2020 EVIDENCE-BASED FOOD POLICY PROJECT

Partnerships in Food Systems Research:

Lessons learned from a multidisciplinary research project in a rural setting

Photo: Abra Brynne

APPLIED RESEARCH & INNOVATION
Selkirk College

SELKIRK GEOSPATIAL RESEARCH CENTRE
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CENTRAL KOOTENAY FOOD POLICY COUNCIL

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Rachael Roussin, Kootenay & Boundary Farm Advisors

Tara Stark, Interior Health

Nelson Wight, Regional District of Central Kootenay

PROJECT PARTNERS

Research partners were asked to provide a description of their organization, a short biography, and to describe their role in the project. The results, in their own words, are below.

Central Kootenay Food Policy Council
Abra Brynne

Formed in 2016, the Central Kootenay Food Policy Council Society builds a just, sustainable, and prosperous food system. Each council member serves as a vital conduit for information exchange between their respective sector and communities and the Food Policy Council. The council explores issues related to hunger, food waste, farming, land and water, distribution and processing. Council members reside across the region and are engaged in many facets of our food systems. Together, council members' collective relationships, knowledge and experience help identify and create solutions that are not possible alone.

The Central Kootenay Food Policy Council makes policy recommendations and brokers best practices and knowledge about food systems in the Central Kootenay.

The Council developed the concept for the Evidence-based Food Policy project, secured partners and funding, managed the project, and contributed expertise and content, including the creation of policy recommendations derived from the findings of our academic partners.

Abra Brynne grew up on a farm in BC's Okanagan Valley, where her family of 13 raised a large portion of their food needs and were members of a local tree fruit marketing co-operative. She has worked closely with farmers and on food systems for thirty years, with a priority on food value chains and the regulatory regimes that impede or support them. She has worked on policy advocacy and transitions in the fisheries, meat, cannabis and organic sectors. Abra is a founding member of many agriculture and food-related organizations, including BC Food Systems Network, Food Secure Canada and the Canadian Association of Food Law & Policy and has led the Central Kootenay Food Policy Council since it was formed in 2016.

Institute for Sustainable Food Systems, Kwantlen Polytechnic University
Wallapak Polusub

The Institute for Sustainable Food System (ISFS) is an applied research and extension unit at Kwantlen Polytechnic University (KPU) that investigates and supports regional food systems as key elements of sustainable communities. The institute focuses predominantly on British Columbia but also extends programming to other regions.

ISFS' applied research focuses on the potential of regional food systems in terms of agriculture and food, economics, community health, policy, and environmental integrity. Its extension programming provides information and support for farmers, communities, businesses, policy makers, and others. Community collaboration is central to the institute's approach.

Wallapak's role in the Evidence-based Food Policy Project was to coordinate the ISFS research team to conduct two individual reports on crops suitable for future changing climates in the RDCK and characteristics and price of Agricultural Land Reserve lands. The research team consisted of four members: Grace Augustinowicz, Alexander Stark, Kent Mullinix and Wallapak Polasub.

Wallapak Polasub moved to Canada from Thailand and made Vancouver her new home in 2011. She joined ISFS as a research associate in September 2013. Her interests are on the economic impacts of local food, farm product direct marketing, co-operatives and sustainable economic development.

Kootenay & Boundary Farm Advisors
Rachael Roussin

The Kootenay & Boundary Farm Advisors (KBFA) provides producers with free, technical production support and information from a network of specialized resources, including independent consultants and academics.

KBFA supports producers to improve agricultural production and efficiency by helping find solutions to farm-specific production issues, coordinating educational events and connecting producers to information.

KBFA is funded collectively by the regional districts of Kootenay Boundary, Central Kootenay, and East Kootenay, and the Columbia Basin Trust. The organization's services are free to agricultural producers in working towards commercial viability in this region.

Rachael Roussin's role in the project was as a member of the project advisory committee.

Rachael Roussin has a Masters' degree in Land and Water Systems from the faculty of Land and Food at UBC and brings over 10 years of experience coordinating environmental and agricultural programs. Her technical background includes soil science, soil capability for agriculture, watershed management and climate change impacts and opportunities for agriculture. Rachael is an Environmental Farm Plan Advisor for BC, is an educator on soil health and agricultural land, has operated a market garden, managed her local farmers' market, and sits on several food and agriculture boards and committees. She is the program lead and coordinator for the Kootenay and Boundary Farm Advisor program (KBFA).

Interior Health Authority
Tara Stark

Interior Health (IH) provides a wide range of integrated health-care programs and services to residents across BC's Southern Interior. IH's mission is to promote healthy lifestyles and provide needed health services in a timely, caring, and efficient manner, to the highest professional and quality standards.

Interior Health's Healthy Communities Program aims to improve health and wellness by working collaboratively with local governments and community partners to create policies and environments that support good health.

Tara Stark worked in an advisory capacity for the Evidence-based Food Policy Project and participated in the working group that created the educational activities and materials for school-based and public education events.

Tara Stark is a registered dietitian who works on food security and healthy eating with IH's Healthy Communities Program. She has been a member of the Central Kootenay Food Policy Council since 2017.

