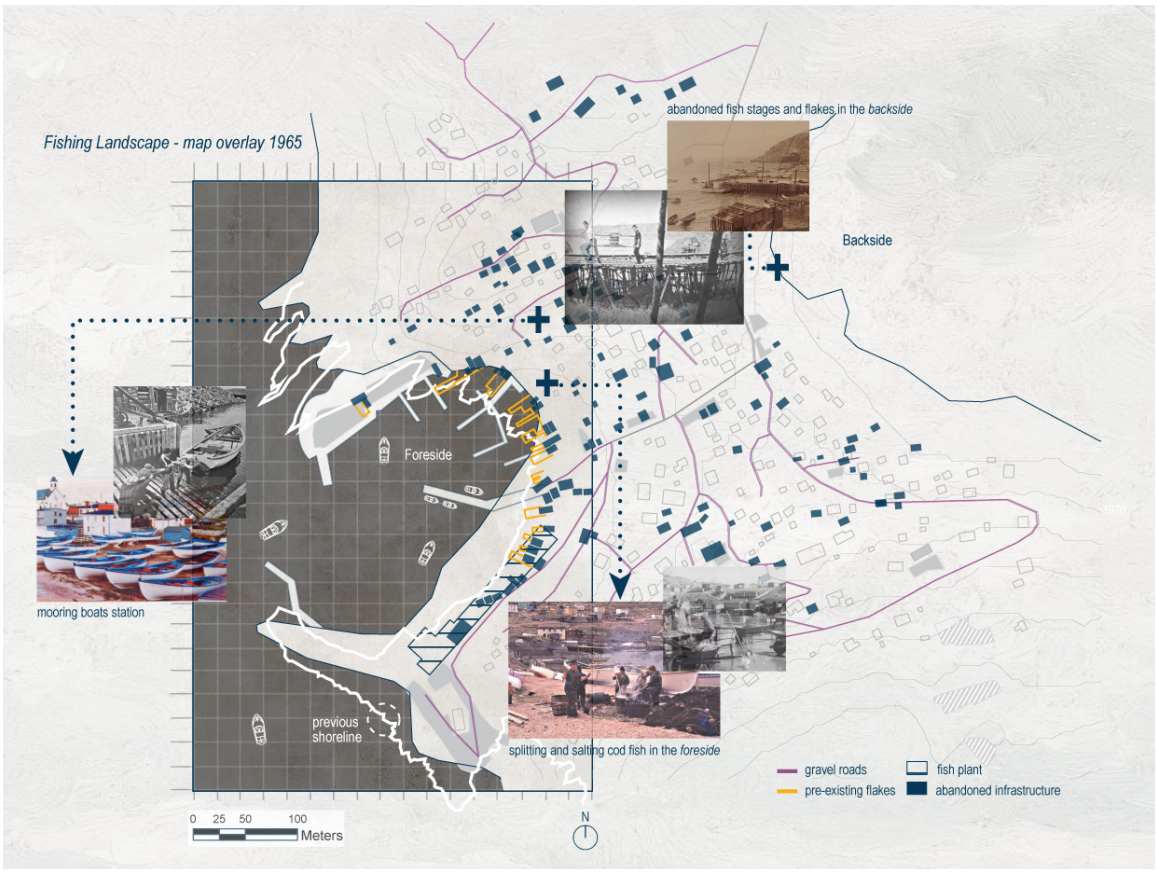

Fig. 35. A map overlay illustrating Bay de Verde's interrupted fishing landscape due to the fisheries modernization and cod moratorium (Base map from GNL 2022).

Most outport communities, including Bay de Verde, have witnessed a rapid decline in the use of the fisheries outbuildings, such as stages, stores, and flakes that characterized the fishing landscape, in which the flakes were the first artifacts to disappear when the salt fish market collapsed, making way for trawlers and larger boats, called long-liners that replaced the need for traditional handlines and nets (Town of Bay de Verde n.d.).

Flakes are described as "elevated wooden structures used for drying fish" often having a dual purpose, serving "as a platform for drying salt fish and as a bridge for fishing stage access…once provided a nearly continuous raised network of circulation between fishery outbuildings" (Mellin 2003,

180). The fishing stage is described as an “amphibious structure which served as a bridge between land and sea” and is a one-story gable building comprising a splitting table [work bench] for heading and splitting the cod fish (Mellin 2003, 162). There were once several fishing stages in Bay de Verde’s Backside but were soon abandoned due to southern winds and raging oceans.

Bay de Verde’s Foreside was once permeated with various activities which represented a strong sense of community, such as catching, salting, and drying fish on flakes, dancing and singing near fishing stages, as well as boat building and other subsistence activities.

Fig. 36. Bay de Verde’s past fishing landscape permeated with fishing stages and flakes (Bay de Verde’s Facebook Page 2022).

The landscape analysis diagram illustrates the harbour's severe changes due to industrialization, in which fishing stages and flakes gradually disappeared from the landscape to introduce a fish processing plant, with new docks and boardwalks.

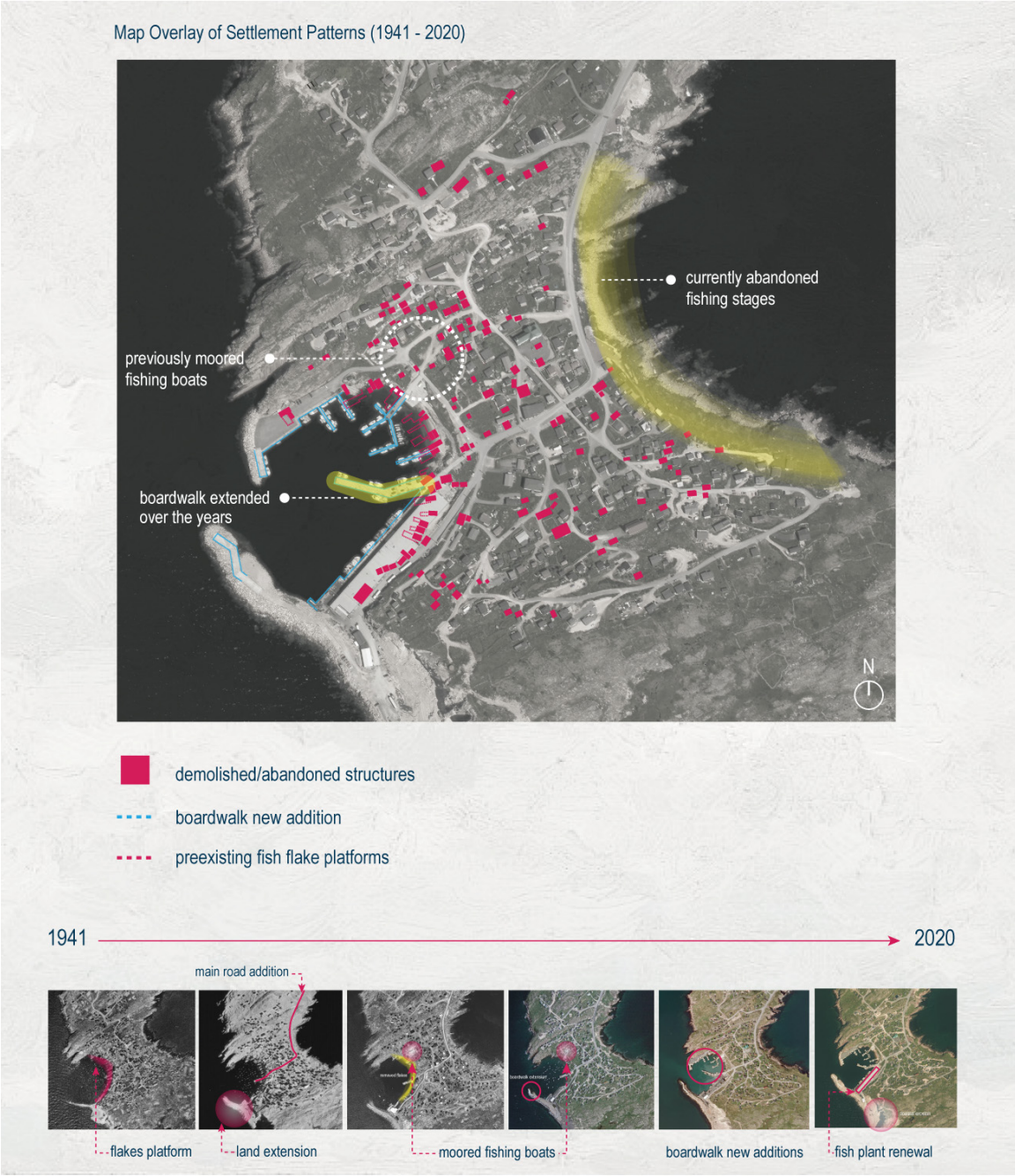

Fig. 37. Comparison maps illustrating the sequential alterations of the landscape affected by socioeconomic factors (Base map from GNL 2022).

As a result, several buildings got abandoned and removed from the landscape, and new areas of settlement moved up north, further away from the sea. Although the fish plant is what keeps this town in connection with the sea, traditional practices and cultural activities have gradually declined.

Reconnected Landscape

Efforts were made to preserve Bay de Verde's fishing history through its Heritage Premises organization, offering replicas of traditional fishing stages, flakes, cod traps, and root cellars. Reconnecting the multi-layered landscape will create a dialogue between the past and present by integrating new moments and spaces within the site to re-establish a circulation network which celebrates the community's relationship with the harbour while reviving stagnant material culture and activity patterns.

The interest of landscape within the context of rural Newfoundland emerges from the unprecedented rise in tourism and recreation, as well as the concern of outport communities of their declining population, threatening the loss of cultural identity embedded into the landscape. James Corner's book on *Recovering Landscape* is examined to incorporate landscape strategies for recovering Bay de Verde's landscape through modes of education, innovation, and ownership.

This book draws from several essays which discuss themes of reclamation, urbanism, infrastructure, representation, and temporality to explore a return of past traditions and ideas while proposing critical approaches to actively renew the significance of cultural and natural processes embedded in landscapes (Corner 1999, 13). Methods of recovery,

include the retrieval of memory and the cultural enrichment of place and time, social program and utility, as new uses and activities are developed, and ecological diversification and succession.

The socioeconomic challenges observed within outports through remnants of architecture that once defined the fishing landscape, such as stages and flakes have forcefully dispossessed the community from their everyday practices and engagement with the landscape, thus reconnecting the cultural landscape through the lens of preservation and holistic revitalization reinstates such practices and sense of place. Corner defines the term “recovery” as a double connotation, something that was once lost and forgotten to be found again but also as a nostalgic entity to be rightfully returned or repossessed (Corner 1999, 10). He proposes four sequential concepts to efficiently intervene in and recover a site as a designer:

- Landing
- Grounding
- Finding
- Founding

The landing concept is briefly described as the initial stage of encountering a site through a lengthy process of discovery, and reacting to preconceived notions of a place (Corner 1999, 61). This can be exemplified by reacting to the preconceived notions of outport landscapes, perceived as isolated, abandoned, and historic traces of land, later unveiled to a hospitable and tight-knit community situated in a quiet and beautifully rugged landscape outlining the coastline. The grounding concept is the process of reading and understanding a site through repeated visits, site

analysis and extensive research on the events that have influenced the evolution of a place (Corner 1999, 62).

This can be demonstrated by climatic analysis, such as sun, wind, and soil conditions, as well as social and historical analysis of events and forces that have altered the cultural landscape over time, and in Bay de Verde, this is exemplified by the cod moratorium aftermath and various stages of migration that have detached traces of cultural practices and activities embedded within the landscape. The transition of a once cod trap, flakes, stages, and trap skiff fishery culture into a longliner, trawlers, and industrialized fishery further illustrates the drastic change of material culture and architecture within the landscape.

The finding concept is described as the experience of associating ideas, places, and themes to a site by disclosing something unique that speaks to its identity and durability, further supporting one's preliminary intuitions about a place (Corner 1999, 63). This can be as simple as identifying why objects and places within a site are shaped, used, or exist a certain way, uncovering layers of social and historical events, such as the settlement patterns of Bay de Verde suggesting communities lived near the water for good access to fishing grounds and berths, as well as adequate space towards the front of houses exist for constructing flake platforms for drying cod fish. Additionally, the presence of outbuildings suggests a change of function over time, initially used for keeping livestock, twine making, curing fish and hay, to currently being used as storage for carpentry tools.

Corner emphasizes the founding concept as the most significant as it is the resultant response to all previous

concepts, described as responding to a site by either a conservative approach, referring to a past event or an innovative approach, suggesting importing something new to a place or altering the use of an existing object or place within a site (Corner 1999, 64). Extending the legacy of Bay de Verde towards a productive future by integrating both approaches rather than selecting one or the other approach can progressively reconnect the cultural landscape.

This method frames a new perspective to the place, allowing the community to slowly adjust to a new object or place inserted within the landscape, in which it speaks to the sense of place (preservation) accustomed by the community while introducing an innovative approach (revitalization) that would stake the ground for future events.

Fig.38. Bay de Verde's fishing landscape showcasing fish flakes and stages permeating the harbour (Bay de Verde's Facebook Page 2022).

This proposed approach captures the essence of rural synergy, as an architectural, urban, cultural and economic approach which perceives Bay de Verde's landscape as a cultural testing ground to be directly engaged and experienced, reviving activity patterns while strengthening the sense of place and belonging. Futhermore, this method can be utilized within a framework to be replicated in several outport communities for recovering landscapes.

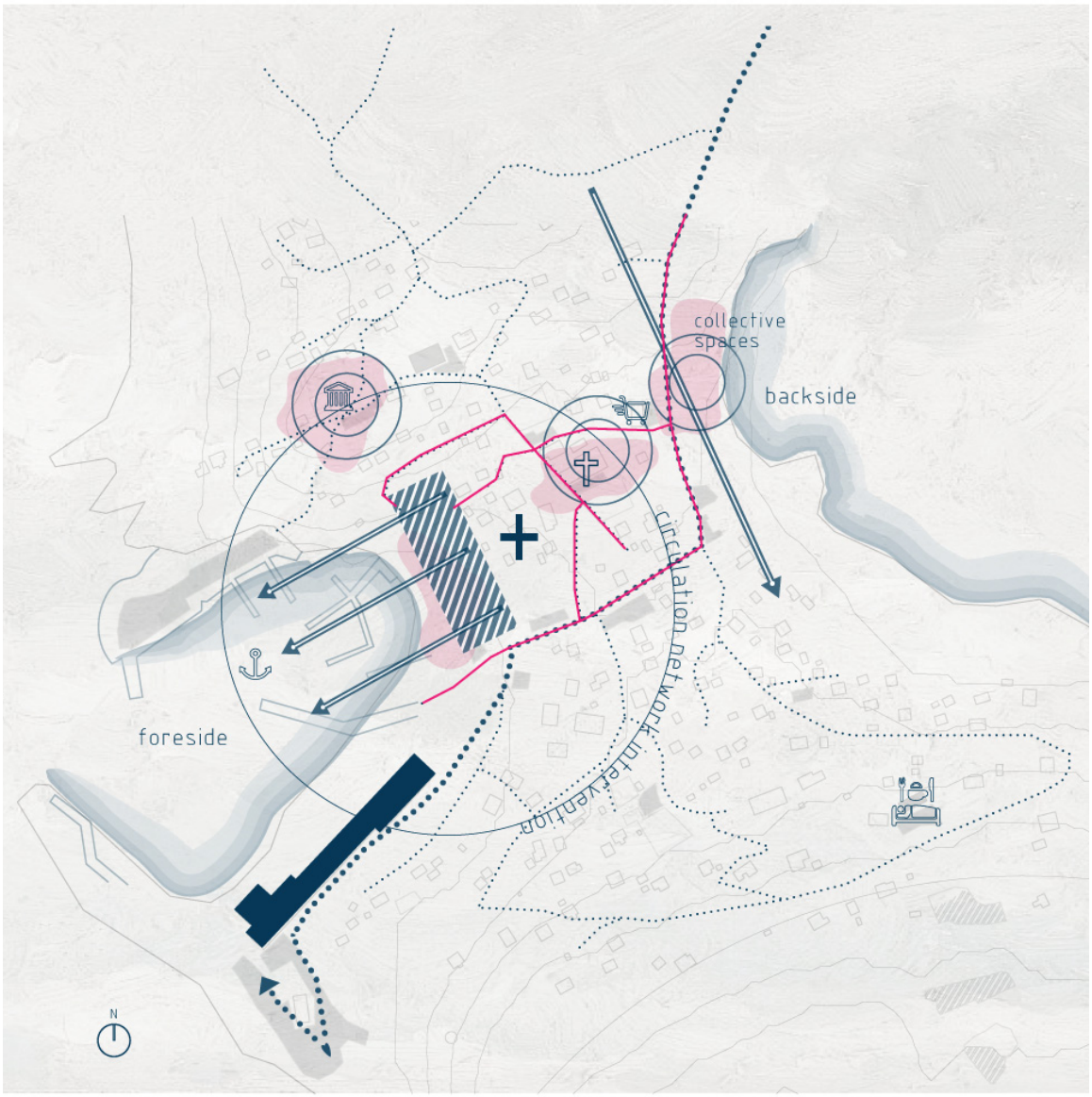

Fig. 39. Proposed site strategy to reconnect community with the fishing landscape (Base map from GNL 2022).

Chapter 4: Outport Recovery

Outports embody a simple way of life along the rocky coast of Newfoundland, in which the sights, sounds, and smells of the rural landscape, including the colors of fishing stages, the fresh briny scents, the scattering of fishing boats, and the picturesque terrain permeates the whole scene, contributing to an aesthetic and serene appearance of interest. The landscape is further defined as a place of production, in which cod fishing, settlement patterns, animal husbandry, agriculture, and material culture, such as flakes, cod traps, and tools reveal outport culture, expressing resilience, ingenuity, and economy (Mellin 2003, 212).

However, these aesthetic qualities and values of rural landscapes are often concealed from urban dwellers by the technological, economic, and social changes, involving remoteness, and lack of services and infrastructure, hindering rural and urban connections. Nevertheless, the rural landscape remains an aesthetic and multifunctional place of interest, connected with locality, ownership, innovation, and home.

Fig. 40. View of Forteau, representing the outport landscape (Harp 2014, 157).

Fig. 41. Typical daily activities in an outport, illustrating the splitting of codfish in Port au Choix (Harp 2014, 115).

Several communities have expressed their desire of returning to their outport homes, willing to accept the need for change to move forward by injecting new energy into rural development. A town hall forum hosted by CBC on Rethinking Resettlement in 2017 invited rural residents to discuss potential alternatives for rural growth, demanding upgraded infrastructure and encouraging “innovation” (Barry 2022).

According to one entrepreneur, rural Newfoundland can survive and thrive “if they play to their strengths and continuously innovate”, and another resident suggesting “innovation is the answer by educating youth and bring them into the awareness of resettlement and problems of Newfoundland” (Barry 2022). Additionally, adaptability has been encouraged for rural resilience to boost long-term sustainability, integrating supplementary programs, such as

fish cooperatives, community gardens, bakeries, and craft shops. For instance, the Dark Tickle Company in Saint Lunaire-Griquet was once a fishing supply shop, however the cod moratorium prompted a change of business, now selling wild-berry teas and jams across the province, “I went from working on a fish wharf to working in a jam kitchen,” says Kier Knudsen, owner of the company who was drawn back to Newfoundland from a job in aerospace engineering in Oregon because he missed the “way of life” (Llana 2021).

According to Rachel Atkins, a resident who runs a pop-up cafe in Port au Choix,

> To survive in a rural region, you really must have a community helping one another and volunteering, and I think it will happen, because at the end of the day, as much as a lot of our people go away, we never stay away with a good heart. The plan is always to go back home. (Llana 2021)

Rural Urban Polemics

The acute awareness of agricultural production and bifurcation of urban and rural development has caused uncertainty to our understanding of the rural. Emerging practices and counter discourses of the rural within larger societal and environmental debates has been addressed by several architects and designers, including Frank Lloyd Wright’s rural-urban regional metabolism in *The Living City*, and Rem Koolhaas’ *Countryside* proposal as a place for experimentation. These polemics explore the composition and resilience of rural landscapes towards the challenges and opportunities of climate change on food production within the realm of innovation, education, food security and economy.

As a response to this discourse, this thesis rethinks the rural as the future of sustainable living as opposed to megacities,

generating new production, reducing densification in cities, and tackling food insecurity in the years ahead.

Countryside by Rem Koolhaas

According to the UN's *World Urbanization Prospects* report published in 2014, the world's urban population is expected to exceed six billion by 2045, in which rural communities will face numerous challenges, including, the need for housing, infrastructure, energy and employment, as well as education and health care, becoming "one of the most important development challenges of the 21st century" (United Nations 2014, 22).

Fig. 42. Countryside, The Future exhibition in Guggenheim Museum (Solomon n.d.).

As a response, Rem Koolhaas investigates the rural as a place for experimentation and radical thinking in his exhibition, *Countryside: The Future* at the Guggenheim Museum by displaying a collection of films, sculptures, artworks, and texts on the opportunities and challenges of "climate change, large-scale planning by political forces, migration, human and non-human ecosystems, and artificial and organic coexistence" (Solomon R. Guggenheim Museum n.d.).

Koolhaas tackles such urgent issues facing urban life through the abstraction and automation of the countryside, using applied technologies of genetic engineering, artificial intelligence, and robotic automation. An interesting component within the exhibition is the Dutch concept of pixel farming, proposed as an innovative solution to the problems of agricultural monocultures by using pixel grids to test the proximity of different crops in relation to one another and the ecological balance of the farm (Ditzler 2020, 9).

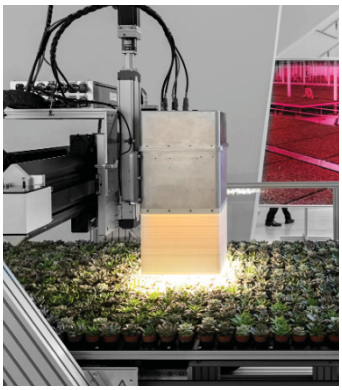

Fig. 43. Pixel farming technology (Solomon n.d.).

This eliminates the need for insecticides while contributing

to biodiversity, and resource-use efficiency.

The Living City by Frank Lloyd Wright

As cities continue to grow, the demand for natural resources is accelerating, expanding the spatial gaps between rural and urban landscapes. *The Living City* by Frank Lloyd Wright is a conceptual solution to urbanization by introducing a rural urban model for decentralized development, countering the notion of cities as self-sufficient. Wright unifies the relationship between the built environment and the natural character of the landscape by accommodating food production to satisfy infrastructural efficiency and human cultural needs, however his model is developed around highways as decentralised metropolis as well as the use of the automobile and mass production:

> Imagine spacious landscaped highways […] , they unite and separate the series of diversified units, the farm units, the factory units, the roadside markets, the garden schools, the dwelling places (each with an acre of land for cultivating). (Wright 1958, 126)

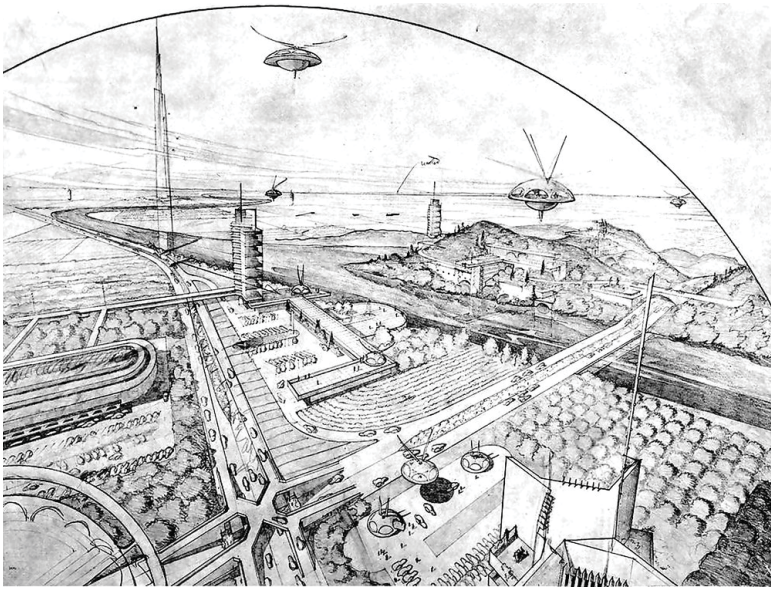

Fig. 44. Wright's vision for a future utopia as a decentralized development surrounding the automobile (Wright 1958, 528).

Although questions of the rural has been addressed by several individuals, including Rem Koolhaas and Frank Lloyd Wright using mass production and technology to facilitate food production and self-sufficiency, the risk of losing traditional practices prevails the effectiveness of their rural model as it replaces human labour. Conversely, this thesis proposes a sustainable route in achieving self-sufficiency by building upon existing skills and resources of rural communities to foster productive landscapes while engaging in profitable activities that yield a new market economy.

Rural Planning

Discussions surrounding the structure of rurality in Canada examine rural development through the lens of rural planning, integrating processes of local economy, labour, and employment. In the 2019 Plan Canada report on *Rural Connections*, a variety of strategies and attitudes have been proposed to tackle future challenges facing rural communities, such as climate change bringing a heightened urgency to farmland preservation, integration of new technologies requiring a corresponding change, and an aging population causing decline in newcomers (Caldwell 2019, 67).