Regional District of Central Kootenay
Nelson Wight

Incorporated in 1965, the Regional District of Central Kootenay (RDCK) is a local government that serves an estimated population of 60,000 residents. The region consists of 11 electoral areas (A, B, C, D, E, F, G, H, I, J, K) and nine member municipalities: Castlegar, Creston, Kaslo, Nakusp, Nelson, New Denver, Salmo, Silverton and Slocan.

The RDCK contributed to this project by providing data for GIS analysis, helping to ensure that the project outcomes aligned with RDCK objectives and needs, and providing input on how this project could best connect to and benefit the work being done to deliver planning services to residents.

Nelson Wight is currently employed as the Planning Manager for the RDCK. His background in agriculture extends back to his experience growing up and operating his family's mixed beef cattle and grain farm in central Alberta prior to pursuing a career as a professional planner. His work as a planner in BC for the past two decades has always incorporated aspects of agriculture and food policy. From his time in the Okanagan—where he worked closely with producers as a staff liaison to the City of Kelowna Agriculture Advisory Committee—through to today, where he leads a talented team of planners to implement and shape local government policies that can work to support a robust food system for the RDCK.

Selkirk Geospatial Research Centre, Selkirk College
Ian Parfitt

The Selkirk Geospatial Research Centre (SGRC) is a geomatics centre of excellence launched with BC Knowledge Foundation and Canada Foundation for Innovation funding in 2004. The SGRC is closely connected with Selkirk College's Advanced Certificate, Applied Diploma and Bachelor of GIS programs and has research strengths in GIS analysis, web mapping, and remote sensing. SGRC also operates a fleet of remotely piloted aerial systems (RPAS – also known as drones) that enable the centre to collect its own imagery and LiDAR data. Current projects include an Open Data SSHRC grant and a Forest Technology NSERC grant. See www.sgrc.selkirk.ca for more information.

The SGRC's mandate is to be a regional centre of excellence in geomatics, to advance the capability of communities and industry to adopt geospatial technologies and to provide leading-edge learning opportunities.

Ian Parfitt sat on the advisory committee for the project and oversaw spatial data collection and analysis conducted during the first stage of GIS analysis.

Ian Parfitt is a geomatics and project management expert. He leads RPAS and geomatics research at the Selkirk Geospatial Research Center (SGRC) at Selkirk College in Castlegar, BC.

West Kootenay Permaculture Co-op (Kootenay Food)
Shauna Fidler

The West Kootenay Permaculture Coop (aka Kootenay Food) is a not-for-profit co-op guided by the ethics of permaculture: care of earth, care of people and return of surplus.

The coop is a community-based co-operative working to build a healthy and food resilient region through collaboration, education, media and net positive initiatives.

Shauna Fidler is a permaculture and graphic designer working to support food and farm businesses through branding, food packaging and design services and consultation. She is chair of the West Kootenay Permaculture Coop and a member of the Central Kootenay Food Policy Council.

Young Agrarians
Hailey Troock

Young Agrarians (YA) is a farmer2farmer educational resource network for new and young farmers. YA's Grow-a-Farmer strategy in B.C. engages new, young and potential farmers on-line, brings them together to network and learn together on and off farms, and when ready to start farms, supports them to access land, as well as receive business and production mentorship from a seasoned farmer.

The long-term goal of YA is to increase the number of viable, new farm businesses in B.C. The program has developed on-line, through events, and an on-farm Apprenticeship Program in Regenerative Agriculture in Alberta.

Since YA began in January 2012, the network of participating farmers has grown at the grassroots level across Canada from coast to coast through farms organizing and building community. The YA network is made up of a diverse array of food growers and lovers: rural and urban farmers, market gardeners and livestock-raisers, holistic managers, seed savers, food activists, bee keepers, community gardeners, food/farmer organizations and more - all working to steward land and soil, and grow our local food systems.

Hailey Troock brought her policy skillset and experience in promoting and identifying opportunities for new farmers to the advisory committee for this project.

CONTENTS

PROJECT OVERVIEW

The overall purpose of the Evidence-based Food Policy Project was to develop an evidence base and strategic rationale for policy development to support and promote sustainable and viable land and water use and vibrant food economies in the Regional District of Central Kootenay (RDCK). See *figure 1*, right, for a map of the RDCK region. Prompted by demand in the region and informed by end-user needs, the project is arguably a community-driven initiative. A multidisciplinary team was assembled to accomplish the various objectives of the project, which included factors that impact existing and new farmers, hunger and nutrition, as well as economic factors and food systems in general. Led by the Central Kootenay Food Policy Council, the team spanned academic institutions, community and public organizations, and local government. Included on this team were two departments at the Applied Research and Innovation Centre at Selkirk College (ARIC): the Selkirk Geospatial Research Centre and the Interdisciplinary Intern Team. Notable aspects of the research structure include its entirely virtual format and the autonomous yet collaborative nature of the work. The project provides mapping and analyses of factors that affect food systems in the region and helps support evidence-based decision making within local governance. Lessons learned from it provide the basis for a research model that can guide similar initiatives for other rural communities and future projects in the Kootenays.