Community development and engagement processes have been suggested to treat rural communities as diverse and contrasting entities as opposed to the preconception of perceiving all rural communities as a single entity sharing similar challenges. These processes share themes of skills training, innovation and technology development, and effective partnerships with educational institutions (Caldwell 2019, 64). Building upon existing government rural

regeneration strategies, this thesis introduces a multitude of additional sectors, including innovation, education, and ownership within a holistic rural revitalization framework to ensure a diversified and more resilient route for self-sufficiency and growth in outport Newfoundland.

Innovation

The socioeconomic challenges caused by the resettlement program, industrialization of fisheries, cod moratorium, arrival of boom-bust industries, and outmigration to cities disrupted the cultural landscape of outports and its resilient way of life. Newfoundland currently imports over 90% of its food and has the lowest number of farms of any Canadian province due to its harsh climate and acidic soils not being favourable to agriculture, and rural abandonment, further threatening food security (Green Farm NL n.d.).

The steady decline in outport communities hindered economic dynamism and urged heavy reliance on food imports which they had once produced themselves, and so innovative methods of promoting socially sustainable and localized ways of producing, distributing, and consuming food through hydroponic systems are proposed.

Agriculture Networks

The map of agriculture networks (see fig. 45 & 46) illustrates a divide in resource accessibility and food production infrastructure between cities and outports, with accessible roads mostly running through the city of St. John’s, and “unknown” and unpaved roads bordering the bays and inlets of the province, further expanding its spatial gaps.

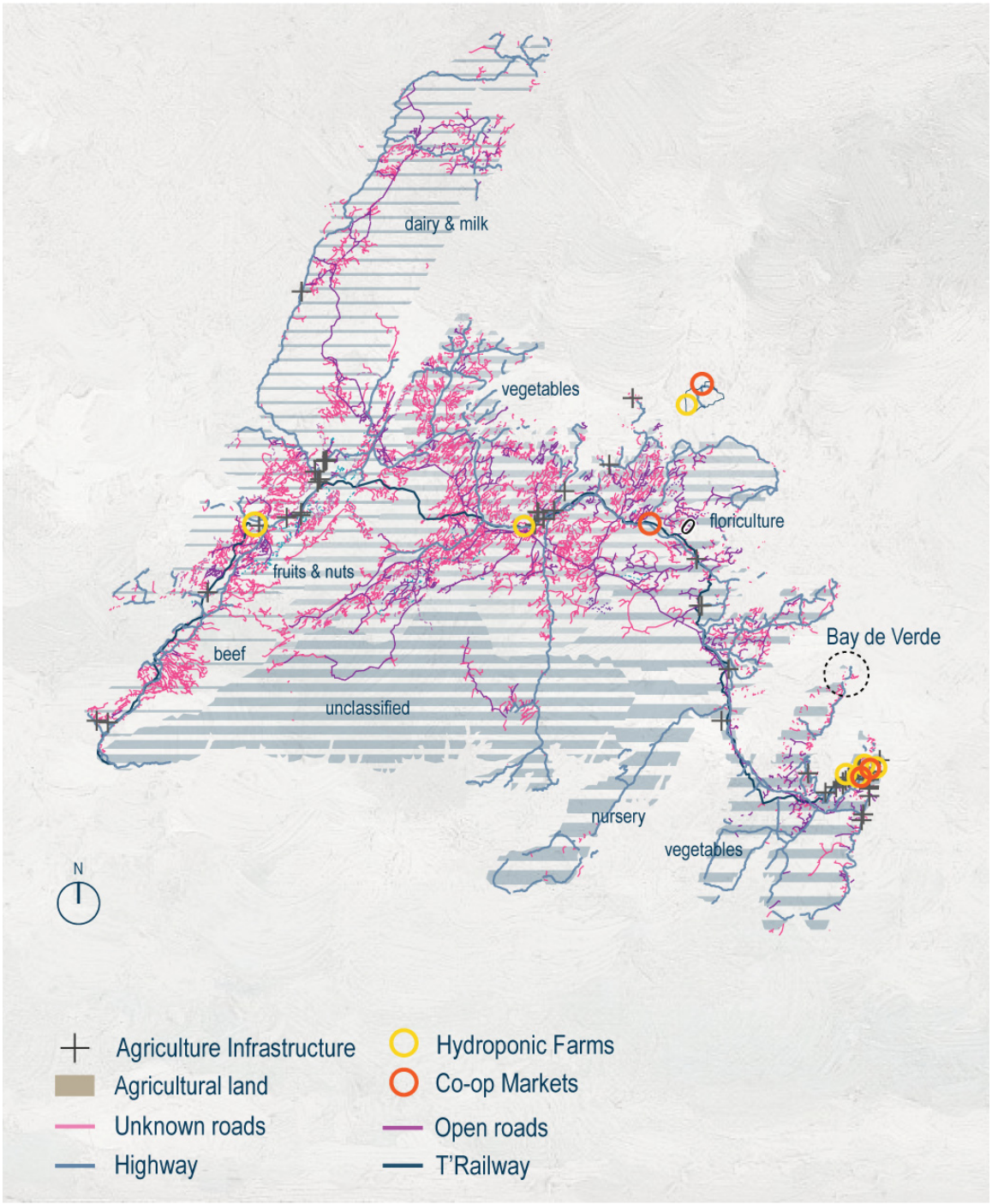

Fig. 45. Map of agriculture networks in Newfoundland, illustrating a divide in road network accessibility and lack of food production infrastructure between St.John's and outports, lying on the city's outskirts (Base map from GNL 2022).

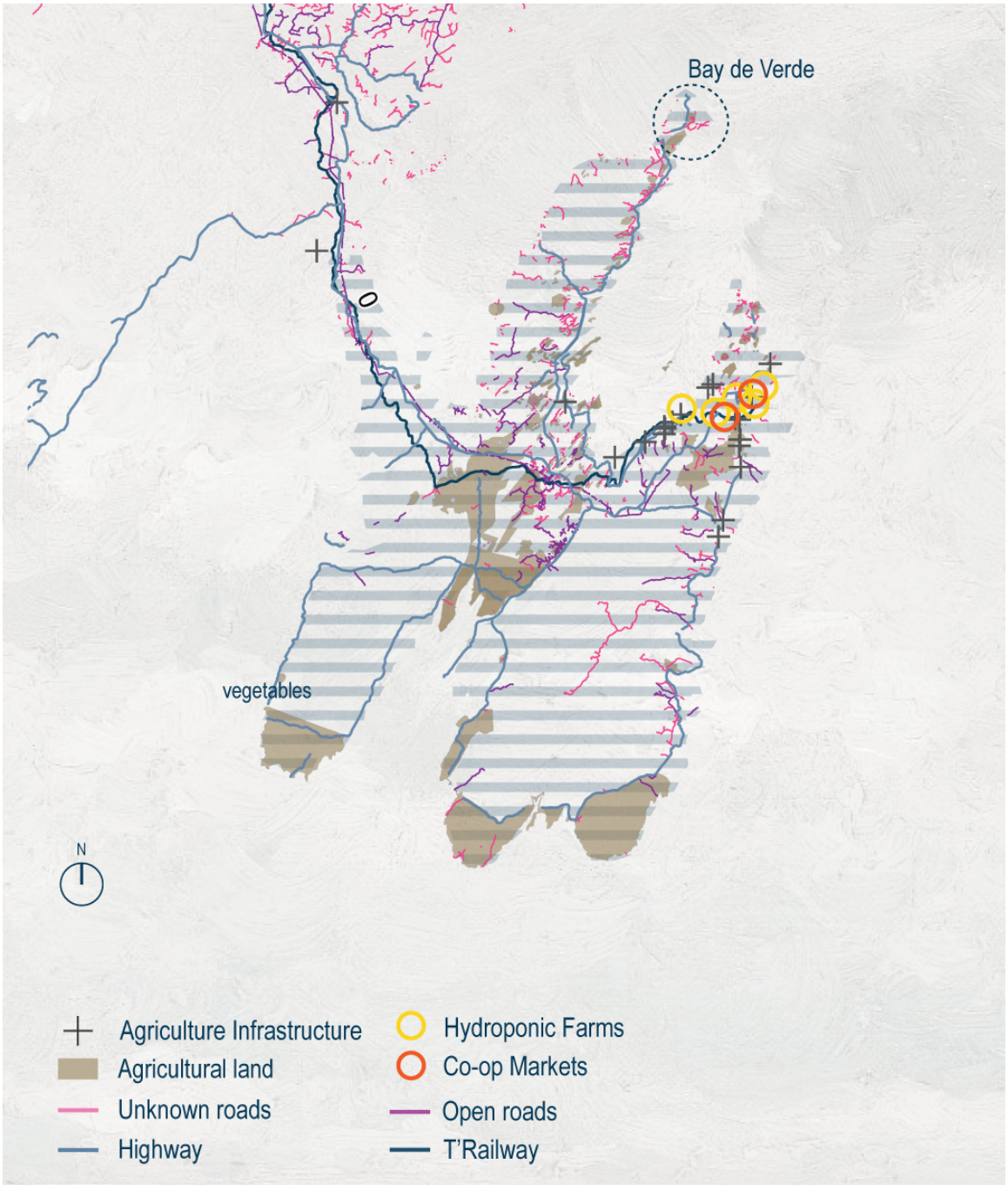

Fig. 46. Map of agriculture networks in the Avalon region, illustrating inadequate and inaccessible resource roads outside of St.John's (Base map from GNL 2022).

Existing agriculture infrastructure, including farms, markets, greenhouses, and nurseries are mostly clustered around St. John's, with little to no infrastructure near outport communities, proving an inaccessible local food supply system. According to Kristie, Executive Director of Food First NL,

> The food brought in has to reach everyone, which leads to a very complex food distribution puzzle that we haven't really figured out. So we end up seeing many communities have limited physical availability of good, quality, healthy, affordable food as a result of the fact that many of these communities don't have full-service retailers and don't have regular distribution to the communities. (Whitten 2019)

Hydroponics in Newfoundland

Fig. 47. Hydroponics using a nutrient-film technique in the Living Water Farm at Fogo Island (Tobin 2021).

Fig. 48. Kale and lettuce grown in the Living Water Farm at Fogo Island (Tobin 2021).

Government's efforts to tackle food insecurity within the province encouraged hydroponics, introducing the Sprung Greenhouse in 1987, a multi-million-dollar greenhouse complex near St. John's-Mount Pearl boundary that incorporates high-tech hydroponic systems aimed at supplying citizens with fresh and affordable vegetables year-round. The greenhouse managed to grow cucumbers and tomatoes, yet the project was confronted with several challenges, including failure to meet production quotas and profit, generating industrial pollution, and causing financial debt by its costly equipment and mechanization, therefore forcing the closure of the complex (Higgins 2012b).

Despite the failure to diversify the economy through the Sprung Greenhouse project, several profitable small-scale hydroponic farms emerged within the province, such as The Living Water Farm in Fogo Island, Green Farm in Mount Pearl, and Papa's Farm in Springdale (see fig. 49). "Hydroponics is the art of gardening without soils" (Woodard 2019). It is an efficient method of growing both edible and

non-edible plants without the use of soil, removing the barrier between the plant and its nutrients by controlling its environment. Different methods of hydroponic systems are offered depending on desired outcome and size of plants, such as nutrient-film technique system, drip water system, and wick system, producing higher quality foods year-round without climatic constraints (Green Farm NL n.d.).

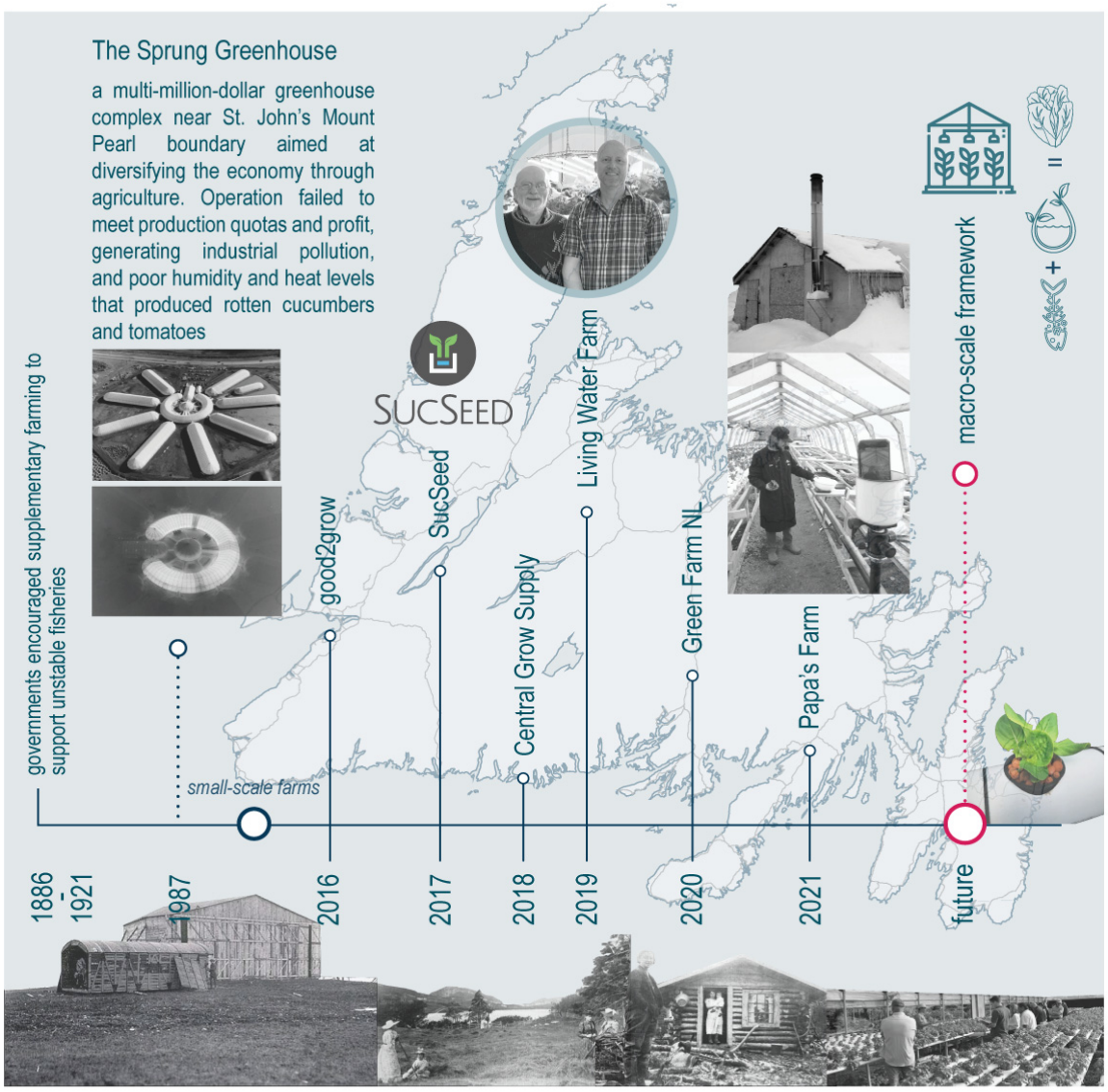

Fig. 49. Hydroponic farming timeline in Newfoundland, first introduced by the Sprung Greenhouse project in 1987 (Data from Higgins 2012b, and base map from GNL 2022).

Indoor hydroponic farms within the province are mostly clustered around St. John's, constructed using local and available materials, including the pipes and pumps that feed the system due to high costs of hydroponic supplies (Tobin 2021). These farms currently grow leafy greens, such as kale, lettuce, and basil using a nutrient-film technique as year-round fresh produce is limited, considering the harsh climates of Newfoundland.

Innovation in producing and distributing food through hydroponics facilitates food security within remote outport communities, as well as coastal communities in North America, yet the challenge of meeting market demands stresses new crop production and improved food system infrastructure.

How Does Architecture Promote Innovation?

Introducing infrastructure necessary to feeds its population and support localized food systems within increasing agricultural pressures on producing our food, reshapes architects' and planners' thinking of agriculture design. New outlooks on tackling food insecurity have reflected on architecture and rural planning through spatial accessibility of healthy food, integrating agricultural technologies, facilities for food production and processing, and an educational space for exchange of knowledge and rural farming practices.

ReGen Villages

Several projects around the globe have integrated new types of infrastructure which support high food quality while shortening the distribution from production to consumption,

Fig. 50. Eco-resilient villages (Effekt n.d.).

Fig. 51. High-yield organic food production using vertical farming to feed self-reliant communities (Effekt n.d.).

including ReGen Villages by Effekt, in which a sustainable agricultural model is designed to tackle climate change and global food crisis within rural areas by integrating advanced technologies, such as renewable energy, high-yield organic food production, vertical farming aquaponics and aeroponics, water management and waste-to-resource systems (Effekt n.d.).

Each village would comprise a series of houses with attached greenhouses, creating spaces to grow fruits and vegetables, or recycle waste products. The project's concept of an integrated network can power and feed self-reliant families, exemplifying the links between architecture, landscape, and production.

Education

The resurgence of traditional skills and practices through education is critical to preserve local identity and culture amidst advancing technologies replacing human labour while favouring precision and detail over craftsmanship. Nurturing the younger generation of makers of fishing, farming, carpentry, and arts and crafts activities sustained within outport communities stimulates cultural production through opportunities to innovative products and solutions.

This is achieved by unveiling and utilizing existing resources and community skills within outport communities to offer sustainable methods of production and solutions to socioeconomic challenges of year-round employment and food insecurity. A hands-on approach to learning further encourages direct experience of material qualities and form, expanding one's recognition of possibilities to transform existing materials into a useful resource. The relationship

between learning and making is apparent in Nils Gore's *Craft and Innovation* studio experiment, emphasizing that "play leads to innovation, discovery, and the development of new ideas, forms and techniques in architecture" (Gore 2006, 14).

Reusing Fish Waste

According to the 2021 *Seafood Industry Year in Review*, there are 92 fish processing plants scattered around Newfoundland (see fig. 52), processing and exporting mainly shellfish, including snow crabs, and lobsters (Department of Fisheries, Forestry and Agriculture 2021). Despite low levels of cod stocks, modest improvement is observed in certain areas, and recreational cod fishing is engaged during the summer months to sustain the province's fishing culture.

The seafood industry remains an integral component of the provincial economy, however fish waste disposal at sea poses environmental challenges, urging a new approach to utilizing fish waste into a valuable resource for food supply and biomaterial production.

Biomaterials

Biomaterials offer several opportunities to diversify Newfoundland's rural economy by generating new production from fish waste, such as ceramics, bio-bricks, and tiles in which existing community skills of fish processing and handling along with simple tools are employed for the proliferation of craft and innovation. Fish waste is a promising biomaterial that encourages local production and consumption while representing outports' fishing culture, and so several case studies are explored to emulate innovative

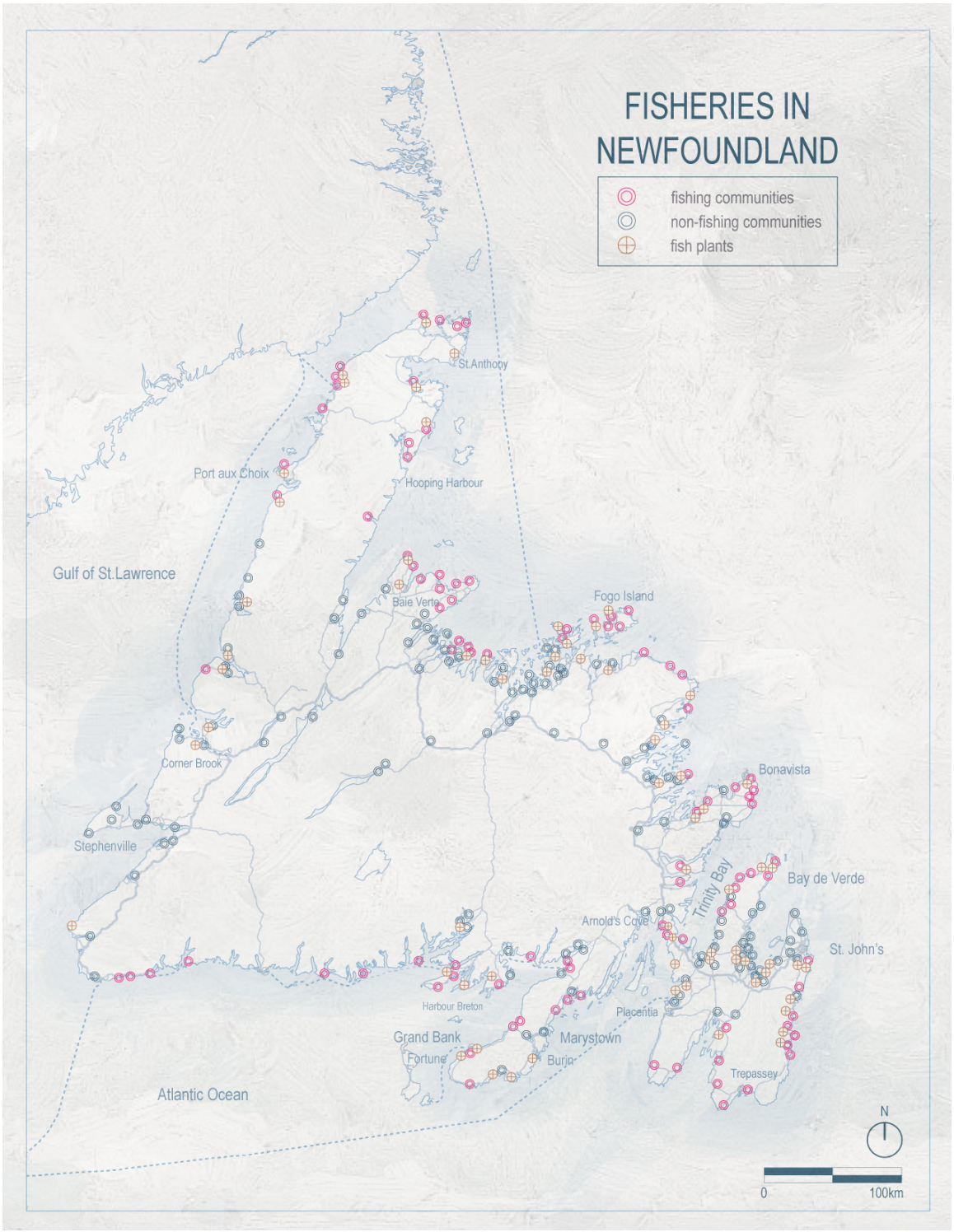

Fig. 52. Map highlighting outport communities, mapped as “fishing communities” and “non-fishing communities”, and fish plant locations (Base map from GNL 2022).

Fig. 53. Bio-bricks made from crushed shellfish shells (Howarth 2022).

Fig. 54. Bio-bricks assembled into partition screens (Howarth 2022).

techniques for creating fish waste biomaterials.

Bio-Bricks by Studio Fadaa

An architecture studio in Aqaba, Jordan collaborates with local craftspeople to design a materiality-driven retail store, using the shells of oysters, mussels, and clams from seafood restaurants to form bio-bricks, and used as partition screens:

> The shells were crushed and used as aggregate for a bio-based concrete that sequesters the carbon from the molluscs' protective calcium carbonate coverings. This material is pressed into a mould to form the brick shapes, dried to harden, and finally assembled into the gridded screens. (Howarth 2022)

Ceramics by Carly Breame

A design graduate of Central Saint Martins' Material Futures masters programme reuses leftover fish and chips into plates and ceramics to encourage localism and a circular economy. Breame's process involves kiln-firing fish bones, potato peelings and oyster shells then grounding the ingredients into a fine powder to be used for the plate's body, while crushed wine bottle glass is used for the glazing (Sabina Aouf 2022).

Fig. 55. Ceramics from leftovers (Sabina Aouf 2022).

Fig. 56. Variety of plates created from fish bones and potato peels (Sabina Aouf 2022).

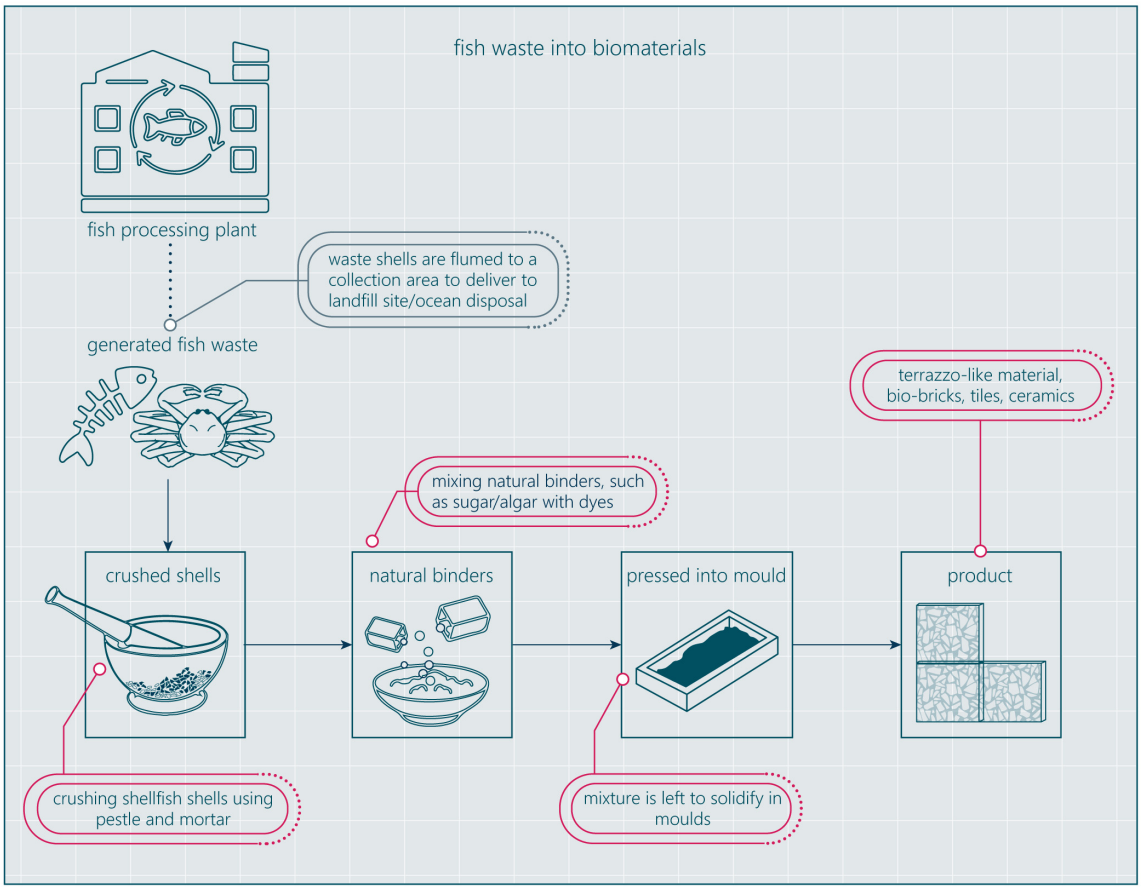

Fig. 57. Diagram illustrating the process of transforming fish waste into fertilizer for plants (Data collected from Department of Fisheries and Ocean 1991 and Quinlan Brothers Limited 2015).

Food Resource

The global demand for healthier food emphasizes the importance of education to create momentum for a sustainable food system. According to 3F Waste Recovery company in Newfoundland, only 30-35% of snow crab and 40% of cod fish is consumed while the rest is dumped back into to the ocean or sent to a landfill (Khan 2022). As a response, this thesis develops solutions and interventions to fish industry waste by utilizing fish waste as fertilizer for plants to grow food, yielding crop production and a new market economy.

This process employs a composting technique that combines

fish bones, shells, and other unconsumed fish matter with water, sugar or molasses that energize the bacteria, and sawdust in a bucket or container, ready to use within two weeks (Pennington n.d.). The resulting product is a quick-acting liquid fertilizer that is poured into the reservoir of the hydroponic system and carried along the PVC tubes to the emitters, in which the nutrients are transferred directly to the plant roots. Fish fertilizers provide the plants with primary nutrients of nitrogen, phosphorus, and potassium, thus yielding fresh crop production.

How Does Architecture Promote Education?

Learning is a process of understanding in practice as opposed to solely observation because it expands our knowledge to creation and innovation, and this is made apparent by Tim Ingold in his book, *Making: Anthropology, Archaeology, Art and Architecture*:

> We can tell of what we know through practice and experience, precisely because telling is itself a modality of performance that abhors articulation and specification. (Ingold 2013, 109)

The range of possibilities offered by existing resources within outport communities, such as fish waste, fishing and farming practices, and crafting skills encourages further exploration and education to develop new solutions and techniques to existing rural challenges. Introducing infrastructure necessary to support education and creation facilitates new production, integrating flexible multi-functional workshops for community activities, such as arts and crafts, boat building, and quilt making, as well as innovative production, such as ceramics, tiles, fertilizers, and bio-bricks made from fish waste. Moreover, architecture offers an incentive to its users through functional and dynamic spaces that influence

acts of learning by doing.

Ownership

Local ownership encourages outport communities to expand their small businesses and build partnerships to attract investment while retaining gained profits within the rural economy. Opportunities to strengthen local ownership through co-ops for new production, including year-round food supply, crafted products and biomaterials made from existing resources as opposed to relying on fluctuating industries, such as seasonal tourism will facilitate a self-sufficient rural economy while creating new localities between rural and urban areas.

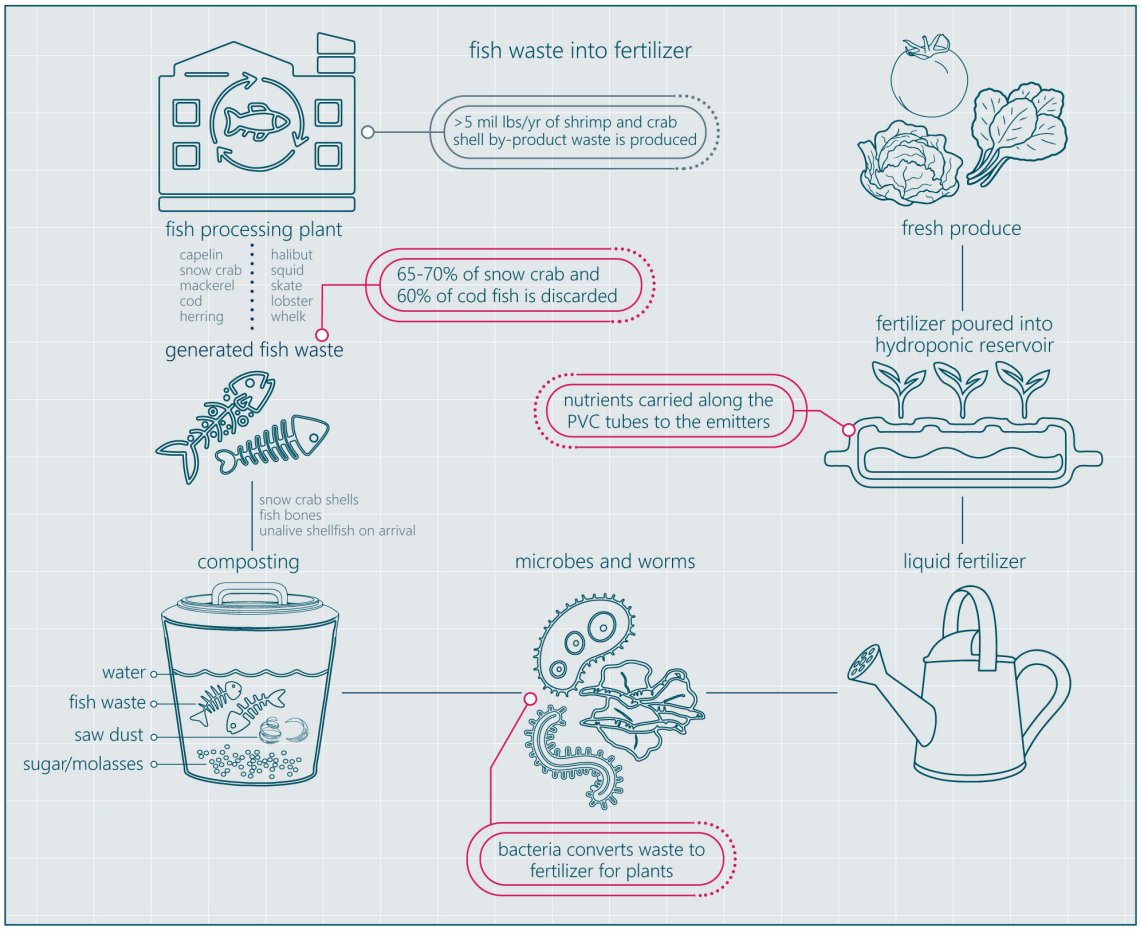

Fig. 58. Diagram illustrating the process of transforming fish waste into fertilizer for plants (Data collected from Department of Fisheries and Ocean 1991 and Quinlan Brothers Limited 2015).

Current organizations representing co-op sectors in rural Newfoundland, such as the Newfoundland-Labrador Federation of Co-operatives (NLFC) explore ways to develop the rural economy through the well-being of the communities in which they live, including delivering community development and social services (Government of Canada 2005, 37). Micro-business co-ops and social enterprises engender rural synergies of resilience, community empowerment, and mutual aid that encourages local innovation and long-term financial stability in rural communities. However, as social economy changes, new types of co-ops are explored to create more inclusive, innovative, and sustainable rural economies.

How Does Architecture Promote Ownership?

Introducing infrastructure necessary to strengthen local ownership within socioeconomic instabilities, encourages community collaboration and self-sufficiency in rural communities. Co-op markets emphasize the economic importance of buying locally grown food while facilitates learning about the food system; how its locally produced, consumed, and distributed, and in the context of food production within outports; this is the “sea-to-table” system.

Architecture provides a leeway to communicate and educate communities through spaces which are informed by a processual system, starting with catching and processing fish to be cooked and shared, then reusing fish waste into fertilizers for plants, producing freshly grown vegetables and fruits year-round, and finally distributed within co-op markets. This stimulates rural economy by encouraging local production while offering new business opportunities

that brings younger people back home.

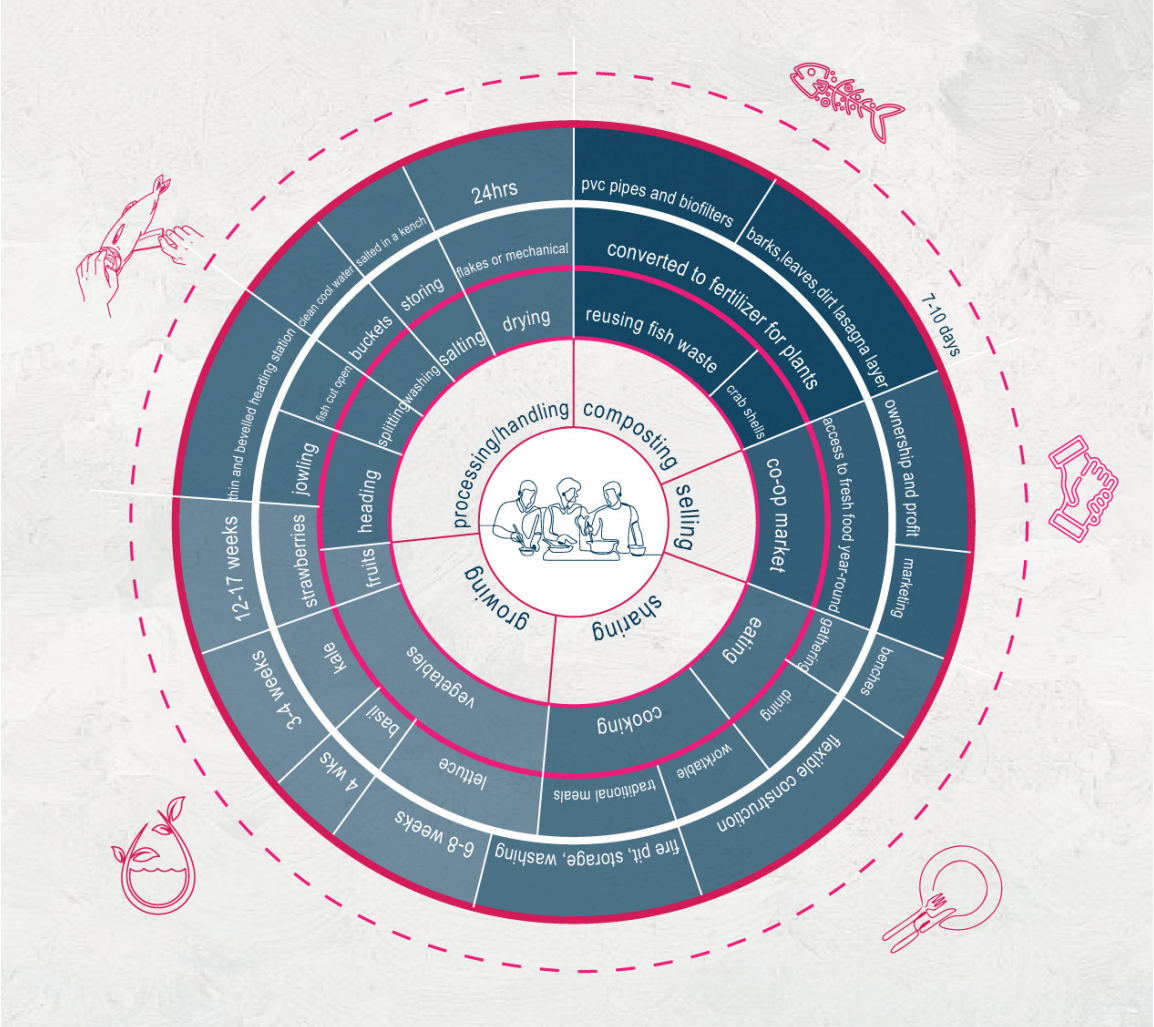

Fig. 59. Diagram representing a “sea-to’table” process that provides year-round food production while expanding the rural market economy.

Tofu Factory by DnA

The Tofu Factory in Lishui, China engages family workshops as shareholders of a collective economic entity, selling tofu products in supermarkets while offering an educational sector for tourists. The building comprises a production and exhibition space which displays the making process of tofu in sequence, including a preparation room, a grinding, boiling, deep-frying, and drying compartment, and finally a tasting hall (Shuang 2020).

Fig. 60. The Tofu Factory integrates an educational sector for tourists through observing the making of tofu (Shuang 2020).

Fig. 61. The wood structure encloses multifunctional programs for sharing and cooking food (Nest We Grow 2015).

Nest We Grow by Kengo Kuma & Associates

An open public structure is designed to engage community participation in preparing and sharing local foods, creating a symbiotic relationship between people and food within Hokkaido, Japan. The program surrounds the life cycle of a local food system, providing flexible spaces for growing, harvesting, storing, cooking, dining, and composting. Additionally, local building techniques and materials are utilized to construct the wood frame structure, mimicking the spatial experience of a Japanese larch forest from which food is hung to grow and dry (Nest We Grow 2015).

Chapter 5: Rural Synergy

Synergy can be defined as an “interdependent relationship that occurs when two or more agents produce a greater contribution than the sum of their separate parts” (Merriam-Webster n.d.).

A holistic rural revitalization scheme which preserves cultural practices and mobilizes new frameworks of economic and social development introduces the concept of rural synergy which this thesis defines as interconnected actions of making, growing, and sharing to provide a sustainable approach in combating socioeconomic challenges within rural Newfoundland. These synergetic systems further integrate diverse sectors of innovation, education, and ownership to promote a more resilient and diversified framework for self sufficiency and rural growth as opposed to the unsustainable rural regeneration strategies developed by the government.

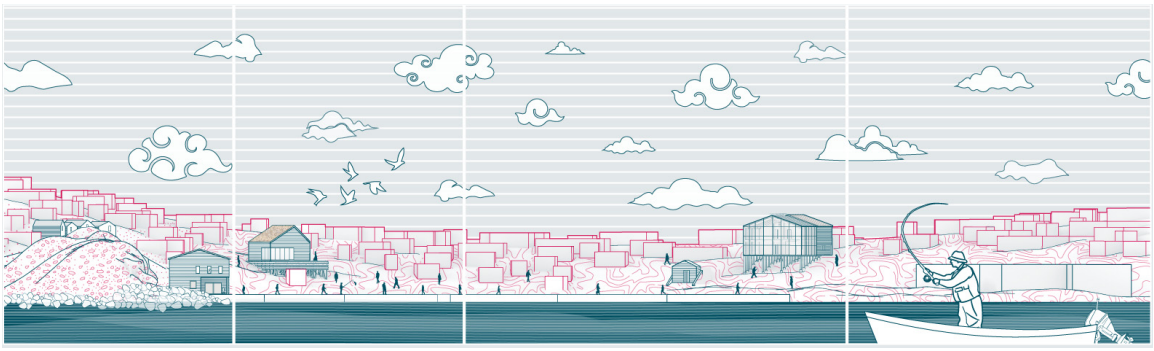

Fig. 62. Site elevation drawing of architectural interventions within Bay de Verde.

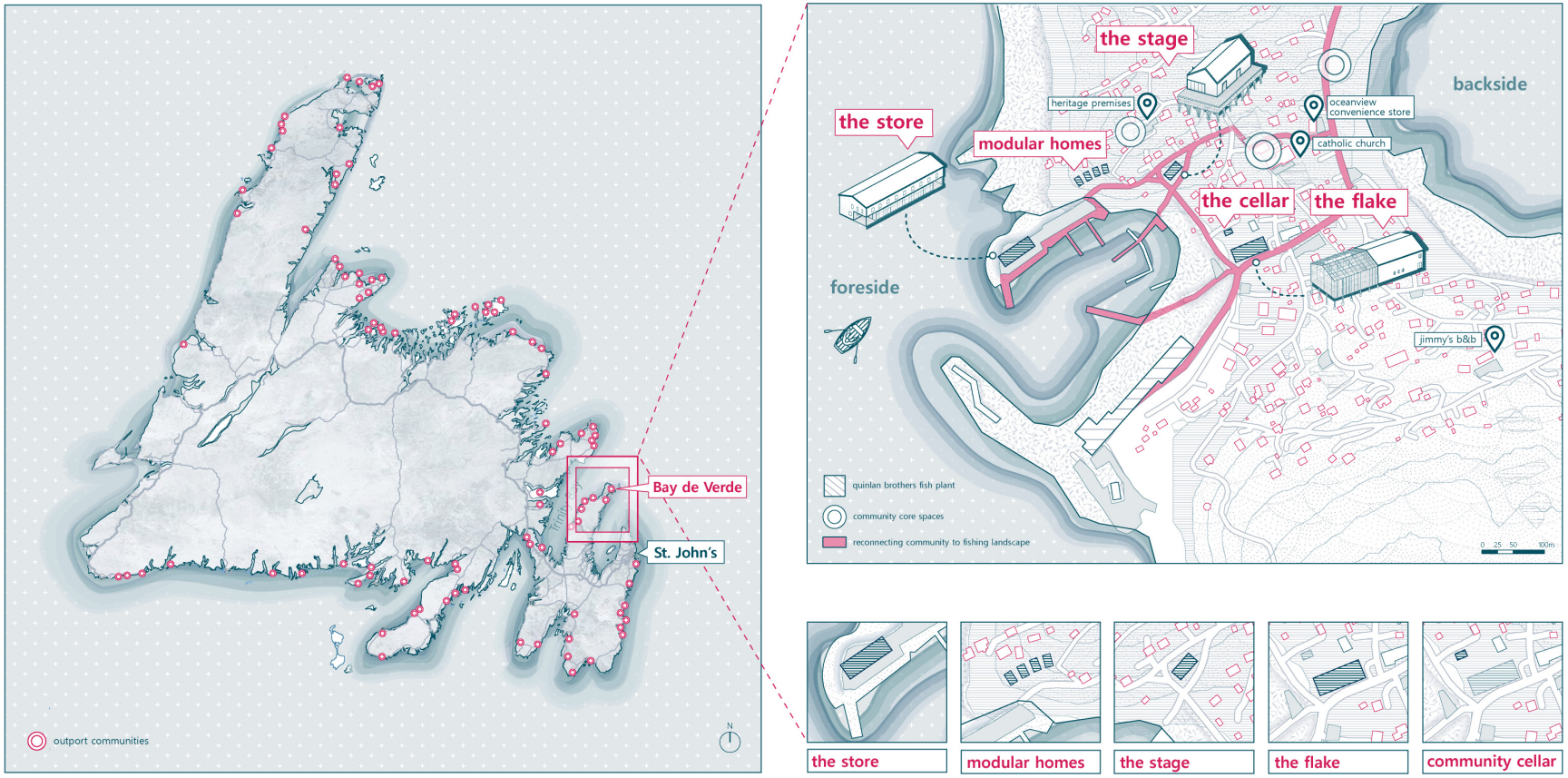

Fig. 63. Site plan of Bay de Verde illustrating proposed interventions in pink text (Base map from GNL 2022).

This chapter introduces design interventions encompassing interconnected systems of making, growing, and sharing through micro scale programs of creative workshops, hydroponics, and co-op market by utilizing existing community skills and resources to create new production and expand the rural market economy. Consequently, the existing fish plant within the site is employed by reusing fish waste accumulated through various stages of processing and integrated within the micro-scale programs as a sustainable alternative to ocean dumping or landfill disposal of fish waste.

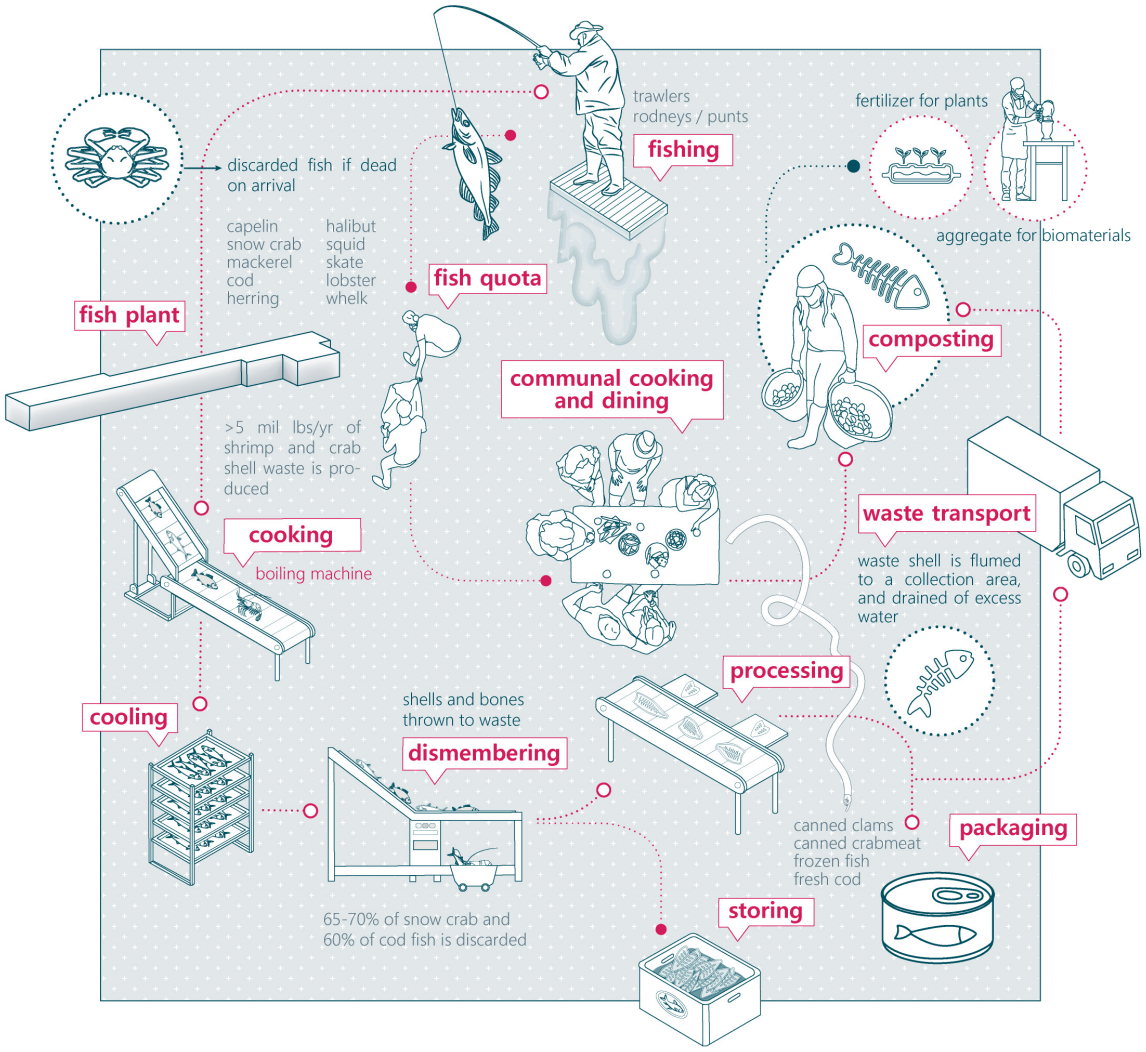

Fig. 64. Diagram illustrating interventions within existing fish plant processing cycle (Data collected from Department of Fisheries and Ocean 1991 and Quinlan Brothers Limited 2015).

Reconnecting Bay de Verde's community with the fishing landscape takes on a holistic site strategy in which the micro-scale programs closely interact with existing landscape and social conditions while deindustrializing the harbour to resurge existing rural synergies and communal practices of labour and mutual aid. In most outport landscapes, twine stores, flakes, and stages are located on the harbour side, opposite houses, defining the cultural landscape of outports. This thesis defines the making space as The Store, the growing space as The Flake, and the sharing space as The Stage, each reinforcing the function of these spaces previously defined within the landscape, while maintaining the vernacular outport through simple and local materiality and structure.

Seasonal Programme

The programme interventions coexist with existing activities within the site, sequentially functioning year-round. The seasonal programme pie chart graphically represents the sequence of existing and new activities taking place, such as the creative workshops housing the recreational food fishery activities taking place in the summer by integrating boat building and carpentry, as well as arts and crafts, and quilt making to be offered for the quilt festival in August (see fig. 65).

During the fishing season, fish and shell waste accumulated from the plant can be reused as fertilizers, in which composting takes place in the hydroponic facility, as well as an aggregate for biomaterials, processed and dried in the ceramic's lab within the creative workshops' store. Additionally, fish quota of cod, lobsters and other fish is

obtained to be communally cooked within the market, while packaging fresh local meals of fish and brewis, cod tongues, soups, chowders, and Jiggs dinner.

During the winter, the fish plant season is inoperative, and the hydroponic facility would operate to utilize composted fish fertilizer for its plants and vegetables to be readily available year round and distributed in the co-op market. Simultaneously, harvested produce are stored in the community cellar to be kept from freezing in the winter, and kept cool in the summer. The creative workshops would house communal activities of painting, textiles, ceramics, and furniture making as the town is mostly dormant during the winter season.