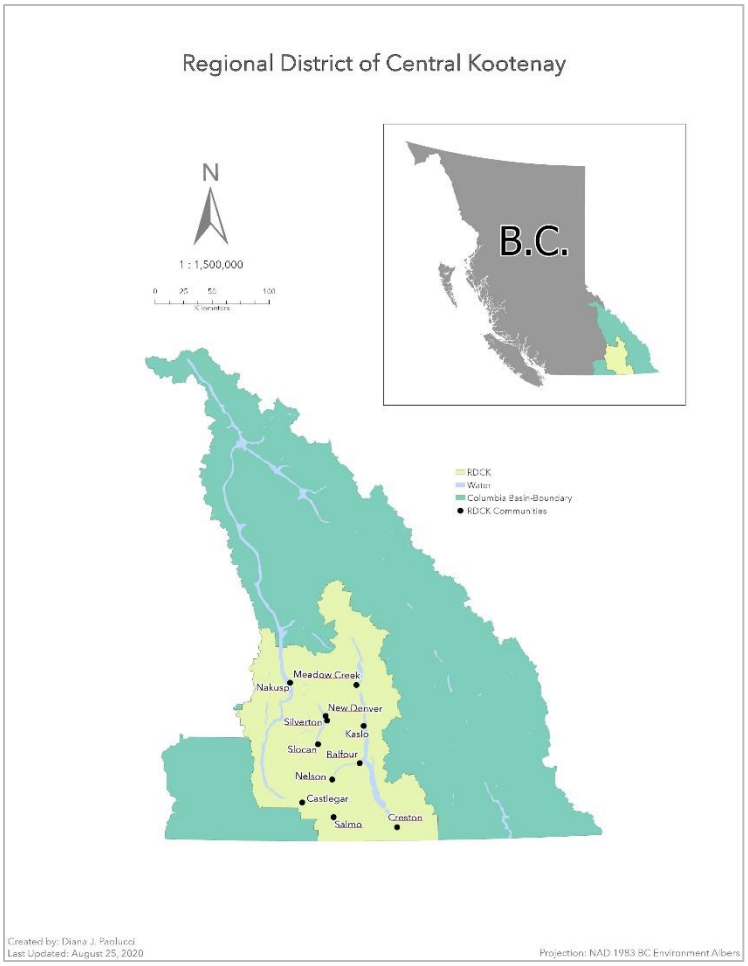

Figure 1: Regional District of Central Kootenay, British Columbia, Canada

About this report

This report includes a brief literature review, a description of the research model, the results of interviews conducted with research partners, directions for future research in the Kootenays, and recommendations to encourage the success of similar research partnerships in the future.

LITERATURE REVIEW

This brief literature review helps to situate this project in terms of project philosophy, provides local context, and supplies a basis for analysing interview results.

Defining "food systems"

Food systems are often viewed as "a set of activities ranging from production through to consumption" [1] (p. 1), a broader definition of food systems includes factors that influence and shape those activities, the activities themselves, and outcomes of the activities (including social welfare, food security, etc.), as well as other determinants.[1] It is important to note that food systems are plural and multiple – most people in the world participate in and rely on a number of food "systems" for their sustenance, ranging from backyard produce to grocery and convenience stores to local farm stands and beyond.[i]

Systems thinking as a framework for research partnerships and food systems

Systems thinking is an adaptable concept, applicable across a wide range of disciplines and areas.[2] While definitions vary slightly across disciplines,[3] essential aspects of systems thinking are taking a macro perspective of an issue, considering all parts of the whole, and recognizing that issues are dynamic and changing (rather than static).[2] Further, systems thinking addresses that people themselves are not separate from issues and the environment they exist in: "systems thinking [is] a cognitive paradigm with which people come to perceive themselves and the world to be dynamic entities that display continually emerging patterns arising from the interactions among many interdependent connecting components" (p. 646-647).[3] Systems thinking asserts that problems do not exist in isolation, are dynamic, and cannot be separated from the social and physical terrain in which they are situated. This makes it a useful construct for considering this research project, which, both geographically and socially, has diverse interconnected players that should not be considered separately from the environment in which the project was situated. Systems thinking is also a natural fit for discussing food systems, as food systems are extremely complex, with considerable local and global interconnectivity. It has been suggested that adopting a systems approach specifically in agriculture is imperative,[4] and at least one researcher has made the connection between systems thinking and food systems, writing that her understanding of a food system "lends itself to a 'systems' approach"(p. 4).[1] Finally, understanding end-users' needs for research is crucial in applied work, and participatory approaches are therefore not only helpful, but necessary. Systems thinking and community-based

[i] A. Brynne (personal communication, July 16, 2020).

participatory research, which is an important part of the Selkirk College research model, complement one another.[5]