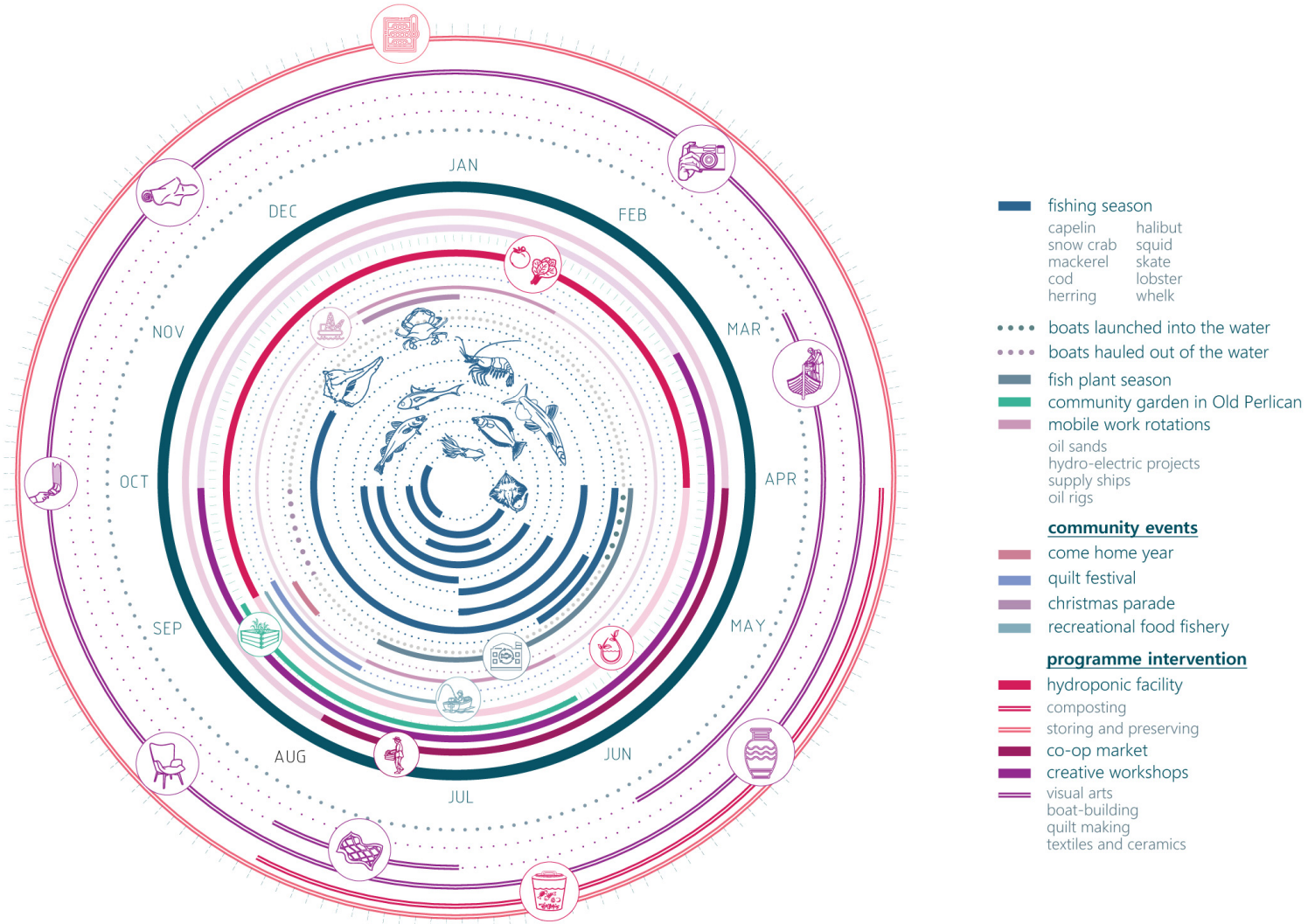

Fig. 65. Diagram illustrating programme relationships between existing and proposed activities (Data collected from Center for Independent Documentary 2022).

Modular Homes

A secondary programme within the holistic framework of economic and social development is the addition of modular homes, accommodating not only fish plant workers, as the ageing workforce has prompted the industry to employ youth and temporary foreign workers, but also accommodating workers of the micro-scale programs year-round. Small-scale modular homes, constructed of local materials of spruce and wood shingles are situated within reasonable distance to the Stage, Store, and Flake, in addition to acquiring a beautiful view overlooking the landscape.

Fig. 66. Perspective elevation of modular homes.

Fig. 67. Perspective render of modular homes overlooking Bay de Verde’s picturesque landscape.

The Store: Creative Workshops

A store is defined as an outbuilding associated with the fishery, in which the space is engaged with making and building activities, as well as storing fish gear, typically with a loft for mending nets on the top floor (Mellin 2003, 236). This thesis reintroduces the store to the landscape as creative workshops, integrating communal activities of boat building, quilt making, ceramics, and arts and crafts, positioned at the Foreside, and facing directly across from the existing fish plant.

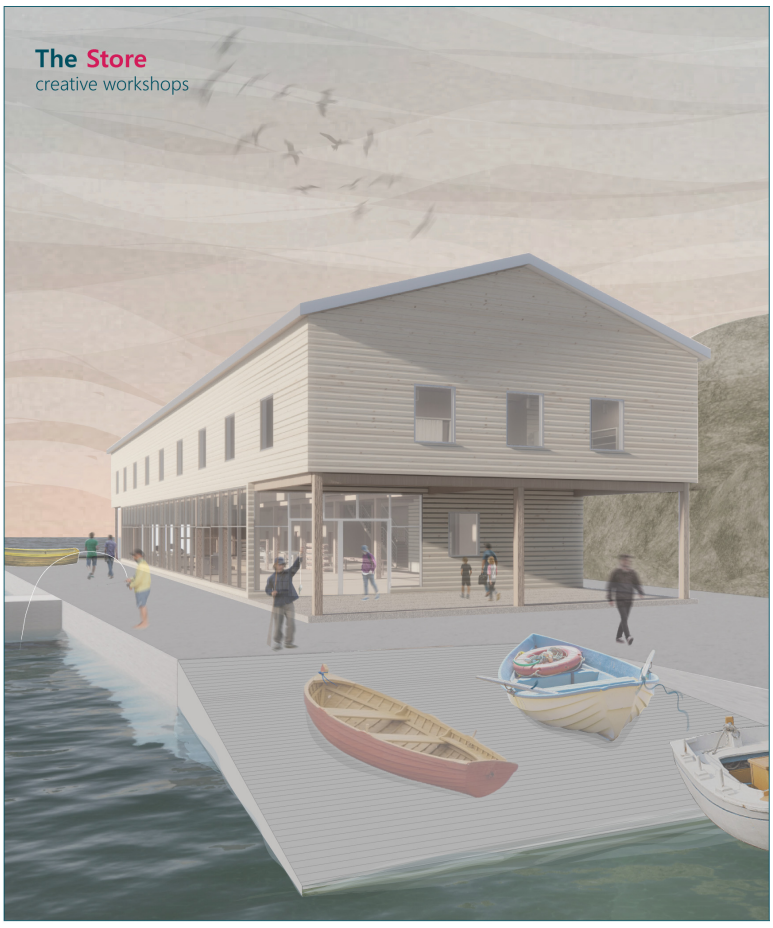

Fig. 68. Perspective drawing of the store building.

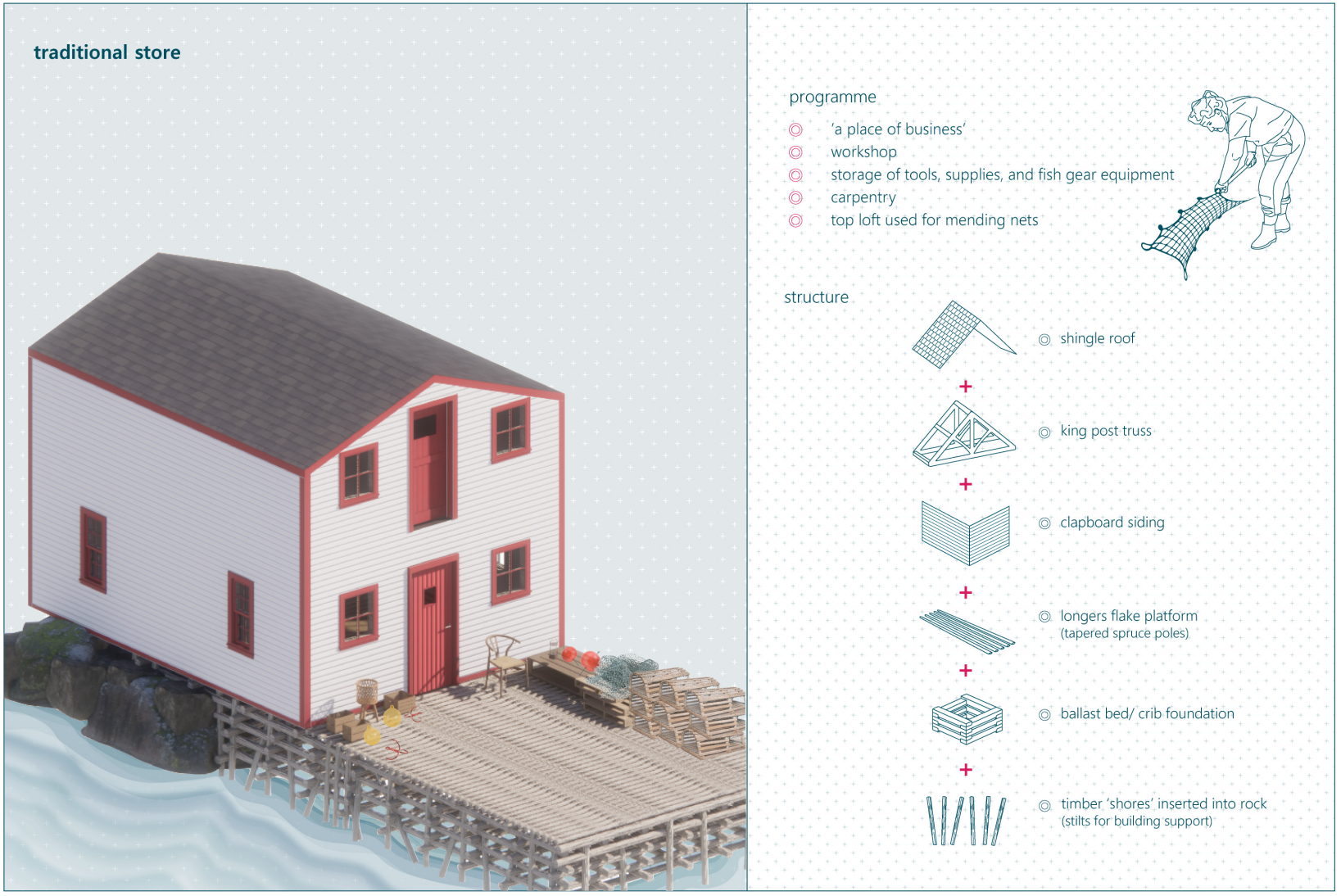

Fig.69. Diagram illustrating the structure and programmatic functions of a traditional store in outport Newfoundland (Information from O'Dea 1998).

Programme

The ground level comprises boat building workshops, tools store, along with workstations for carpentry and furniture making. A long floor plan layout integrates adequate space for boat building, including punts, and trap skiffs, as well as flexibility for boats to be easily hauled out of the building and wheeled down to the boat slip.

The top level or loft comprises arts and crafts workshops, quilt making, and ceramics lab in which existing communal skills are employed to preserve and stimulate cultural production. The ceramics lab contains a kiln and utility sink for reusing dried fish bones and shellfish shells to produce ceramic plates and tiles, which can be later used to plate homemade food prepared in the stage. Open workshops of painting, and arts and crafts host local and global artists, designers, and craftspeople, as well as students from the nearby Tricon Elementary school to engage in creative practices, where they can be inspired by the picturesque views overlooking the landscape of Bay de Verde.

Structure

The traditonal store reinforms a new vernacular, in which local materiality of shingles and spruce siding are used, while modifying the existing structure by raising the store above ground level to engage the community with inner activities taking place. The structure is composed of wood stud framing, glulam beams and trusses, and sits on concrete piles to structurally elevate the building from tides and water depth.

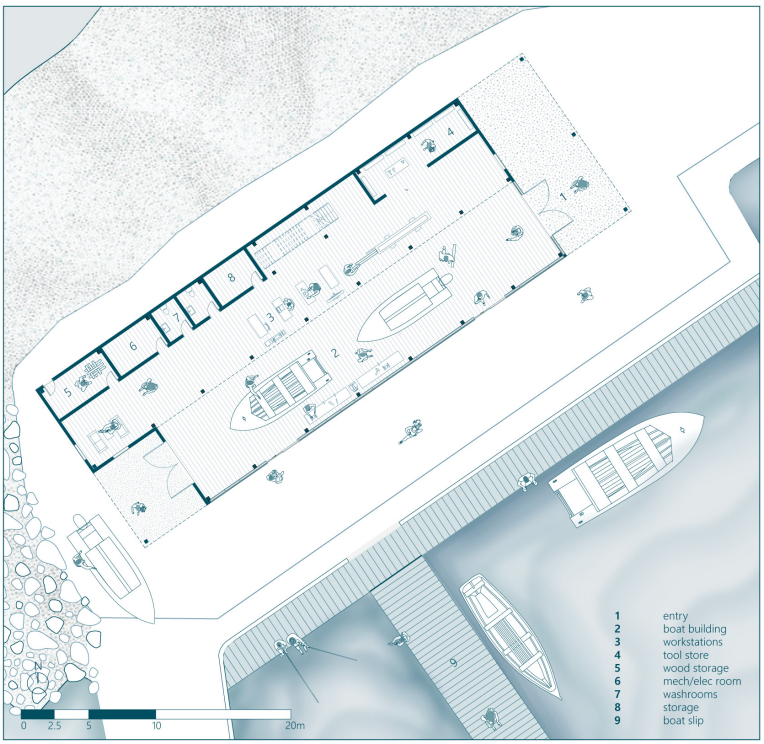

Fig. 70. Ground floor plan drawing of the store.

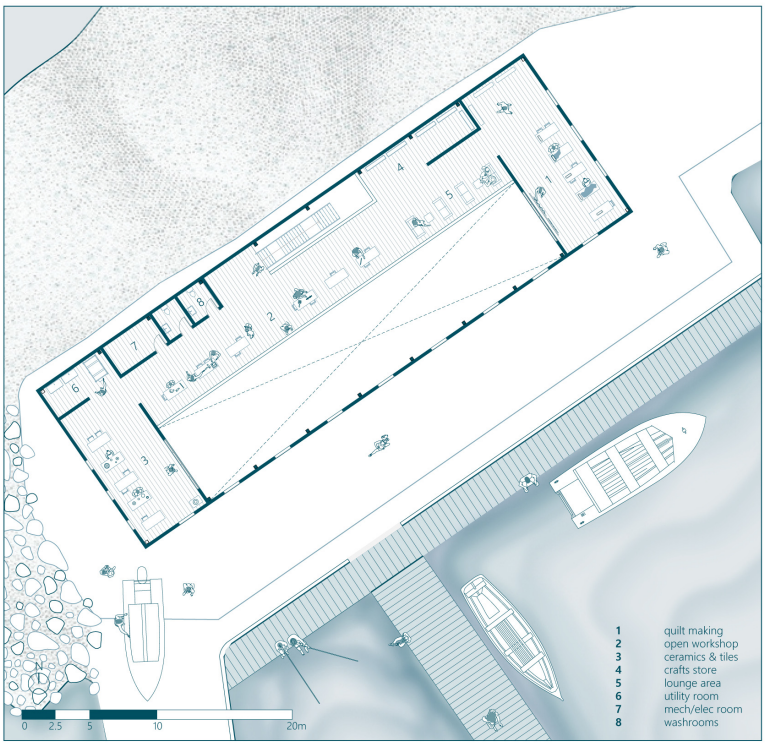

Fig. 71. Upper level floor plan drawing of the store.

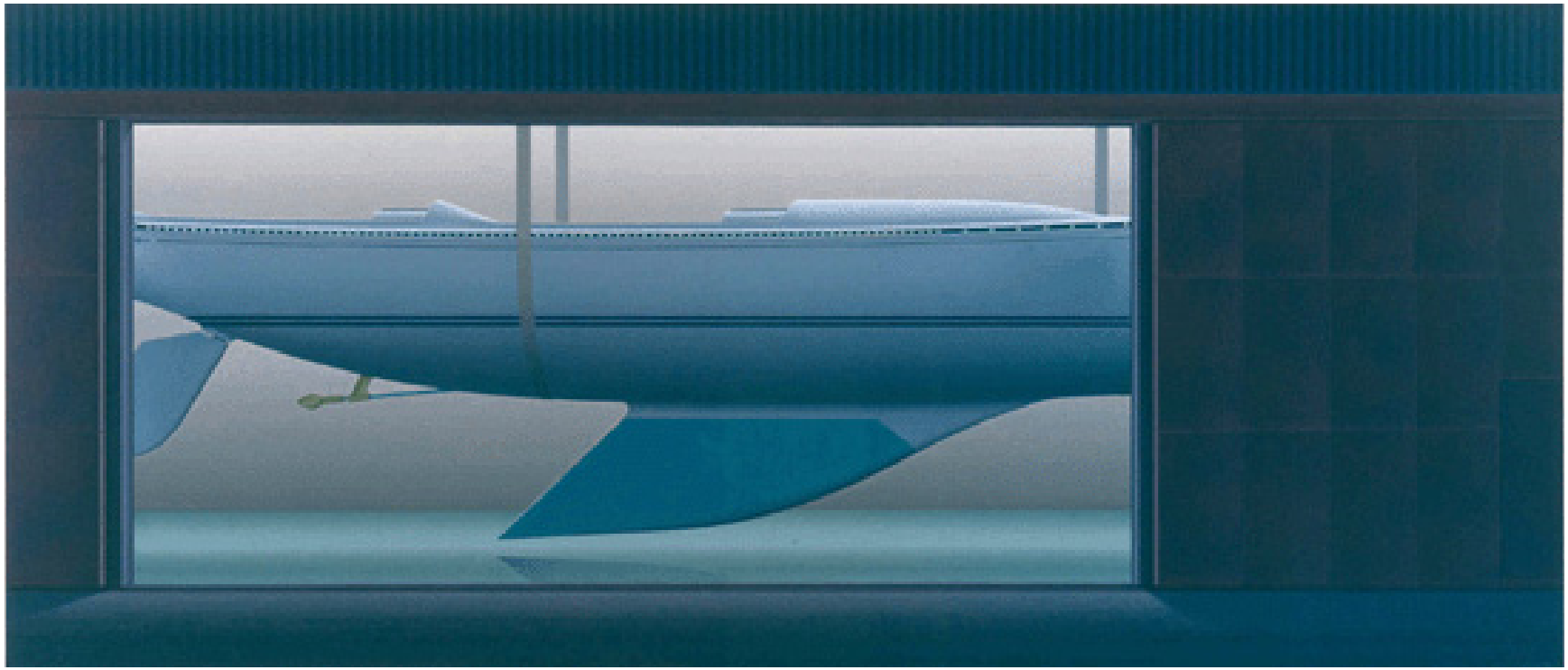

Fig.72. The proposed store building is inspired by Newfoundland artist, Christopher Pratt's *Big Boat* painting, capturing an interesting object-to-scale ratio (The Rooms Provincial Archives Division n.d-a.).

Fig. 73. Render drawing of the boat building workshop.

Fig. 74. Render drawing of the quilts making studio.

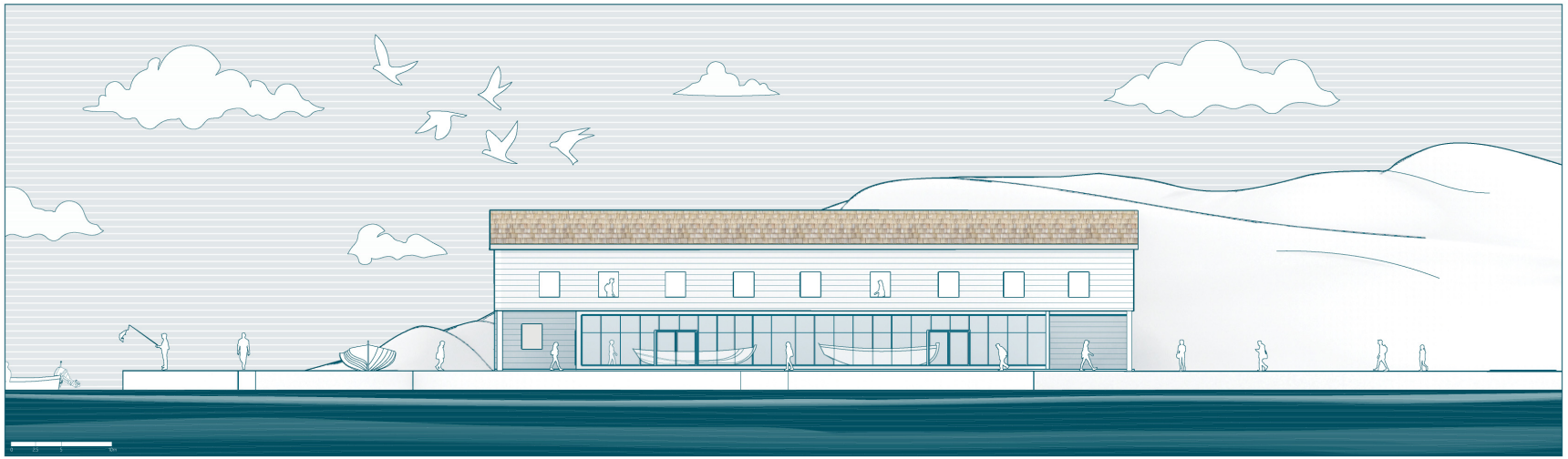

Fig. 75. North elevation drawing of the store, showcasing glimpses of boat building activities along the harbour.

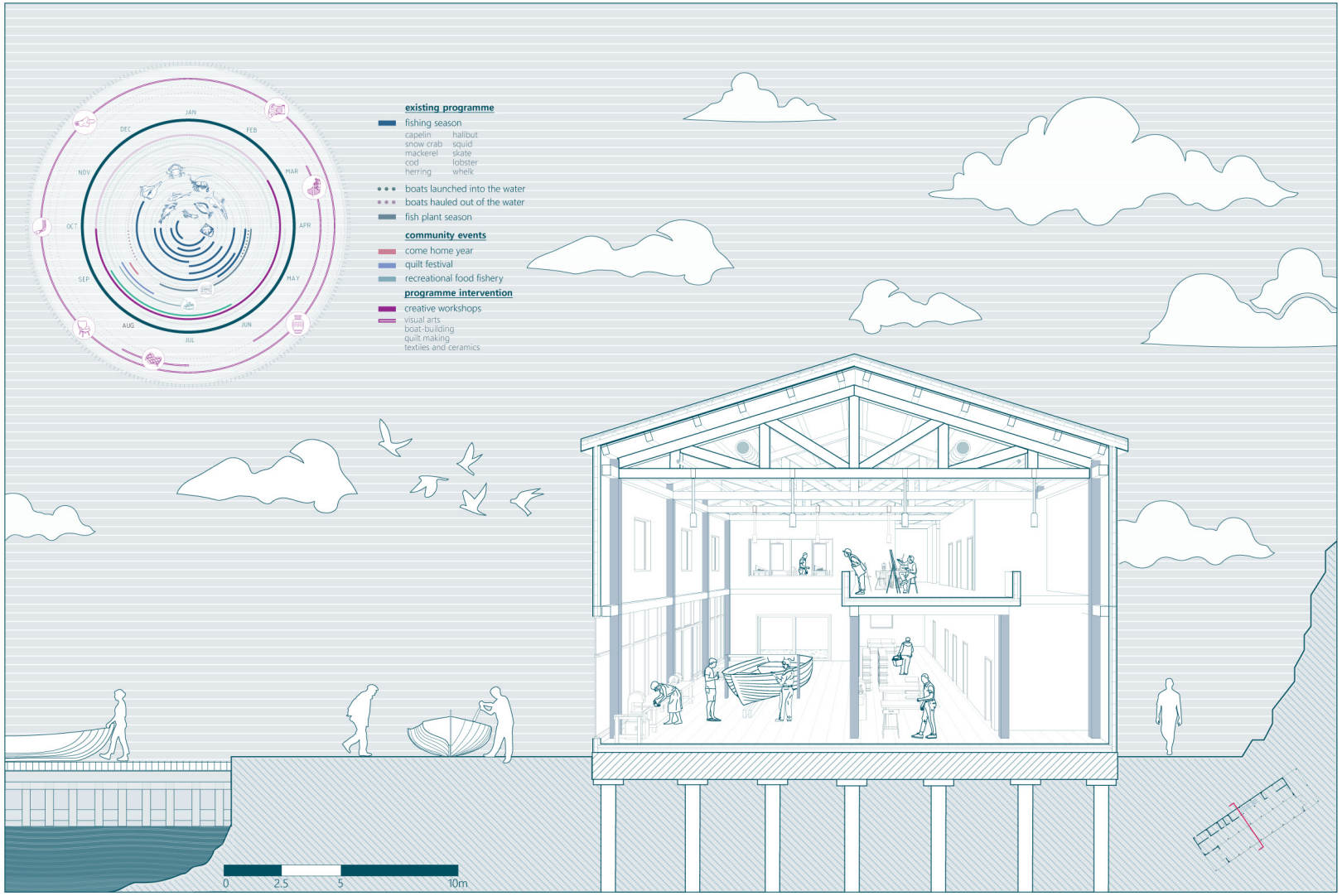

Fig. 76. East section drawing of the store, illustrating programme interactions.