Research partnerships: challenges and success factors

Multi- and interdisciplinary research has received increasing attention for its apparent ability to tackle complex, real-world problems.[6,7] However, as its popularity has increased, so has awareness of its challenges.[7] Communication between researchers from different disciplines can prove difficult,[7] proximity can be important (and by implication, geographically distant collaboration difficult),[8,9] and a "core challenge" lies in "coordinating and integrating the work of individuals, workgroups, and organizations accustomed to working independently and autonomously" (p. 218).[10] It has been argued that, among other things, strong leadership, communication, and well-chosen team members can help to overcome some of these challenges.[9]

Local food systems and global context

The Central Kootenay region of British Columbia (BC) produces a wide variety of food,[11] but like the rest of the province and Canada as a whole, much of the food consumed within the region is imported. In the Central Kootenay, an estimated 95% of food consumed within the region comes from outside it. [11]

While the majority of food in the Central Kootenay is imported, there is interest in locally grown products from consumers in the region, and interest within local government to invest in local agriculture and food security.[11,12] There is also potential for more food production in the area. In an analysis of the arable land in the West Kootenays,[ii] the authors of a 2015 study determined that the region is "well situated to grow more food" (p. 186) from a land capability perspective.[13]

The ability to grow more food is not the only factor in increasing local production, however, and it is with these other factors – primarily economic in nature – that global systems are most entangled. The economic structure of national (and thus arguably local) food markets changed dramatically with the advent of globalization: removing trade barriers through free trade agreements exponentially increases rivalry among producers, whether they engage in export or not.[14]

The current COVID-19 pandemic has increased concern about local food systems and their resiliency, with people experiencing disruptions in their food systems on both the supply and demand side.[15] While there is concern about the resiliency of our food systems, the pandemic also presents opportunities for change. As is often the case with disruptions, COVID-19 "provides an opportunity for the creative destruction of mature systems and opportunities for transformation" (p. 26).[15] Paramount in this transformation is the sustainability and resiliency of local food systems.[15]

Holistic models of sustainability include safe, ethical, and equitable development.[16] Sustainability is primarily dependent on environmental boundaries,[17] and sustainable economies need support from strong social networks in order to function, especially in rural areas. Community development hinges upon sustainability that is also safe and ethical while working within a model that has an ecological ceiling.[16]

[ii] The West Kootenays encompasses the Regional Districts of Kootenay Boundary and Central Kootenay.

PARTNERSHIP MODEL

This project was shaped both by its geographical scope and the research partners involved.

Team and partnership structure

This project was guided by an advisory committee, which oversaw the research design and helped refine the research question and objectives. Project partners provided their expertise in different fields, contributed data, and produced various research products[iii] for the project. The RDCK, for instance, contributed data for analysis to partners and helped to guide various deliverables, including the web map produced by ARIC (see *figure 3*, below left, for overall project structure).

The team lead acted as the main conduit and connection between research partners, with two inter-partner connections that developed over the course of the project (see *figure 4*, below right). Some partners were active throughout the project lifecycle, while others were primarily involved in the initial design stages (e.g. on the advisory committee).[iv] Most partners worked independently from one another on discrete parts of the project. Results were occasionally shared with the other team members in meetings.