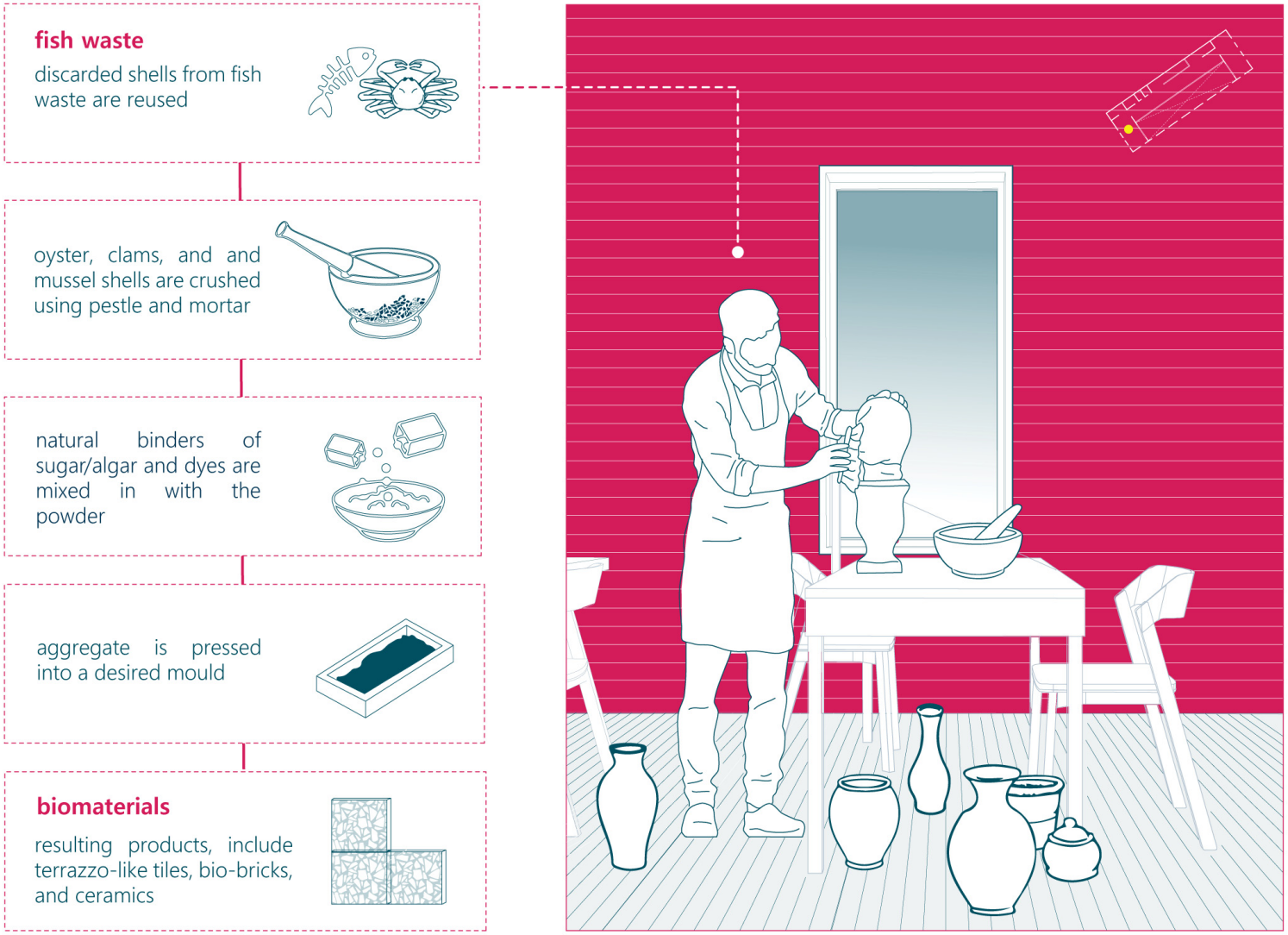

Fig. 77. Diagram illustrating the process of transforming fish bones and shell waste into biomaterials within the ceramics lab.

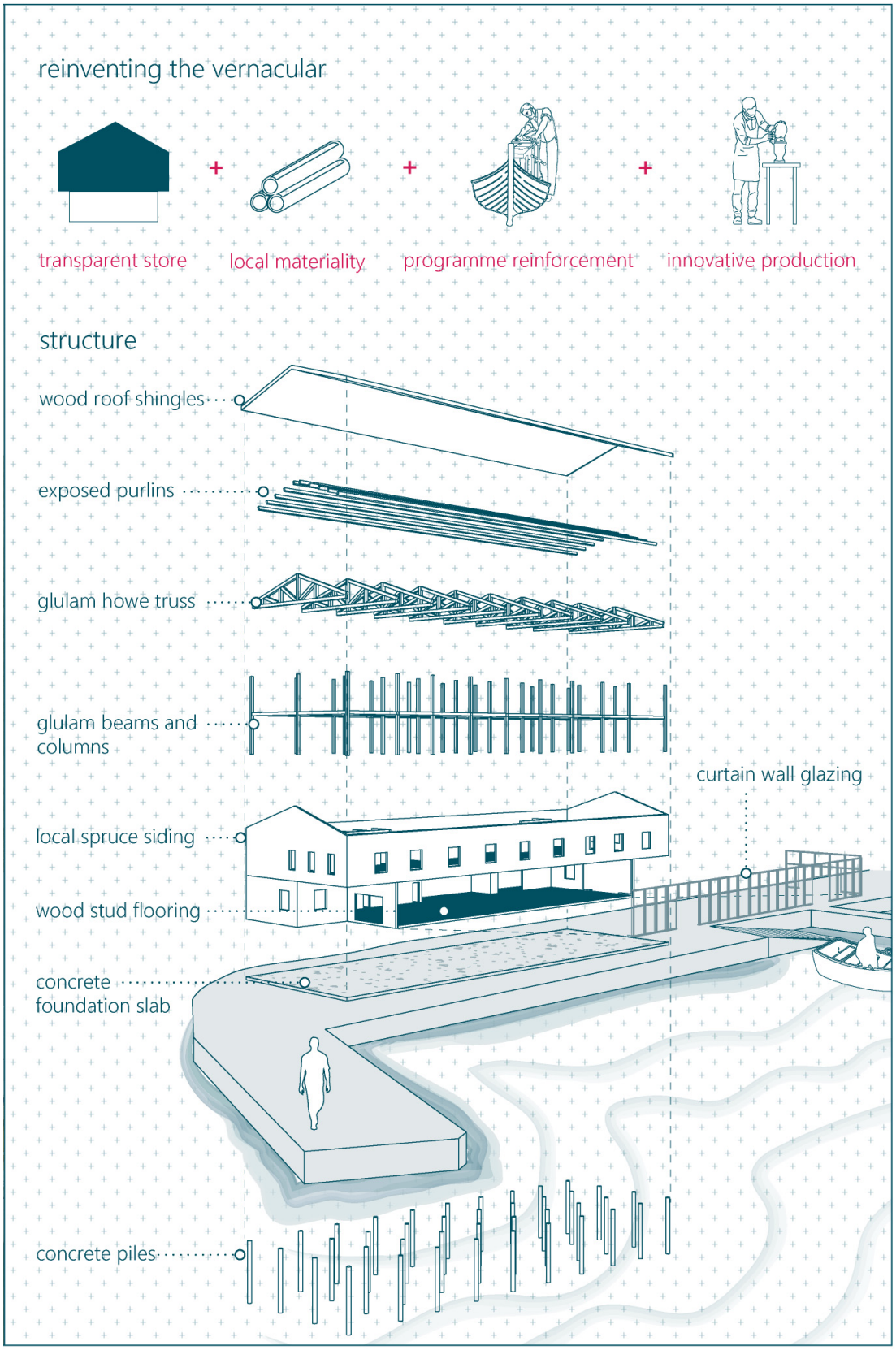

Fig. 78. Exploded axonometric drawing of the store's building structure.

The Flake: Hydroponic Facility

A flake is defined as a raised wooden platform used for drying fish while acting as a bridge between land and sea (Mellin 2003, 235). This thesis reintroduces the flake to the landscape as a hydroponic facility, engaged in growing fresh produce by drying and composting fish waste using a nutrient film technique (NFT) to be readily available year-round. Subsistence activities of farming and gardening in Bay de Verde is slightly observed today, in which a few residents engage in gardening by growing limited vegetables in their front yard, such as potatoes, and berries during the summer months. However, the lack of local markets, and community gardens within the site contribute to inaccessible fresh produce year-round, particularly during the winter months.

The flake allows the community to persist in farming culture, using existing resources as well as innovative technology to adapt to changes in agriculture while shrinking the gap between rural and urban areas.

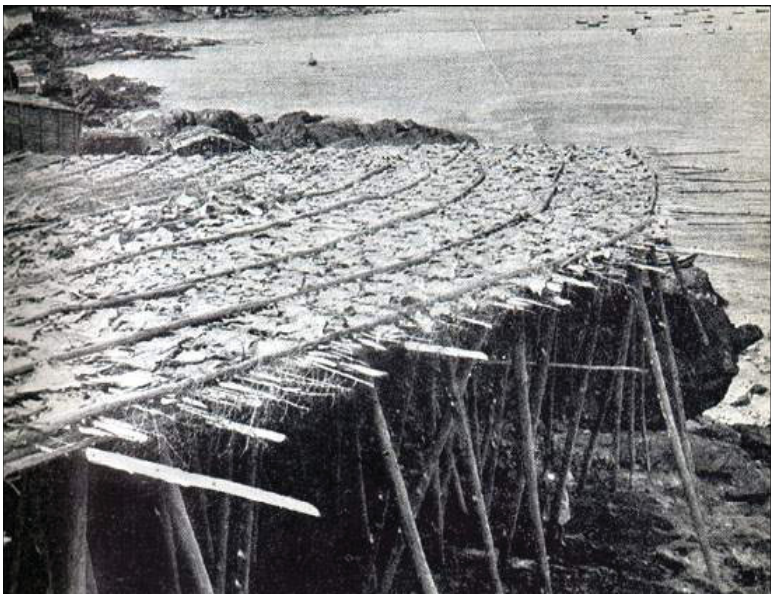

Fig. 79. Traditional fish flake in Newfoundland, used for drying fish (O'Dea 1998).

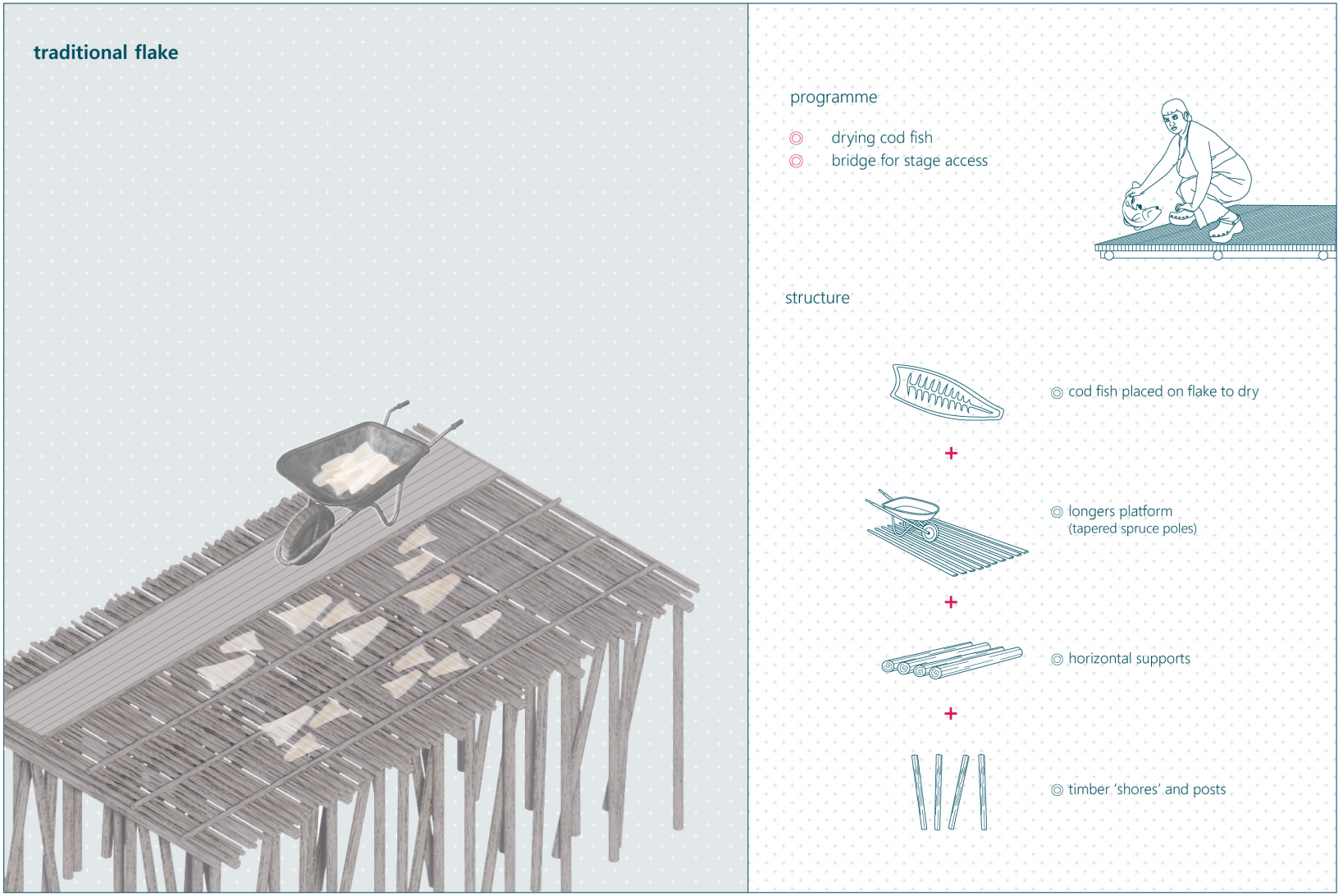

Fig. 80. Diagram illustrating the structure and programmatic functions of a traditional fish flake in Newfoundland (Information from O'Dea 1998).

Programme

The ground level comprises racks of NFT hydroponics, with LED lights, water pump system as well as fans for indoor air control and circulation. Additionally, the building contains a utility room, and composting area to reuse accumulated fish waste from the fish processing plant as fertilizer for plants.

The top level comprises a lab room for seed germination, in which growing mediums, such as rockwool or coco coir is used to plant seeds prior placing it into the hydroponic system. Seeds are borrowed from the nearby community of Old Perlican, in which they typically acquire the seeds from a farmers' market on the roadside in the summer.

Fig. 81. Perspective drawing of one's approach to the flake building.

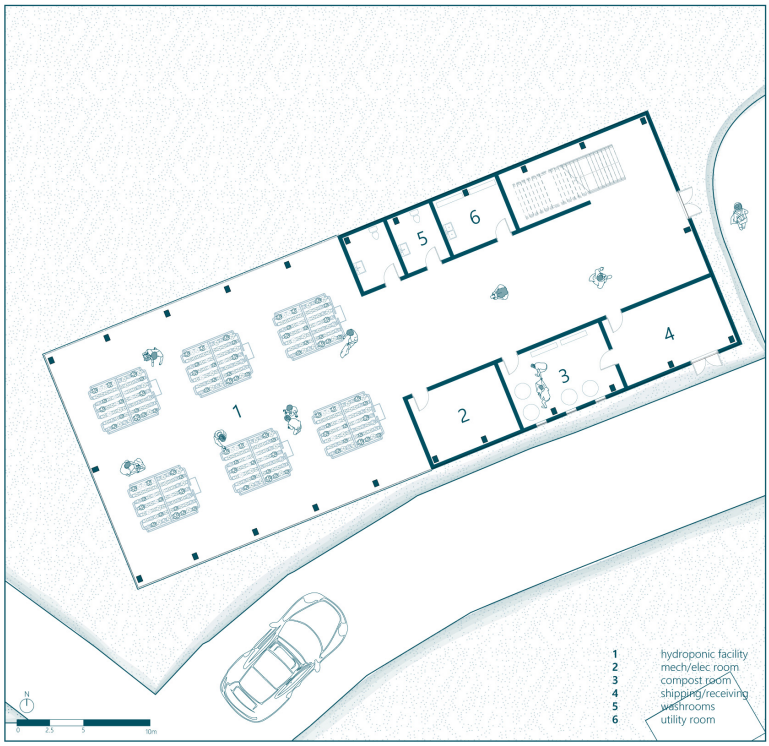

Fig. 82. Ground floor plan drawing of the flake.

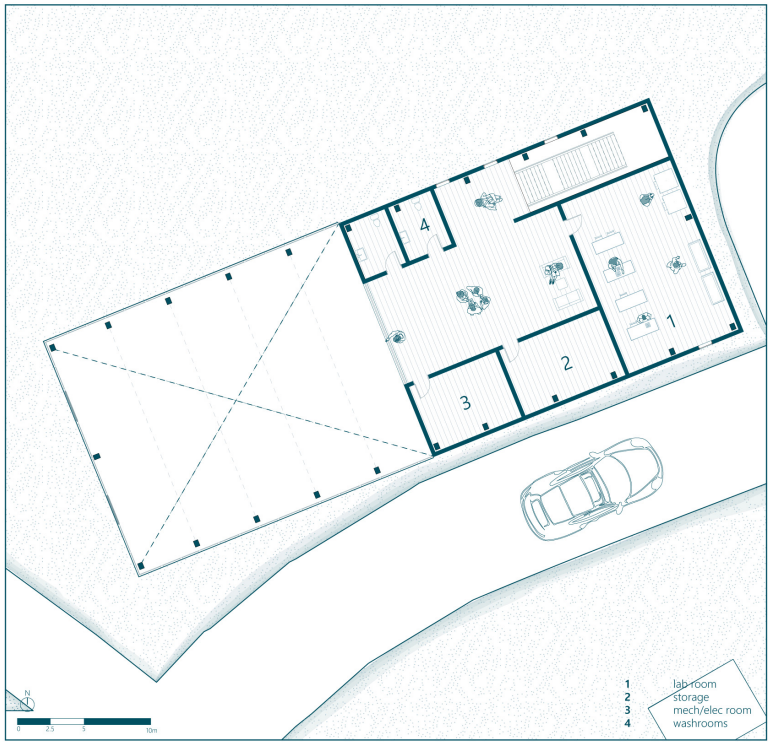

Fig. 83. Upper floor plan drawing of the flake.

Fig. 84. Rendering of inside the flake, showcasing the hydroponic facility.

Fig. 85. Rendering of the composting space, in which fish waste is reused as fertilizer for plants.

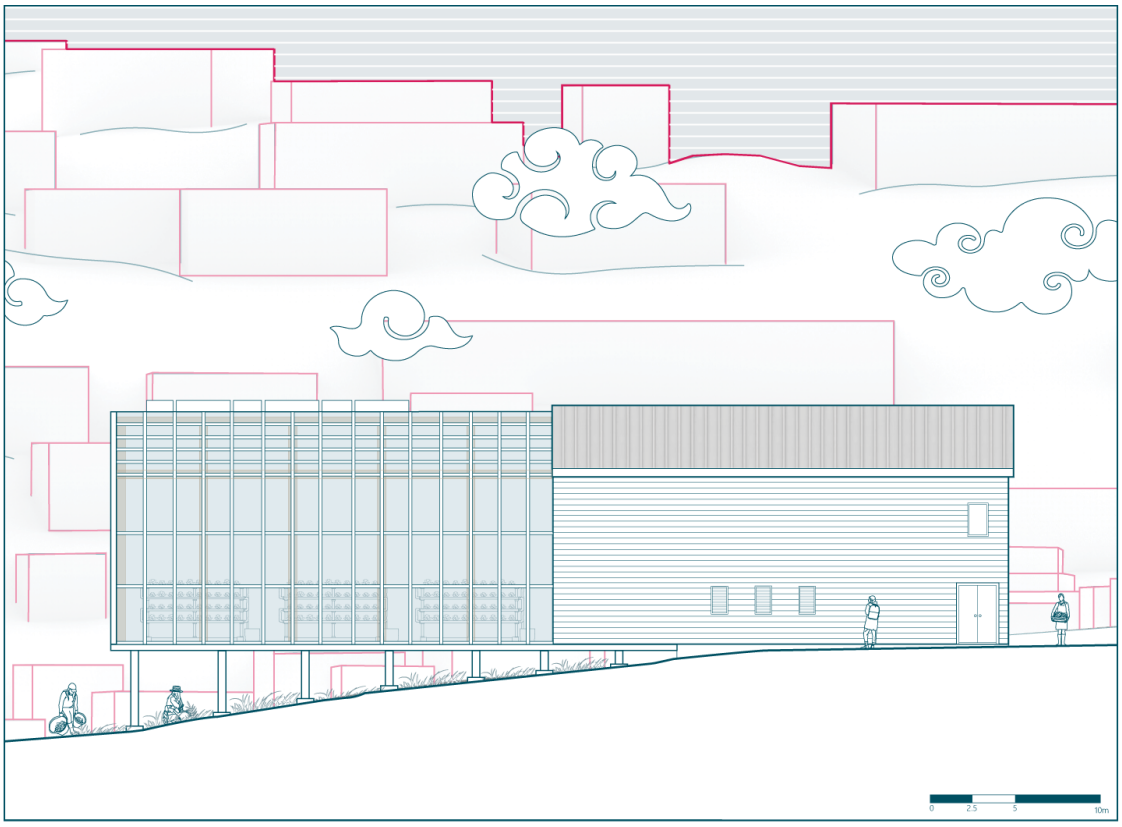

Fig. 86. North elevation drawing of the flake.

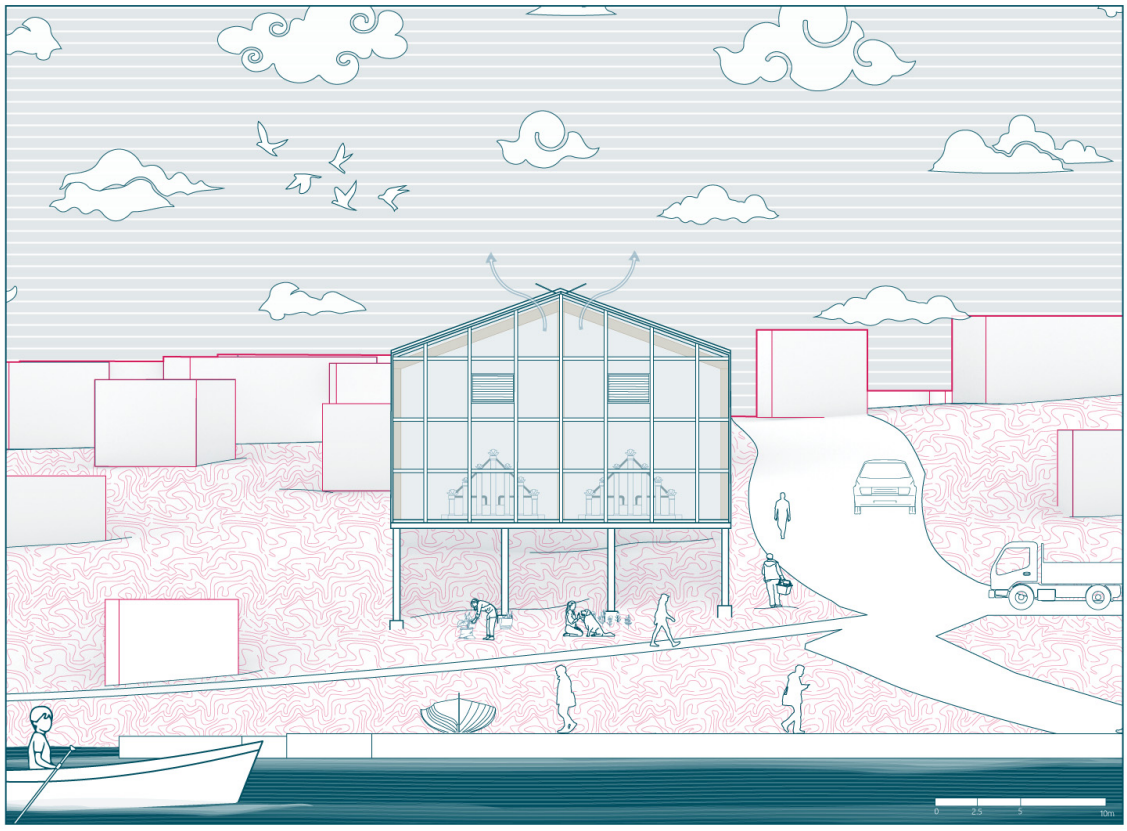

Fig. 87. West elevation drawing of the flake.

Nutrient Film Technique (NFT)

The hydroponic infrastructure employs a nutrient film technique that uses a water pump to deliver fertilized water, containing fish emulsion to the growing tray or pvc pipes and an overflow drainpipe to recycle the nutrient solution. Additionally, the drip lines and water pump are connected to time sensors, monitoring PH values, nutrient solution concentration and temperature control (Woodard 2019). Furthermore, an automation software app is developed to allow the community of Bay de Verde and its users to monitor the facility anytime and anyplace while connecting to several hydroponic farms within the province and worldwide, exchanging knowledge and information regarding harvest.