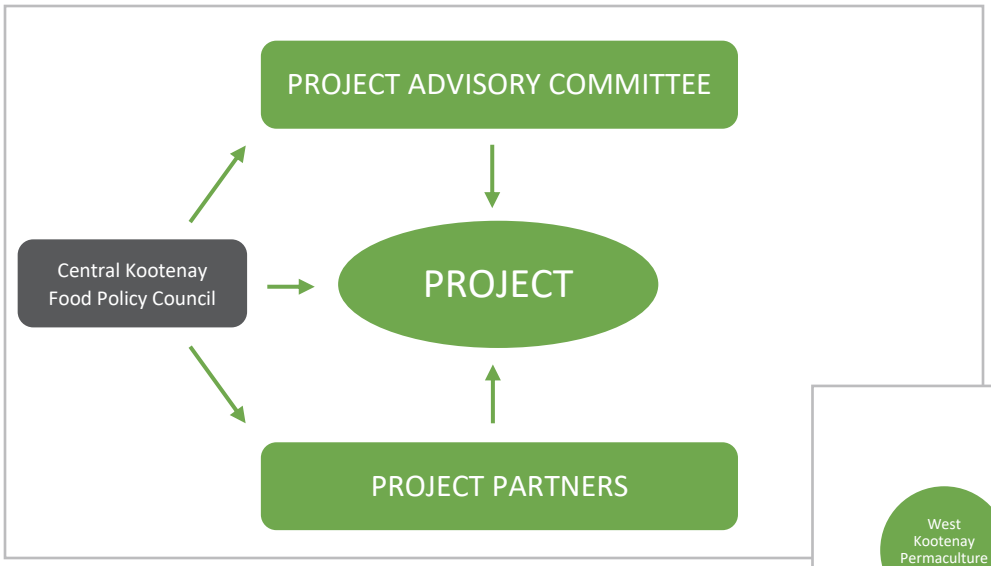

Figure 2: Project Structure

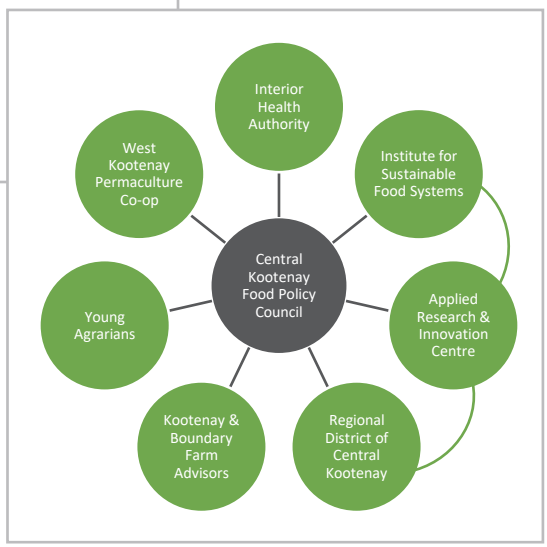

Figure 3: Partner Connections

[iii] E.g. GIS analyses and maps (ARIC) and research reports (Institute for Sustainable Food Systems at Kwantlen Polytechnic University).

[iv] In some cases, more involvement was intended, but these plans were disrupted by the COVID-19 pandemic that began to affect how work was conducted (and many other aspects of life) in British Columbia in March 2020.

Geography

The area of interest for this project was the Regional District of Central Kootenay (RDCK). All partner organizations involved with the project were located within the RDCK, with the exception of the Institute for Sustainable Food Systems (ISFS) at Kwantlen Polytechnic University (KPU), which is based out of Surrey, BC. The map below (*figure 5*) shows the concentration of partners in Nelson, Castlegar, Winlaw, Rossland and Surrey.[v] The size of the circles on the map is proportional to the number of partners in that geographic location.

Figure 4: Partner Locations

As shown in the map, most partner organizations were located relatively close to one another (at least by rural Canadian standards).[vi]

[v] Note: the partners in Castlegar both belong to the Applied Research and Innovation Centre at Selkirk College, but are different departments (namely the SGRC and the Applied Research and Innovation Centre internship-based research team).

[vi] Partners within the RDCK were all situated within one hour's drive from one another.

INTERVIEWS

ARIC gathered responses from project partners to gauge the effectiveness of the research collaboration on this project and to identify areas for future research on food systems.

The results below are based on semi-structured interviews with seven of the eight partners involved in the project (excluding the authors; there were nine partners in total). Research partners were asked for their perspectives on the effectiveness of the partnership structure, any perceived benefits of participating, areas for future research, and perspectives on local food systems resiliency (for interview questions see **Appendix A**). Interviews were analyzed using a grounded theory approach. Results were first open coded and overarching themes were identified. Coded sections of interviews were then assigned to the identified themes using sub-coding.

Interviews with partners revealed that most felt that the overall research partnership was strong, although some challenges around connection and collaboration were identified. In terms of themes around food systems, most references made were related to economic food structures, closely followed by areas of interest for research. COVID-19 was also referenced by the majority of partners, as were local research needs. Themes are divided into two categories below: those related to the research partnership, and those related to food systems and directions for future research.

Research partnership

One of the strongest themes to emerge around research relationships was that of connection and cohesion. Through the course of this research project existing relationships were strengthened and new connections were created. However, some facets of the research project hindered early collaboration.

Partnerships and leadership

Partner organizations' impressions of the other people working on the project were positive. The team was described as "high functioning", "professional" and "interesting to work with." Partners mentioned that they "really enjoyed" working with the group. The lead of the project, in particular, was mentioned as having "excellent" project management skills and the ability to keep everyone on task; in turn, the lead attributed the success of the project to the ability of individual partners to stay on task without much direction. This suggests a high level of respect between partner organizations and team members, as well as a high level of autonomy.

Existing relationships

Existing relationships were one of the main factors in creating the project. The project lead's connections within the community, and to experts in food policy and agriculture across the province, ultimately formed the basis for the project. All partners indicated that they were involved in the project because of the project lead's connection to them, and many stated that the existing relationship with the lead was strengthened through the project. All project partners described their connection to the lead organization as "strong."

New relationships

Two new relationships were created between partners over the course of the project, specifically between ARIC and ISFS at KPU, and between a new ARIC research team and the RDCK (see *figure 6*, below). However, these relationships were created late in the project, indicating that there may be potential to improve relationship building in the future. Where relationships were created, these relationships were described by partners as "strong."

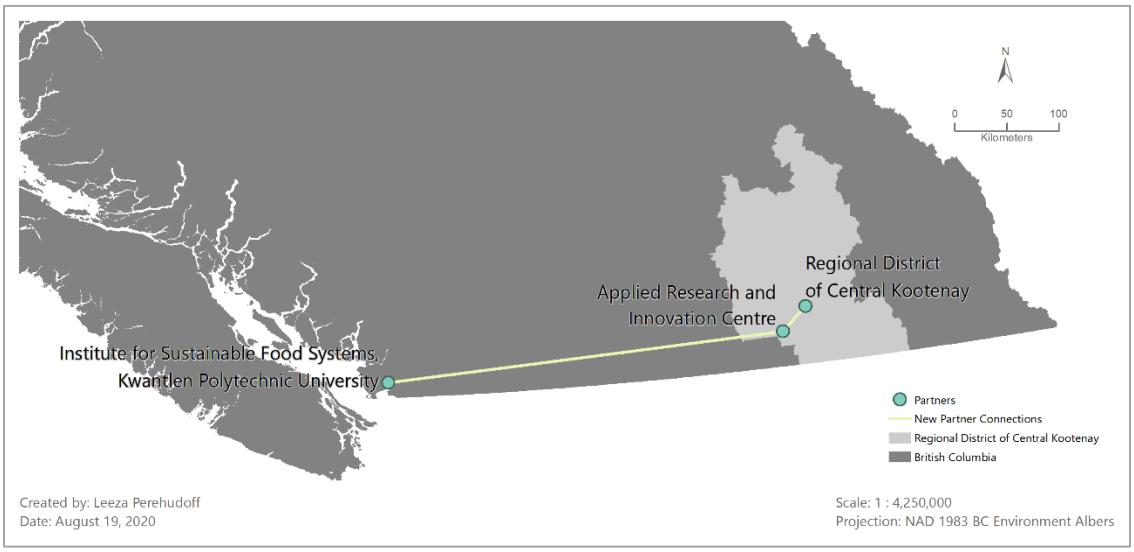

Figure 5: New Connections

Barriers to connection/cohesion

Three partners mentioned initially feeling disconnected from other project partners and, in some cases, unsure about their place in the project. These feelings were, however, mainly resolved by the end of the project. The initial disconnect was partly attributed to the meeting structure of the project – specifically, that all meetings were virtual.

Communication

Project meetings were conducted over video conference calls, with further communication taking place by email. As a strategy, this allowed for more distant partners (e.g. ISFS at KPU) to regularly participate in meetings. This structure also meant that COVID-19, which resulted in a discontinuance of in-person meetings across BC in March 2020, did not disrupt the structure of the meetings.[vii] While virtual meetings allowed for geographically dispersed project partners to participate more easily, some felt that it hindered collaboration. One project partner expressed regret that they had not realized earlier how and in what way their organization could collaborate with other project partners.

Increasing collaboration and cohesion

It was proposed by two partners that an in-person meeting at the beginning of the project would have encouraged more cohesion and collaboration in the team. A third suggested encouraging more time together for the partners, whether virtual or in person – although it was also mentioned that this is difficult to achieve given everyone's busy schedules.

[vii] COVID-19 did disrupt other parts of the project, such as plans to deliver educational events about food systems policy and civic governance in local high schools.

Outside of these interview results, the authors' experience with this project indicates that sharing of partners' initial results led to increased collaboration between partners.

Food systems

While most questions in the semi-structured interviews related to the research partnership, one question centered on important factors for food system resiliency, and another related specifically to research interests (for the complete list of interview questions, see **Appendix A**). The themes that resulted from these questions (as well as related themes that emerged unprompted) are expanded upon below. While not directly relating to research partnership effectiveness, these themes have been included for their value in providing a snapshot of areas of concern for researchers, organizations, local government, and others working in the realm of food systems in the Kootenays. In a more applied sense, they suggest specific directions for future research.

Economic food structures

Themes related to economic food structures included barriers for local producers in the form of influence from global systems and local topography.

Local economy, global influence

As indicated in the literature review, local food economies are inextricable from global systems, and research partners' views on this aligned with the literature. Global systems were primarily viewed as having a negative impact on local producers by skewing competition. Responses from four partners suggested that having to compete within a global system constitutes one of the primary economic barriers for local producers, with one partner describing it as "battling global food systems." Global systems were seen as supporting unsustainable/unethical practices, and price and sustainability were also perceived as inextricably linked: "Local farmers cannot get a fair price for their goods because the system is biased towards unsustainable practices."

"Local farmers cannot get a fair price for their goods because the system is biased toward unsustainable practices."

Views on how best to support local farmers within the context of global systems were varied. Partners mentioned public education, influencing consumer behaviour, policy (although it was also implied that there are limits to what policy can achieve), supporting shorter, more local supply chains, and encouraging "courageous" entrepreneurship within agriculture. Local community support was also mentioned as important for farmer success.

Geographic barriers and increased cost

Global systems are the source of some economic hurdles for local producers. Another is the region's topography. One partner mentioned that the mountainous terrain of the Central Kootenay limits mechanized means of production, increasing the need for costly labour inputs.

Food security: COVID-19, long supply chains, and indigenous food systems

Given the current situation, it is unsurprising that one of the stronger themes that emerged around food systems, and in particular around food security, was the pandemic and its effect. Research partners felt the pandemic has highlighted the importance of food security and the vulnerability of the current systems. Concern was expressed about the length of supply chains that the region relies on, and whether they would continue to be reliable in the future. However, aligning with the literature on the subject, research partners also saw the pandemic as an opportunity for change.[15] One respondent mentioned that this could

be an opportunity for renewed interest in local food; another suggested changing the perspective of Canadians to understand and value important ecosystems as they relate to agriculture. The Evidence-based Food Policy project was also mentioned for its ability to provide evidence for responding to the pandemic, specifically around strengthening local food systems.