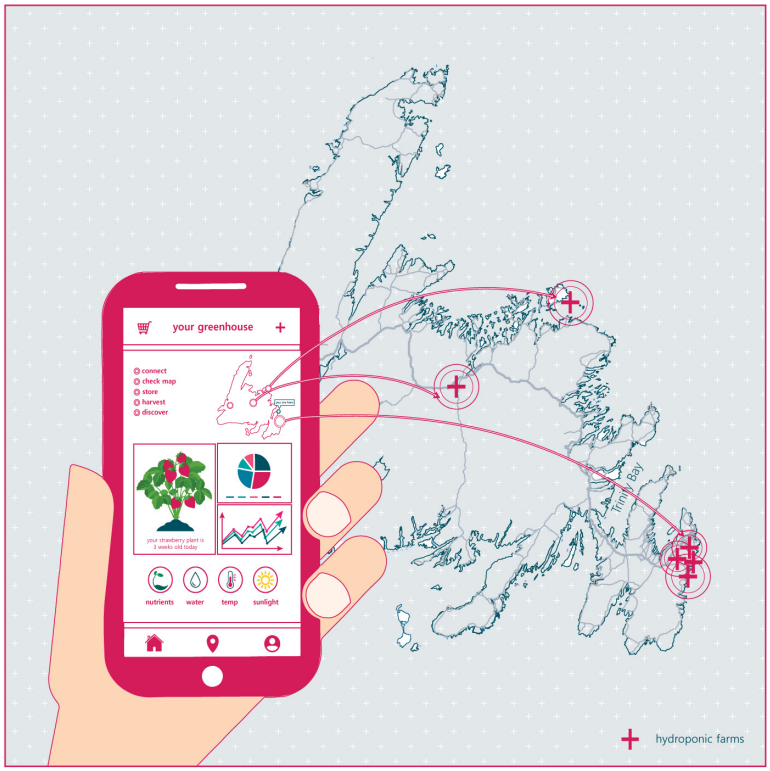

Fig. 88. Diagram of software app created to monitor and track harvests while connecting to worldwide farmers (Base map from GNL 2022).

The flake operates year-round, starting with composting fish waste during the summer months, then functioning during the winter in which fresh produce of lettuce, spinach, kale, and other vegetables are available for the community during periods of winter isolation. The programme further integrates an educational sector within cultural tourism as well as the curriculum of elementary schools to learn about the stages of growing vegetables and fruits using soilless technology.

Structure

The traditonal flake reinforms a new vernacular, in which exposed wood framing portray the lattice pattern of a flake, while integrating a steel rafter and purlin system along with curtain wall glazing to house the facility.

The building sits on steel piers, visually transitioning from land to sea as one enters the wood enclosed space and gradually into a transparent glass structure that overlooks the Foreside. The structure is composed of wood stud framing, with timber columns enclosed within a steel rafter and purlin system, and glass and polycarbonate panels encompassing the hydroponic facility. Additionally, louvers and roof vents ensure air control and circulation is adequate and efficient within the space.

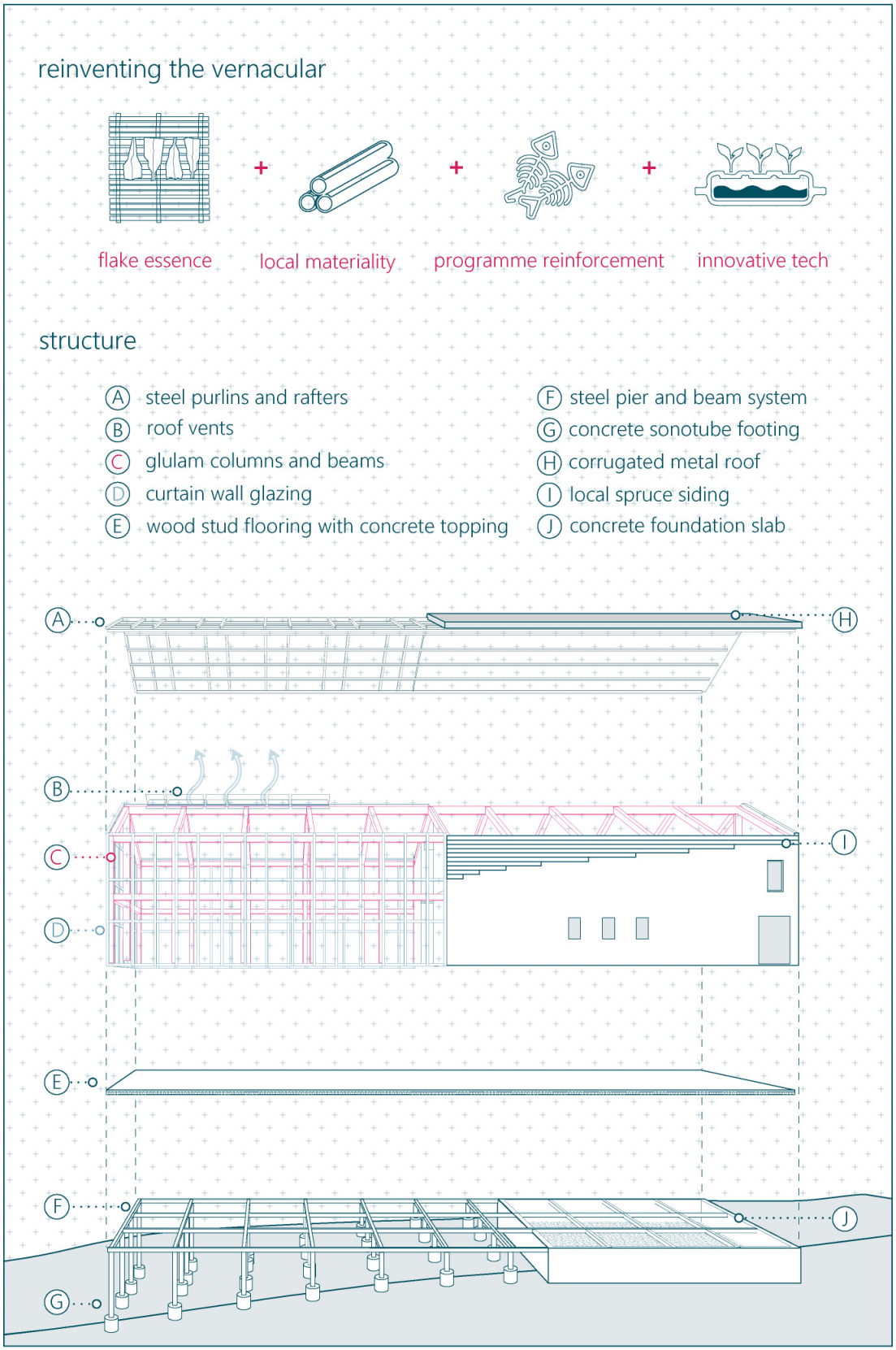

Fig. 89. Exploded axonometric drawing of the flake's building structure.

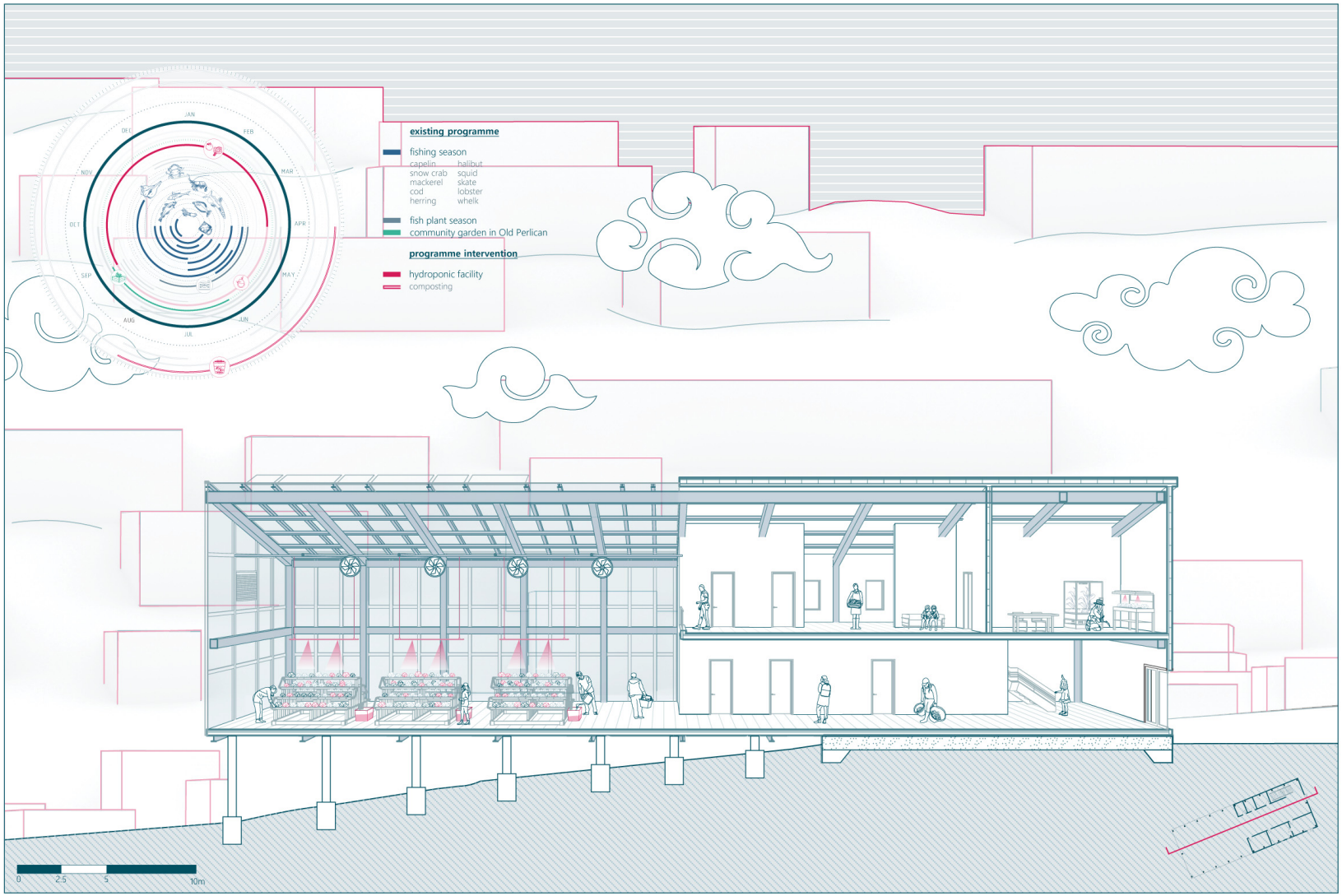

Fig. 90. North section drawing of the flake, illustrating programme interactions.

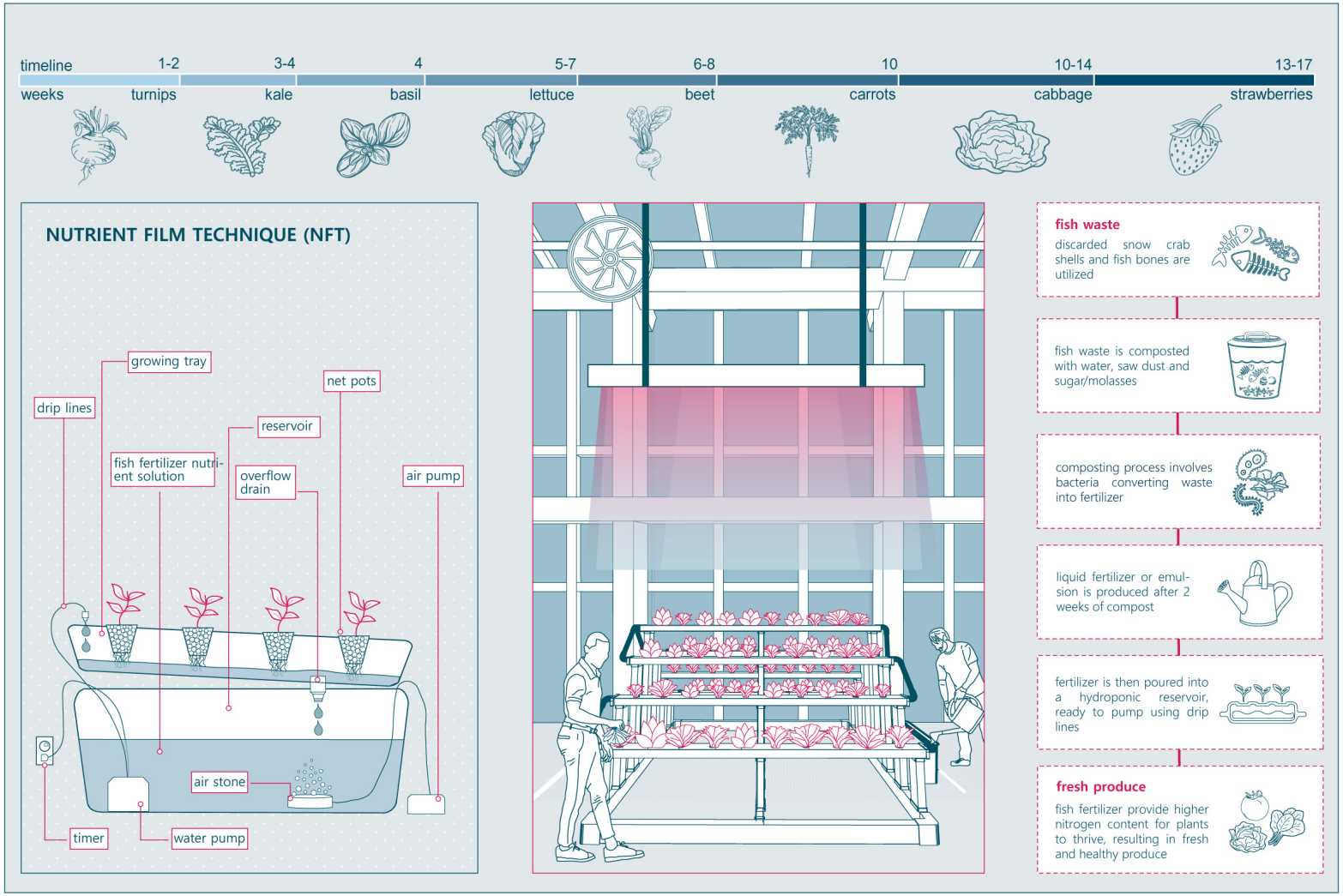

Fig. 91. Diagrams illustrating the nutrient film technique system (left), the method of transforming fish waste into fertilizer for plants (right), and the hydroponic timeline for certain crops to grow (top) (Information from Woodard 2019).

Community Cellar: Shed and Root Cellar

A root cellar is defined as a partially underground structure used for storing and preserving food to prevent spoilage throughout the year (Mellin 2003, 9). This thesis reintroduces the root cellar to the landscape by integrating a community shed, used for communal dining, shed parties, and socializing. This secondary programme allows the community to persist in a sustainable and self-sufficient lifestyle by planting, harvesting, preparing, and preserving food in adjacent to growing and cooking food in the stage market and flake facility.

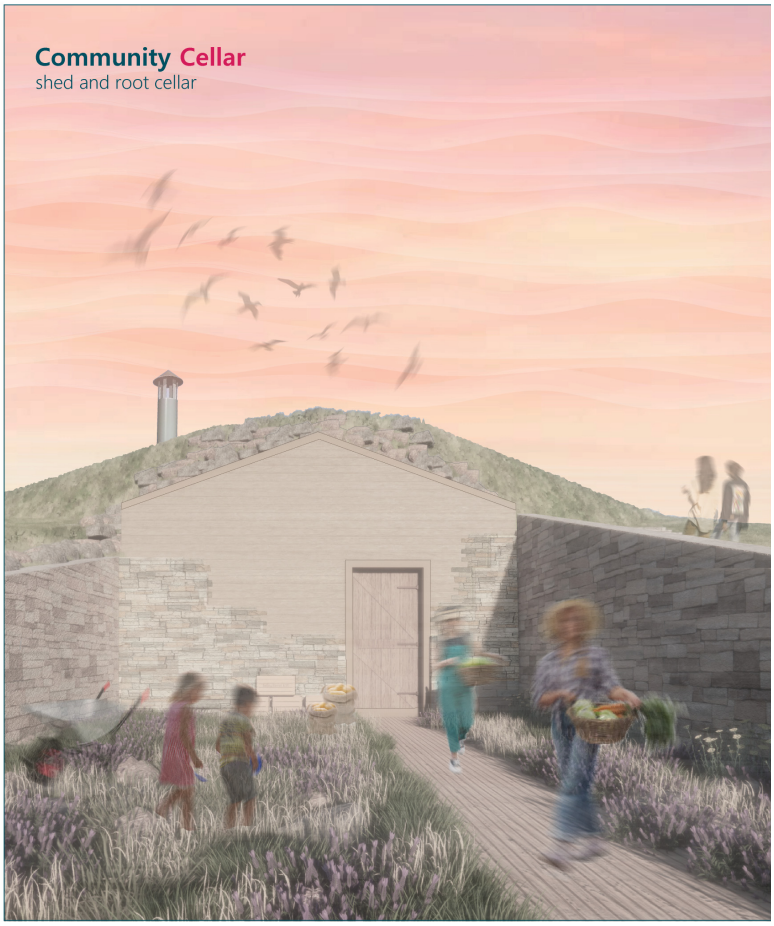

Fig. 92. Perspective drawing of one's approach to the community cellar.

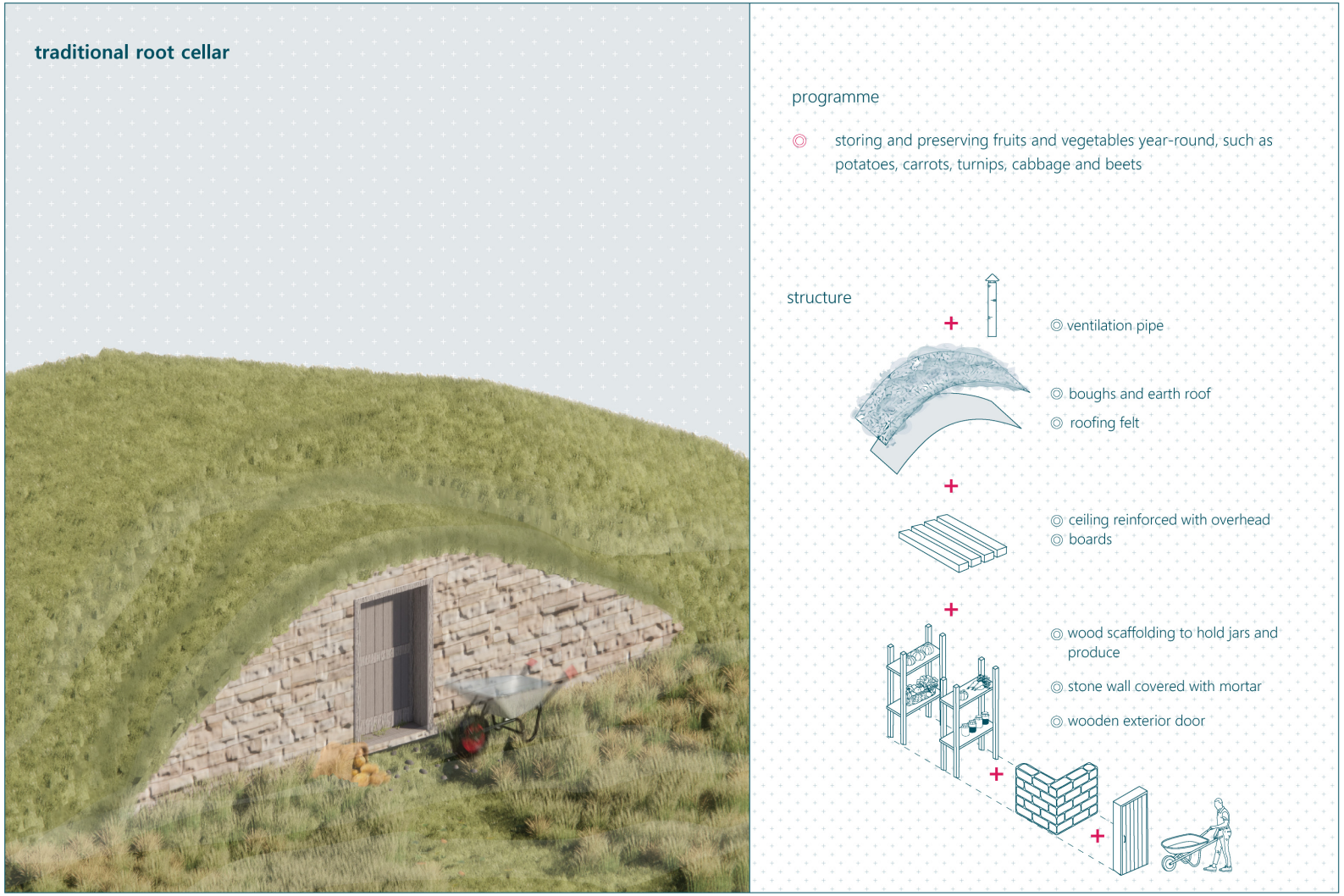

Fig.93. Diagram illustrating the structure and programmatic functions of a traditional root cellar in Newfoundland (Information from Heritage NL n.d.).

Programme

The building functions year-round in adjacent to the hydroponic facility and stage market, in which fresh produce and preserves are sustainably stored and preserved during the winter and kept cool during the summer. The ground level is a community shed, comprising an airy and bright space that allows the community to socialize around food and engage in shed parties, especially during the harsh winter season. The bottom level is a root cellar, containing several pounds and shelves used for storing potatoes, turnips, cabbages, and beets that sits on a dirt gravel floor to keep humidity controlled for storing produce.

Fig. 94. Traditional root cellar in Elliston, Newfoundland (Heritage NL n.d.).

Structure

The traditional root cellar reinforms a new vernacular, in which a schooner boat is repurposed as a roof structure for the shed, along with reusing existing stones as retaining walls, while integrating concrete blocks for the structural walls of the cellar. Additionally, circular light tubes are inserted within the roof structure to permit a bright and airy space.

Fig.95. Photograph of a typical schooner boat in Newfoundland (WoodenBoat Magazine n.d.).

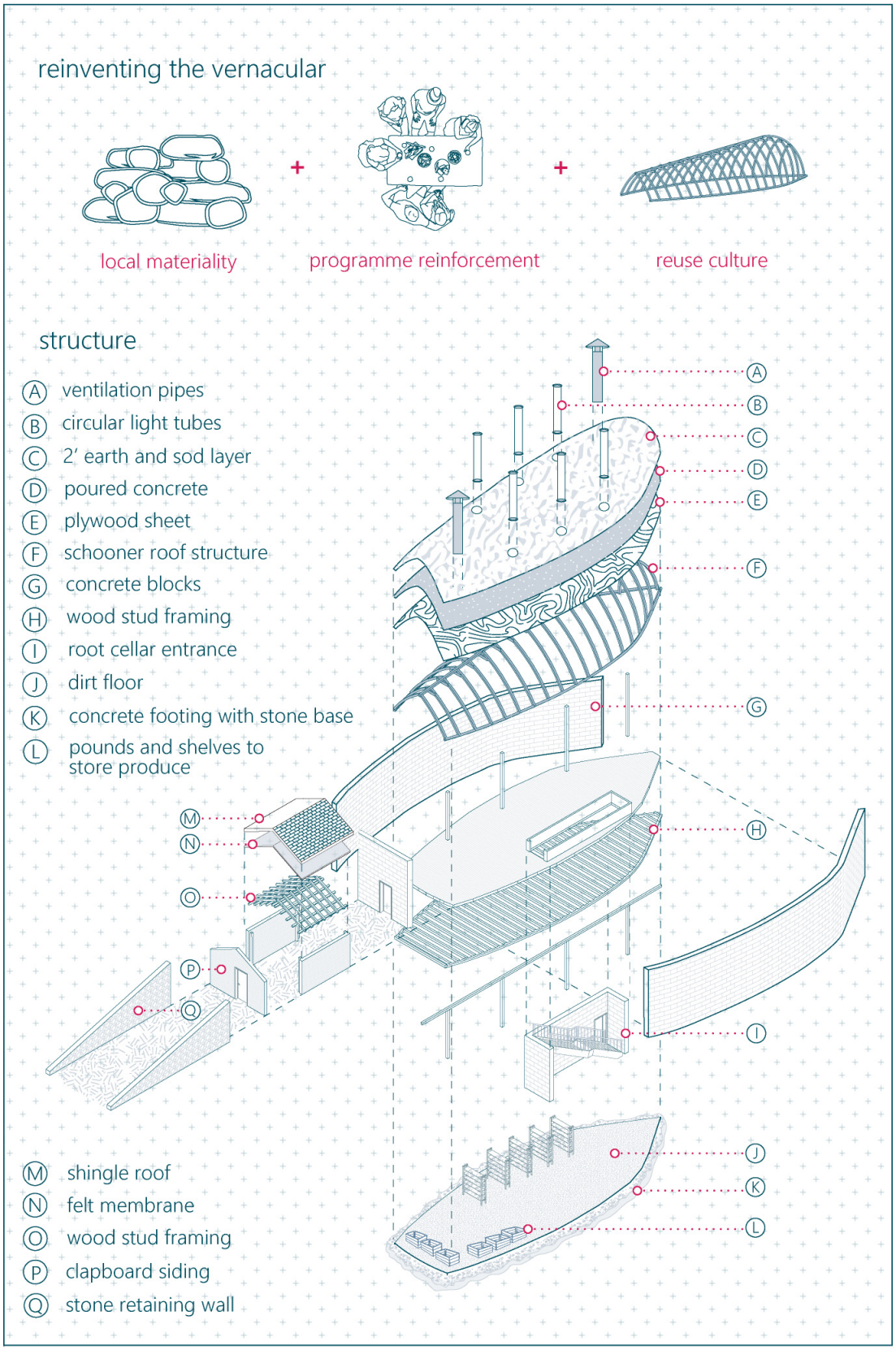

Fig.96. Exploded axonometric drawing of the community cellar's building structure.

Fig. 97. Rendering of the community shed above the root cellar.

Fig. 98. Rendering of the root cellar used for storing and preserving foods.

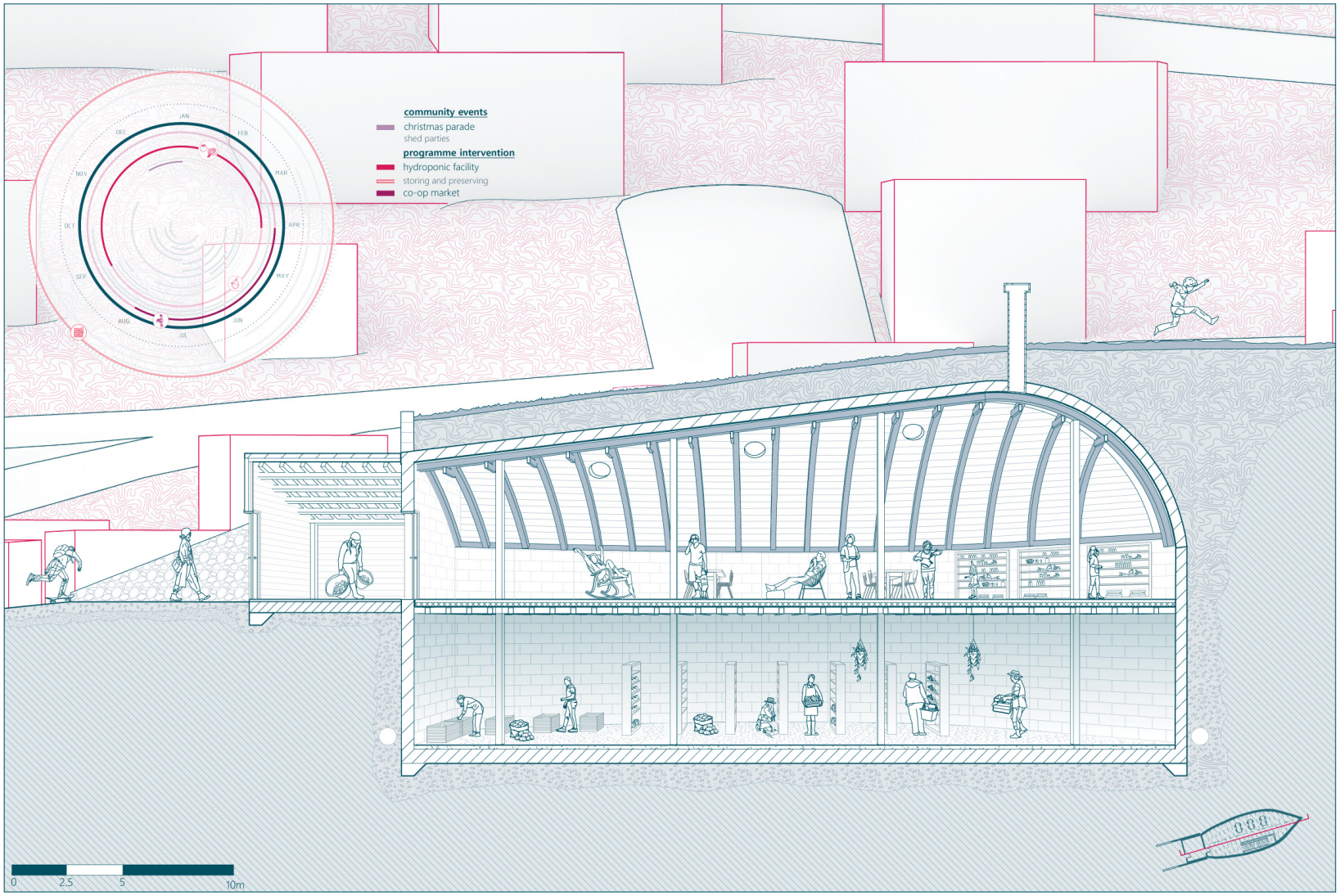

Fig. 99. North section drawing of the community cellar, illustrating programme interactions.

The Stage: Co-op Market

A stage is defined as a shed along the shoreline used by fishermen to land and split their fish, tie their boats, store fish gear, and build flakes to dry their fish (Mellin 2003, 236). This thesis reintroduces the stage to the landscape as a co-op market, engaged in cooking and sharing locally made food, in which a communal space is integrated to prepare and cook freshly caught fish and eat homemade meals, such as fish and brewis, bakeapple pie, cod tongues, and scrunchions, and can be later packaged and shared with neighbouring communities in addition to distributing fresh produce obtained from the hydroponic facility.

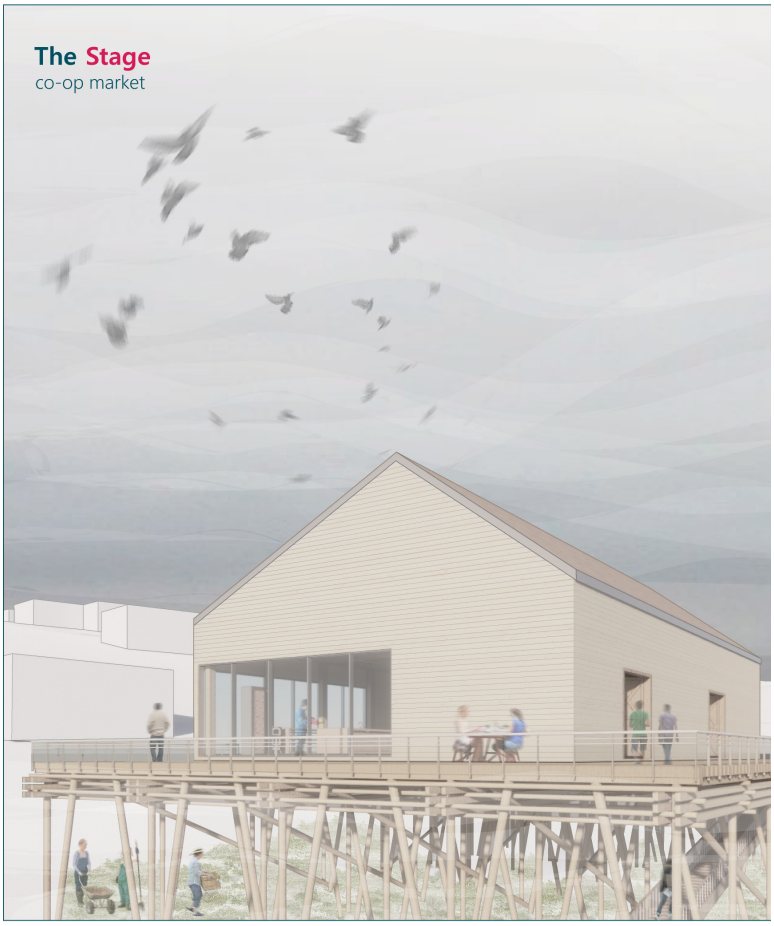

Fig. 100. Perspective drawing of the stage building.

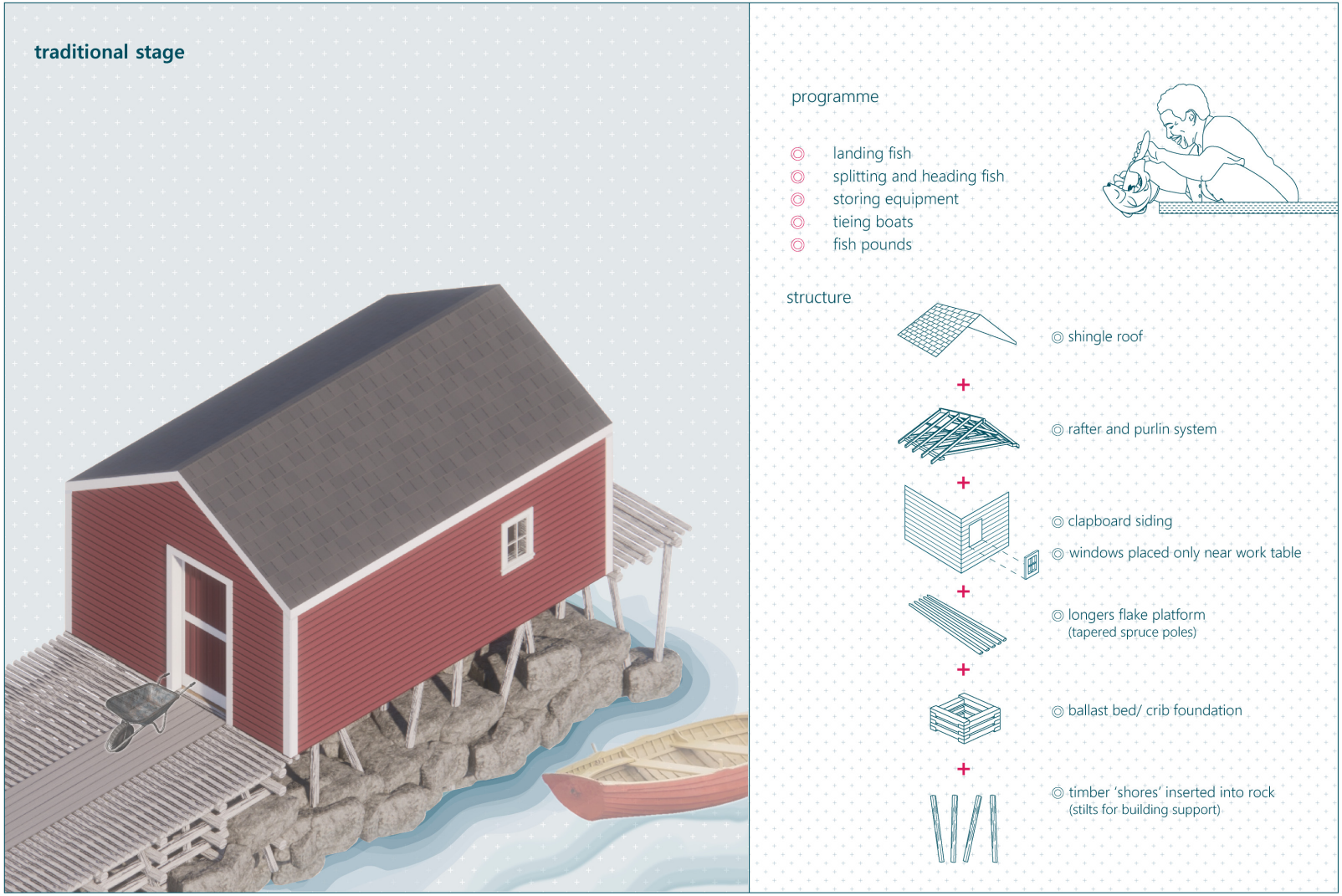

Fig.101. Diagram illustrating the structure and programmatic functions of a traditional stage in outport Newfoundland (Information from O'Dea 1998).

Programme

The building sits on an emulated flake platform, allowing access to the building from a ramp while offering individuals an experiential moment walking underneath the locally crafted platform. An entry to the communal cooking and dining space features a food prep area and workstations, in which fish can be dried and hanged from low-level trusses, as well as an entry to the market space, featuring shelves of locally made and packaged food.

Fig. 102. Traditional fish stage in Newfoundland (O'Dea 1998).

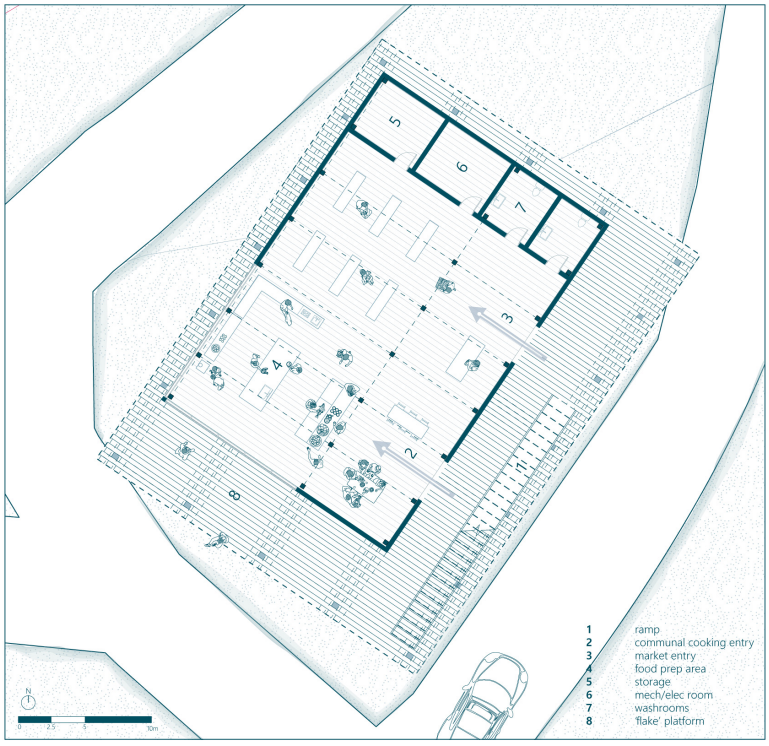

Fig. 103. Ground floor plan drawing of the stage.

Fig. 104. Rendering of the communal cooking space inside the stage.

Fig. 105. Rendering of the pathway under the stage platform.

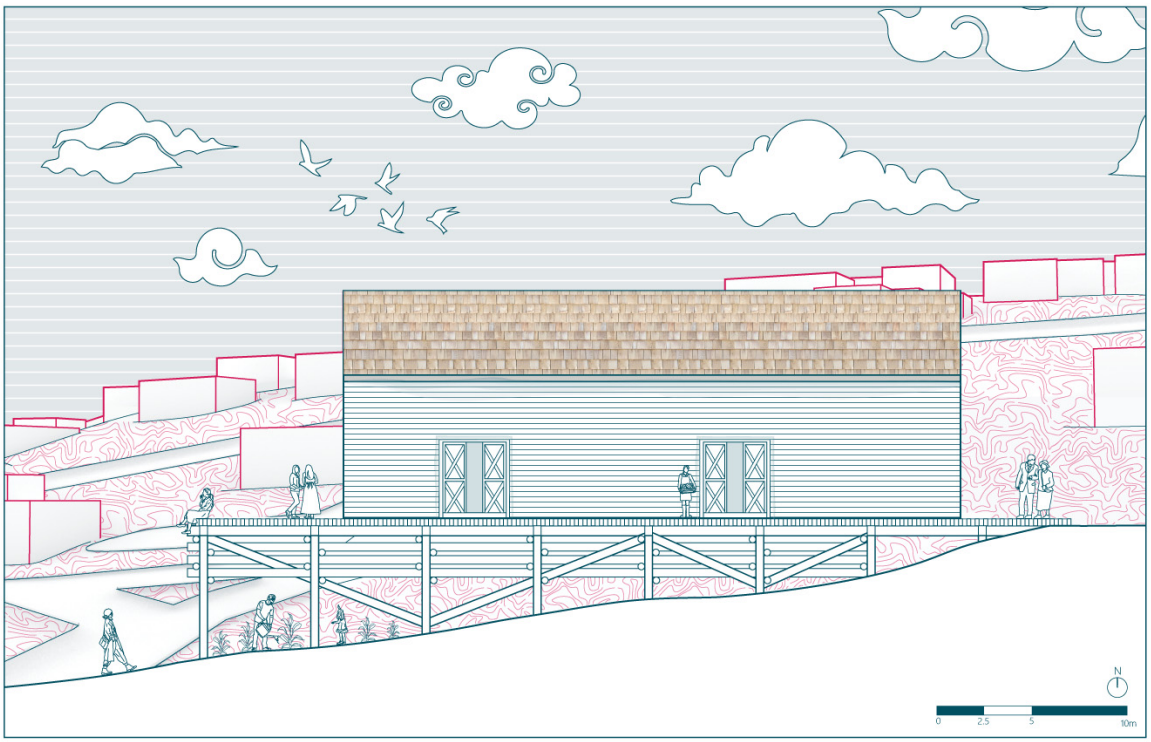

Fig. 106. North elevation drawing of the stage, in which a community garden can take place under the platform.

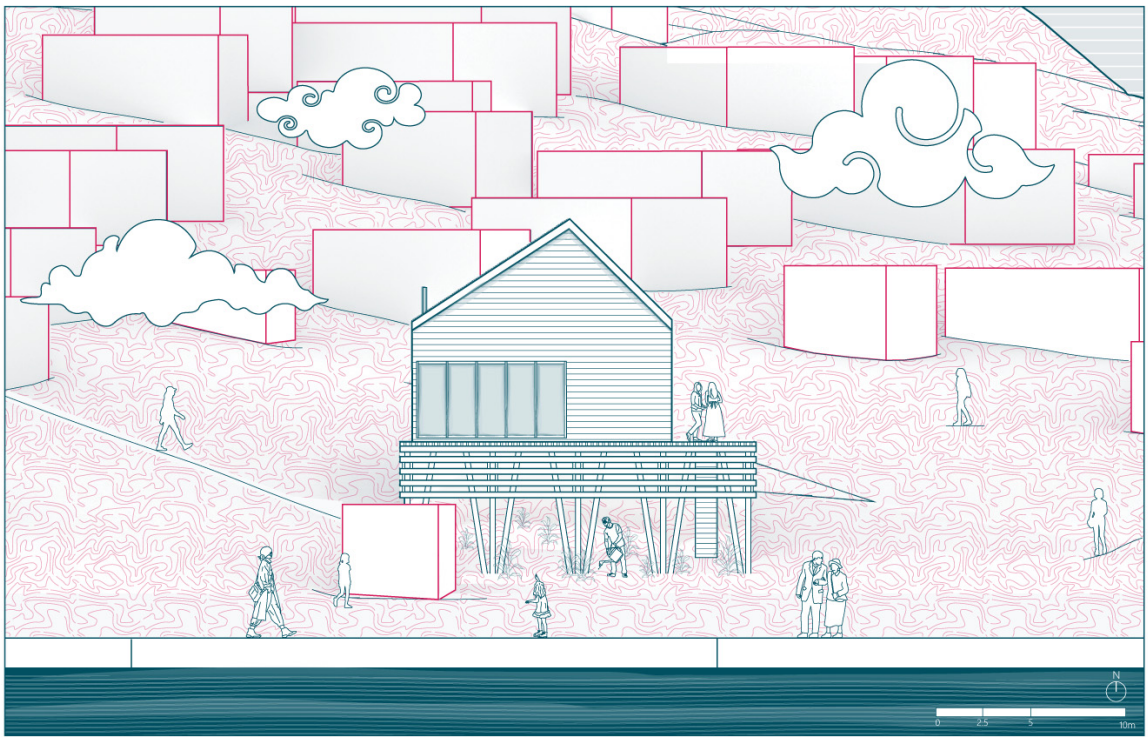

Fig. 107. West elevation drawing of the stage.

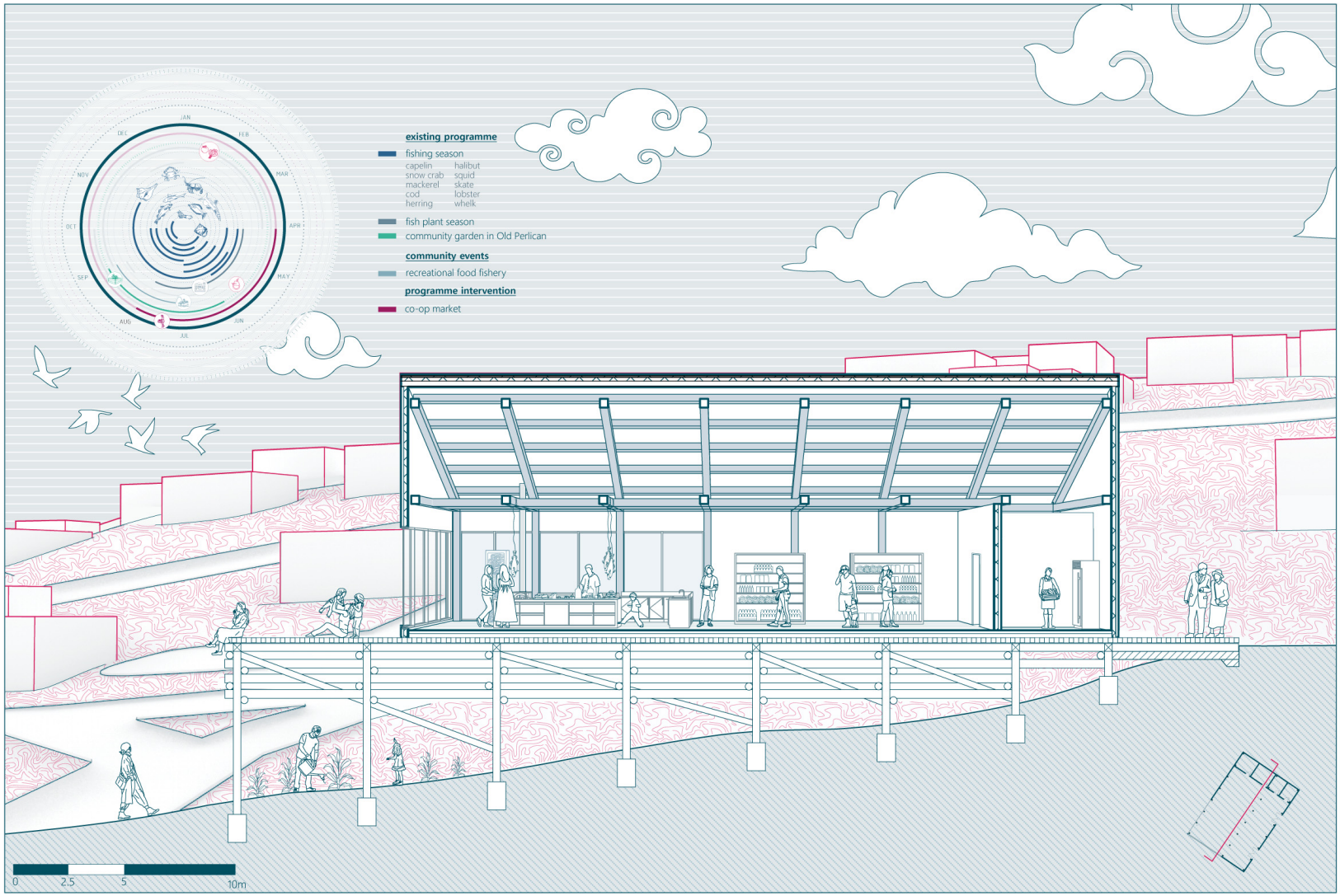

Fig. 108. North section drawing of the stage, illustrating programme interactions.

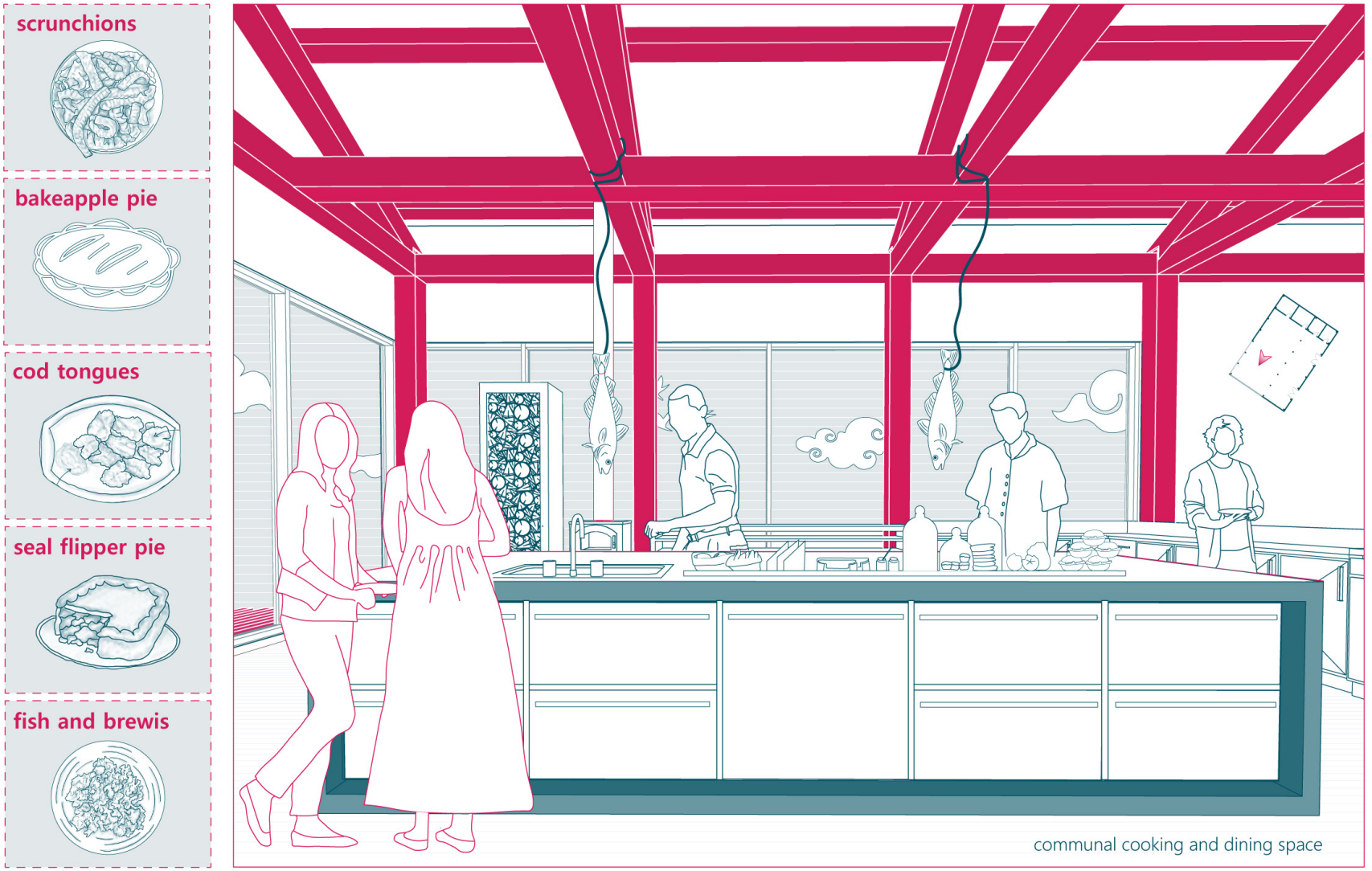

Fig. 109. Diagram of the communal cooking space, in which freshly caught fish is prepared and cooked to share amongst community.