In terms of supply chains, geography again plays a role, as well as globalization: between the Kootenays and the nearest port are mountain ranges that can hinder transport in the winter.

Finally, an important topic mentioned by two partners was that of indigenous food systems; specifically, the access and protection of indigenous food and food lands and producing food to share with elders (and others) during COVID-19.

Knowledge Translation

Themes around knowledge translation included how best to get the word out about the results of this project, especially given public perceptions of policy work as "uninteresting"; how to improve understanding of the complex data around food systems (especially spatial data); and the benefits of local and regional collaboration. The importance of narratives, as well as quantitative data, was mentioned by two partners, with one stating "it has to be both" and the other acknowledging the power of farmer success stories in encouraging local agriculture.

Directions for future research

"The findings of this research beg for the next steps, next phase, next iteration."

A particularly important theme that emerged from the interviews was the desire for further research on local food systems and food policy: "the findings of this research beg for the next steps, next phase, next iteration." Reflecting the multi-disciplinary nature of the research partnership, personal and organizational research interests were varied. While diverse, the topics mentioned in the interviews also reveal synergies and potential areas for future collaboration.

It was suggested that, given the vulnerability of the area and COVID-19, an important area to continue research in the future would be systemic analyses of food systems and how to support local farmers to improve local supply chain resilience. Other areas of interest included a statistical analysis of farmland prices using GIS technology, bio-regional mapping, and a potential partnership to explore organic extension services,[viii] as well as soil health and climate change research. Regarding gaps in local research, irrigation needs of specific crops were mentioned as a topic of interest for local farmers. Finally, one partner expressed an interest in research into technology such as drones and other GIS-related tools, to determine whether this would be useful for farmers in the Central Kootenay and if so, at what scale.

In discussing future research, many partners mentioned the importance of tying research to local and regional need, and for community-led or farmer-led projects. Also mentioned was the importance of projects at different levels of geography – local, regional, and provincial. Worth noting is that the barrier to future research partnerships that was mentioned most often was a lack of funding.

[viii] Organic extension services aim to connect academic institutions with farmers to promote sustainable production methods.

RECOMMENDATIONS

Four main recommendations emerged from the interviews with research partners.

Together, these recommendations have the potential to increase the effectiveness of future multidisciplinary food systems research projects by: encouraging collaboration where synergies are present; enhancing research usability by ensuring it is practicable and aligned with local need; and increasing research impact by amplifying awareness of it.

Recommendation 1: Encourage collaboration with sharing of expertise and in-person meetings

One connection between two research partners who had not previously worked together was sparked through the sharing of initial results. This indicates that encouraging an understanding of other partners' skill sets and areas of expertise could help promote collaboration. It may therefore be worthwhile to encourage partners in future research partnerships to share past work, or at least areas of expertise, in initial project meetings. Where possible, initial meetings should be in-person and opportunities for partners to socialize should be integrated.

Recommendation 2: Integrate end users in research partnerships

The aim of applied research is for it to be used. To accomplish this, a strong understanding of the needs/preferences of the intended user(s) is necessary. Ideally the research "client" – whether that is an organization, a local government, or a community– is integrated into the project planning process. Interview responses suggest that the earlier these relationships can be developed, the better. As projects are dynamic and change over time, integrating users of the research throughout the project life cycle is likely to be beneficial. In this project, the primary "client" of research produced by project partners was also the project lead, and thus was very well integrated in the planning process. However, a second potential user of the final research is the RDCK. The connection between the RDCK and ARIC was helpful in the creation of maps for the project.

Recommendation 3: Align research with local and regional needs

Research must align with local and regional needs to be effective. Future research projects should be informed by experts in the area – as this project was – and by those it will potentially impact or be used by. One research partner mentioned that in some past cases, research has not been aligned with farmers' needs, and/or specific gaps have not been addressed. This illustrates how important it is to undertake research that suits regional and local needs, and that a nuanced understanding of end-users is necessary. Future food systems research projects, especially those focused on specific regions, should incorporate the perspectives of those impacted by the research as much as possible.

Recommendation 4: Increase impact of research through communication strategies

A theme that emerged in various comments during the interviews was that of communicating and disseminating results beyond the scope of local government and local organizations to the general public.

Policy work is, unfortunately, not often seen as interesting or engaging; despite this, policy affects almost every aspect of our lives. Projects should include a communication strategy, and research networks built during projects can be used to disseminate results more widely and to reach specific audiences. A direct result of the interviews with project partners was a plan to develop, host and disseminate a webinar aimed at educating the public on the use of the RDCK Food Policy Web App developed by the intern team at ARIC. Research partner networks were suggested as a good way to reach webinar participants, illustrating how partners' connections and local collaboration can be utilized to raise awareness of projects.

CONCLUSION

This report has offered insight into a small, multidisciplinary research partnership in rural BC.