Structure

The traditional stage reinforms a new vernacular, in which the building features local spruce siding and wood roof shingles, as well as opens up to the Foreside, is raised above ground level and sits on a locally constructed flake platform, composed of timber beams and braces. Additionally, the existing programme is reinforced by adding communal spaces, a local market and a community garden to be grown underneath the flake.

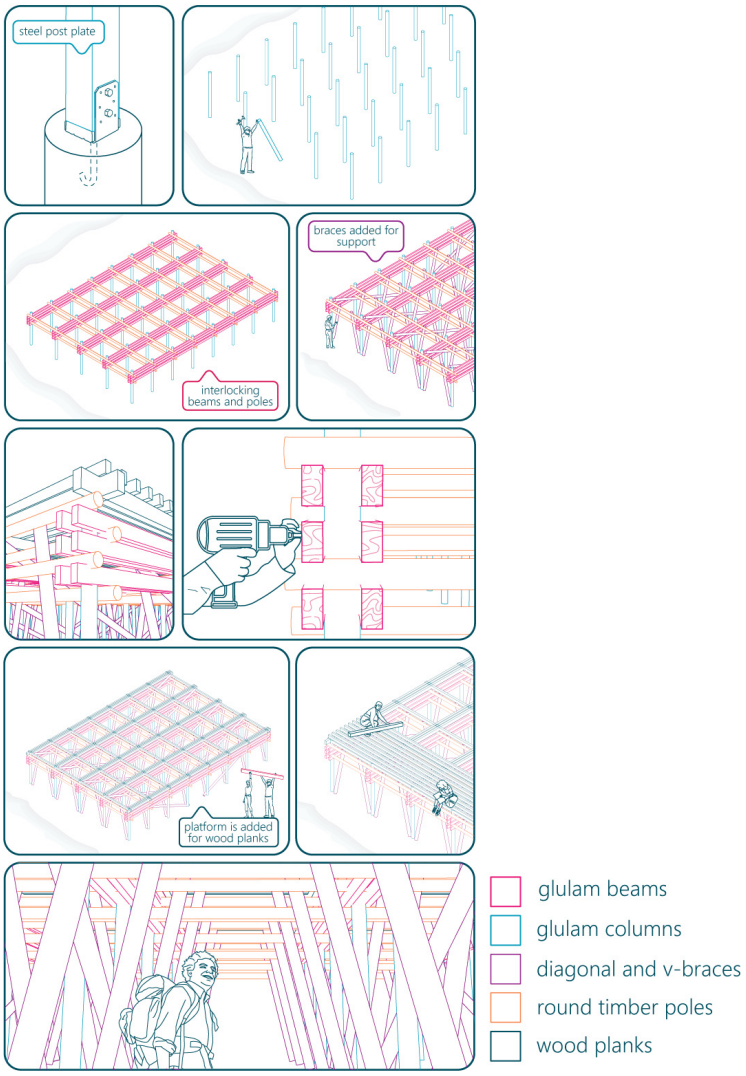

Fig. 110. Construction sequence drawing of the stage platform, locally constructed within the community.

Chapter 6: The Resilient Outport

The Blueprint

Implementing community hubs and food system infrastructure entails a holistic rural revitalization strategy which ensures a diversified and more resilient framework for self-sufficiency through a multitude of sectors of innovation, education, and ownership.

An interconnected system is employed through rural synergy in which actions of making, growing, and sharing are integrated within micro scale programs of creative workshops, co-op market and hydroponic facilities to foster new production from existing resources, further acting as a blueprint for outport Newfoundland.

Consequently, macro and micro scale approaches are set within the rural revitalization framework to encourage a sustainable route in achieving self-sufficiency within outports and rural coastal communities.

Micro-Scale: Outport Newfoundland

The micro-scale approach builds upon the strengths and assets of outport communities, utilizing existing resources and community skills to encourage new production. Micro-scale programs, such as creative workshops, co-op market, and hydroponic facilities are developed to support the socioeconomic challenges within outport Newfoundland, including rural abandonment and inaccessible food supply.

The proposed rural revitalization framework aims to achieve micro-scale goals by:

- Strengthening the social fabric through multifunctional programs

- Maintaining cultural practices through acts of making, growing, and sharing
- Fostering productive landscapes through utilizing industrial by-products for food production

Macro-Scale: Rural Communities

As cities continue to grow with advancing technologies and services, the spatial gaps between rural and urban areas are expanding, thereby demanding a holistic rural revitalization framework to facilitate the newfound synergy between the sectors. The macro-scale approach builds upon the broader polemics about rural-urban synergies, acknowledging the linkages of rural economies within rural communities.

The proposed rural revitalization framework aims to achieve macro-scale goals through:

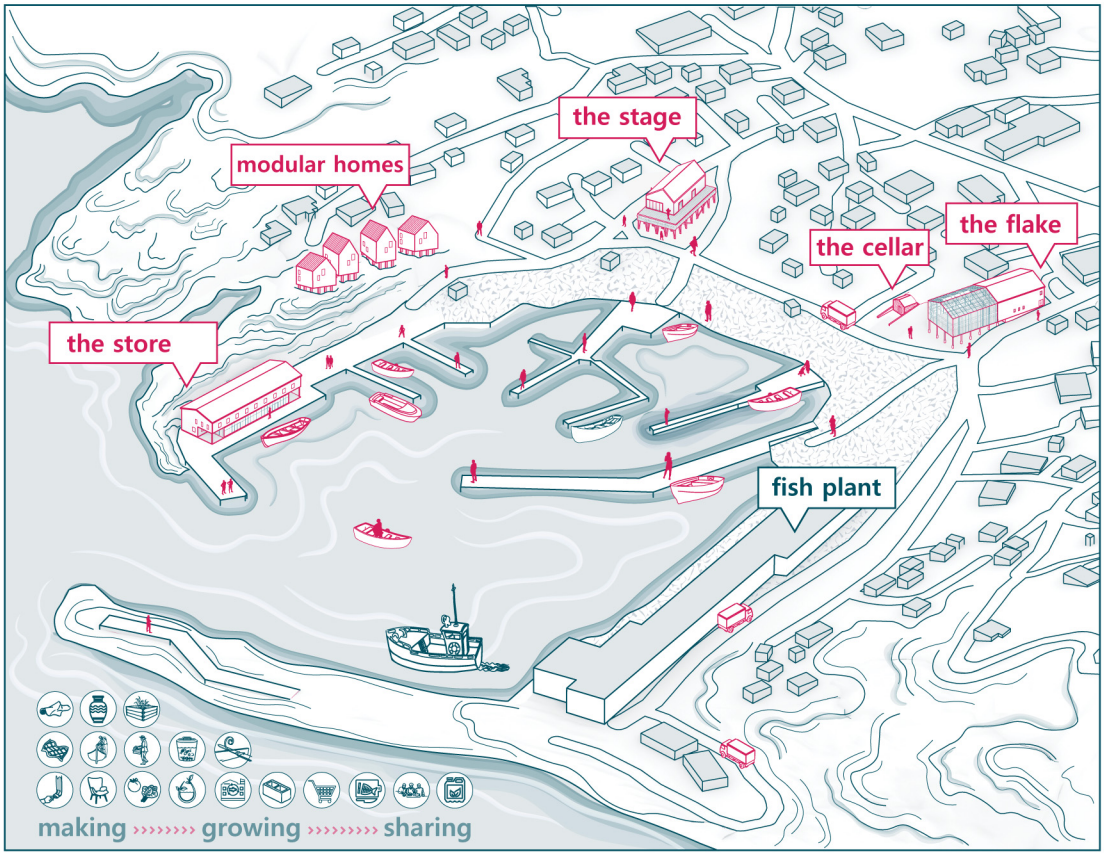

Fig. 111. Axonometric drawing of proposed programmes, surrounding the concept of rural synergy.

- Youth education of traditional skills to inform future viability of rural and coastal communities
- Innovation in creative practices and food production to tackle food insecurity
- Empowering local ownership through participation and decision-making

Rural-urban linkages can emerge through modes of innovation, education, and ownership, demonstrated architecturally through micro-scale programs, in which existing resources and communitity skills are utilized. This not only strengthens cultural production within the rural economy, but also connects urban and rural sectors while emphasizing production and labor practices, as well as self-sufficiency and mutual aid.

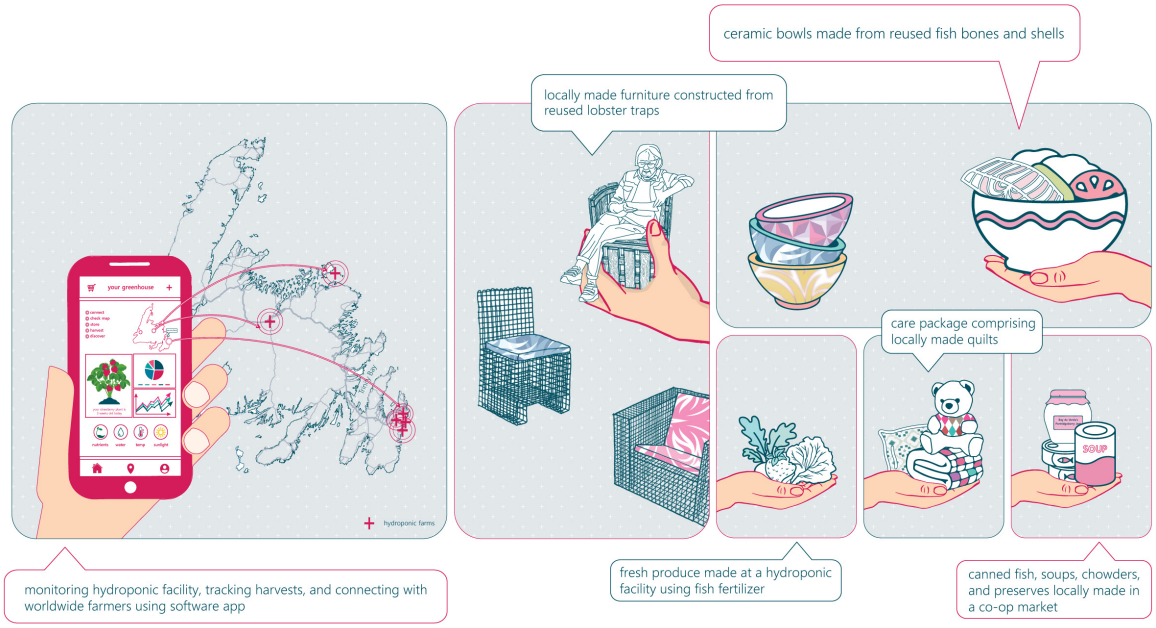

Fig. 112. Diagrams illustrating new production derived from micro-scale programs.

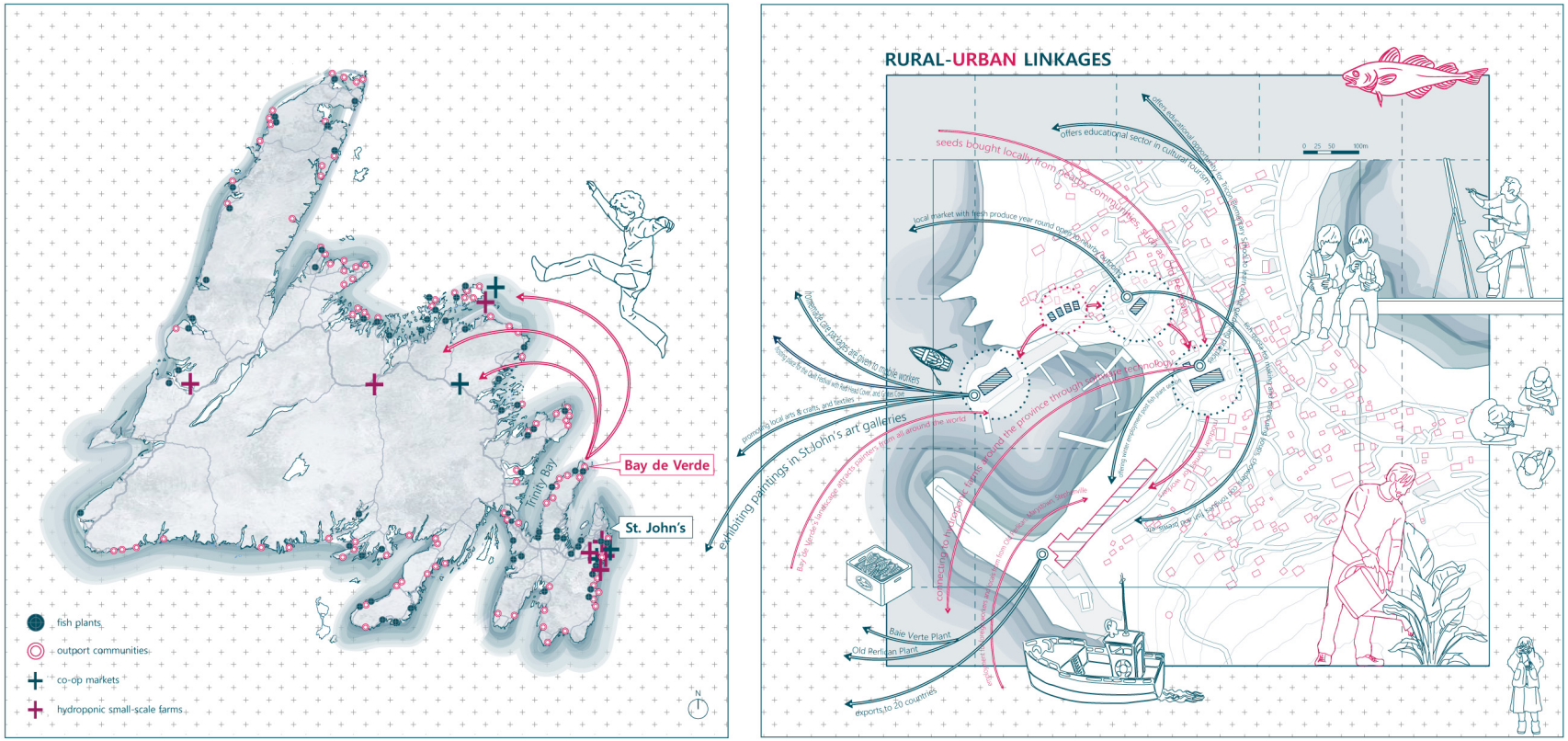

Fig. 113. Hybrid drawing illustrating the potential rural-urban linkages created from modes of production within rural communities (Base map from GNL 2022).

Chapter 7: Conclusion

The socioeconomic challenges caused by the resettlement program, industrialization of fisheries, cod moratorium, arrival of boom-bust industries, and outmigration to cities disrupted the cultural landscape of outports and its resilient way of life, causing rural abandonment and population ageing. The small outport community of Bay de Verde is among the many outports whose impacted by these challenges; however, its fish plant is what keeps this outport viable by processing tons of shellfish, yet it remains an unstable industry for the years ahead.

A holistic rural revitalization framework is employed to reconnect Bay de Verde's cultural landscape, integrating a set of architectural, urban, economic, and cultural principles which ensure a diversified and more resilient framework for self-sufficiency and growth. The framework develops a multitude of sectors, including innovation, education, and ownership which build upon the strengths and assets of outport communities, utilizing existing resources and community skills to encourage new production and community engagement.

Using the concept of rural synergy, which is defined by an interconnected system of making, growing, and sharing, a dynamic relationship between landscape and production is established, in which existing rural synergies of labour, resilience, and mutual aid observed within outports are resurged, facilitating self-sufficiency while maintaining cultural practices. These systems are employed within architecture interventions of micro scale programs, including creative workshops, hydroponics, and co-op market, in addition to secondary programmes of modular homes for

temporary and permanent workers, as well a community cellar for storing and preserving food year-round. Existing resources of industrial by-products generated from fish plants, and community skills of traditional fishing, farming, and carpentry practices are utilized within these programmes to encourage innovation, education, and ownership.

Ultimately, this thesis engages in broader polemics about rural-urban organizations while signifying the value of preserving cultural practices by reconnecting the cultural landscape to look forward to future opportunities in stimulating rural growth in shrinking communities, such as outports. Additionally, the proposed revitalization scheme provides a toolbox for understanding and learning a culture, and for intervening within vernacular architecture without compromising or drastically altering existing cultural practices.

Fig. 114. Hybrid drawing illustrating sense of place within Bay de Verde's landscape (Painting overlay from Ed Roche Newfoundland Art n.d.).

Appendix A: Mind Map

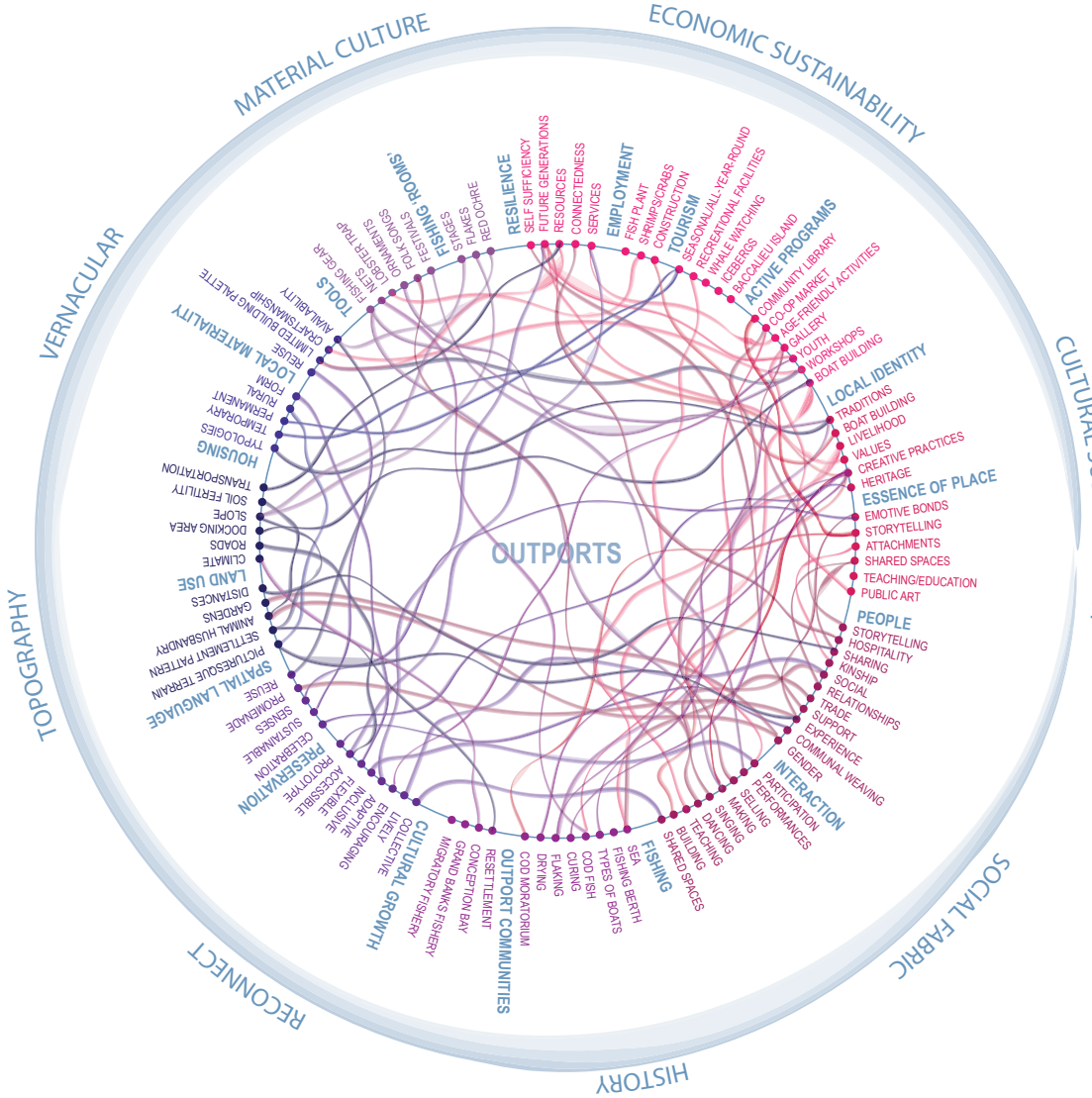

Fig. 115. Mind map of connections and methodologies used to approach thesis.

Appendix B: Site Observations

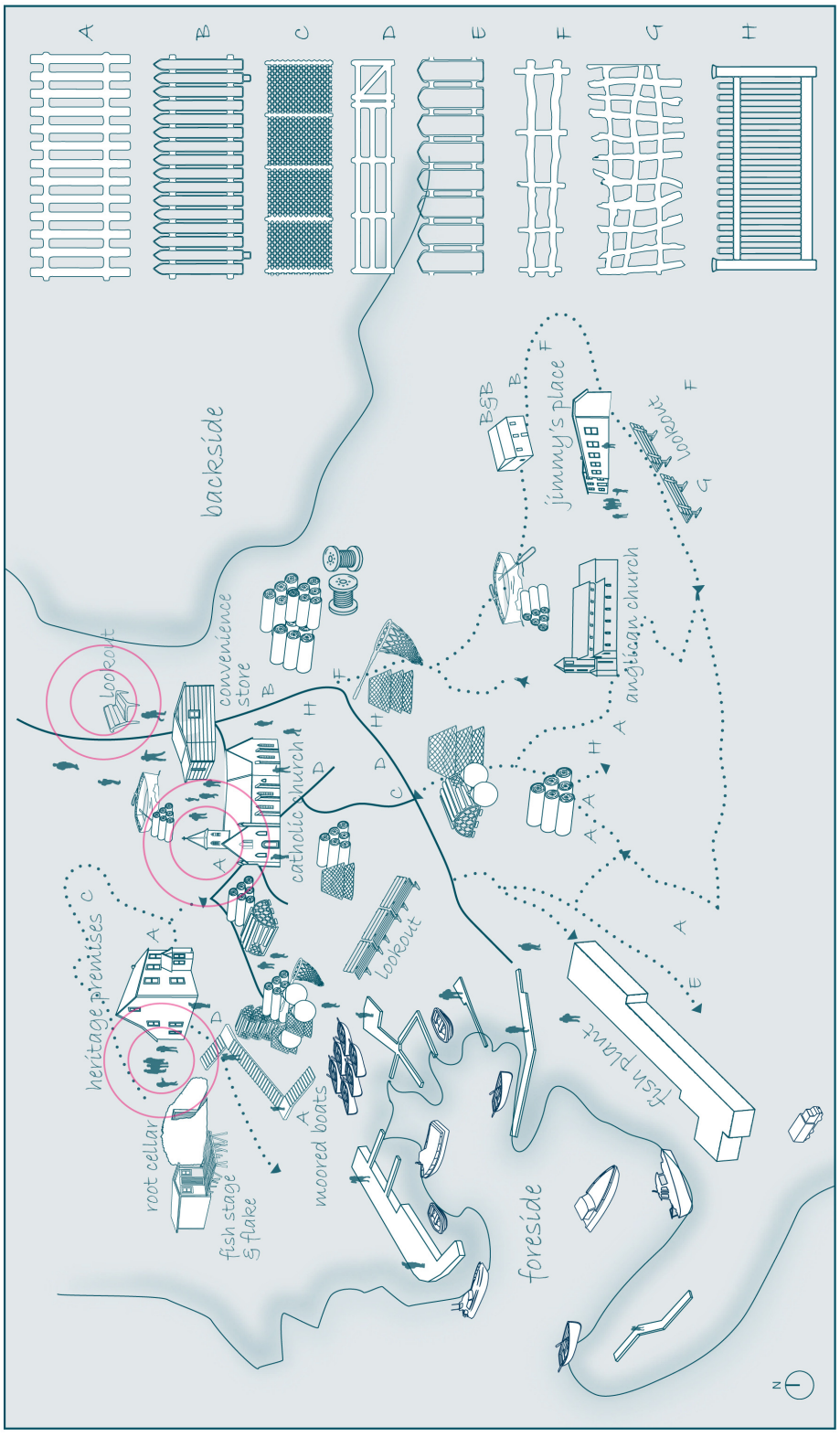

Fig. 116. Site observations illustrating existing spaces and material culture objects within Bay de Verde.

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