Multi- or interdisciplinary teams are often well-positioned to tackle complex issues; however, multidisciplinary work is not without its challenges.[6-10] The results of interviews with project partners on the Evidence-based Food Policy Project highlight the importance of participatory methods to ensure the relevance of research for the intended user(s) and suggest strategies to address some of the more common challenges within multidisciplinary teams. Participatory methods that integrate research clients into multidisciplinary projects can lead to a more holistic understanding of the research topic. Additionally, incorporating the perspectives of those impacted by the research can help ensure projects address regional gaps. Fostering an understanding of research partners' areas of expertise may help address some of the barriers to collaboration between researchers in different disciplines, therefore resulting in more effective collaboration, and opportunities for unstructured conversations between team members may encourage team cohesion. This project also demonstrates that while proximity may make partnerships easier,[8,9] geographical distance is not an insurmountable obstacle in rural collaborative research projects. Outsiders often wield much of the decision-making power in rural areas,[18] an issue which strong local representation on research teams could potentially reduce. Projects such as this one – community-driven, with abundant representation from local organizations on the research team – are increasingly relevant for rural development.

BIBLIOGRAPHY

1. Ericksen, P. J. Conceptualizing food systems for global environmental change research. *Global Environmental Change* **18**, 234–245 (2008).
2. Frank, M., Shaked, H. & Kordova, S. K. Introduction - Systems thinking: Foundations, skills and uses. in *Systems Thinking: Foundation, Uses and Challenges* xi–xvii (Nova Science Publishers Inc., 2016).
3. Randle, J. M. & Stroink, M. L. The development and initial validation of the paradigm of systems thinking. *Systems Research and Behavioral Science* **35**, 645–657 (2018).
4. Bawden, R. J. Systems thinking and practice in agriculture. *Journal of Dairy Science* **74**, 2362–2373 (1991).
5. Raymaker, D. M. Intersections of critical systems thinking and community based participatory research: A learning organization example with the autistic community. *Systemic Practice and Action Research* **29**, 405–423 (2016).
6. Choi, B. C. K. & Pak, A. W. P. Multidisciplinarity, interdisciplinarity, and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical and Investigative Medicine* **29**, 351–364 (2006).
7. Dritsakis, G. *et al.* Challenges and strengths of multidisciplinary research in audiology: The evotion example. *American Journal of Audiology* **28**, 1046–1051 (2019).
8. Rekers, J. v. & Hansen, T. Interdisciplinary research and geography: Overcoming barriers through proximity. *Science and Public Policy* **42**, 242–254 (2015).
9. Choi, B. C. K. & Pak, A. W. P. Multidisciplinarity, interdisciplinarity, and transdisciplinarity in health research, services, education and policy: 2. Promotors, barriers, and strategies of enhancement. *Clinical and Investigative Medicine* **30**, E224–E232 (2007).
10. Perloff, J. *et al.* Intervening to enhance collaboration in translational research: A relational coordination approach. *Journal of Clinical and Translational Science* **1**, 218–225 (2017).
11. Brynne Consulting. *Regional District of Central Kootenay Agriculture Plan Prepared by Brynne Consulting with support from the Steering Committee of the Agriculture Plan Project*. https://rdck.ca/assets/Services/Sustainability~and~Environmental~Initiatives/Documents/2011-06-15-RDCK_AgPlan.pdf (2011).
12. Roussin, R. *Agricultural Potential of the West Kootenay, B.C.: A regional review of the land, soil and and climate for crop potential [Master's thesis, University of British Columbia]*. http://mlws.landfood.ubc.ca/files/2014/10/Report_Agricultural-Potential-of-the-W-Kootenay.pdf (2014).
13. Roussin, R., Wilson, J., Utzig, G. & Lavkulich, L. Assessing the Potential for Pocket Agriculture in Mountainous Regions: A Case Study in West Kootenay, British Columbia, Canada. *Journal of Agriculture, Food Systems, and Community Development* 175–188 (2015) doi:10.5304/jafscd.2015.061.016.
14. Martin, L. The changing structure of the agri-food sector and opportunities for economics and management. *Canadian Journal of Agricultural Economics* **48**, 363–373 (2000).
15. Worstell, J. Ecological Resilience of Food Systems in Response to the COVID-19 Crisis. *Journal of Agriculture, Food Systems, and Community Development* 1–8 (2020) doi:10.5304/jafscd.2020.093.015.
16. Raworth, K. *A safe and just space for humanity: Can we live within the doughnut?* www.oxfam.org/grow (2011).
17. Sutter, G. C. & Worts, D. Negotiating a Sustainable Path: Museums and Societal Therapy. in *Looking Reality in the Eye: Museums and Social Responsibility* (eds. Robert R. Janes & Gerald T. Conaty) 129–151 (University of Calgary Press, 2005). doi:10.2307/j.ctv6cfpwc.
18. Chambers, R. *Rural development: Putting the last first.* (Routledge, 1983).

APPENDIX A – INTERVIEW QUESTIONS

In the informal interview we may ask you some or all of the following questions, time allowing. You are welcome to skip any questions that you prefer not to answer, and we also welcome feedback outside of these questions. Your answers will be used to help guide and improve future collaborative projects.

1. Where are you and your organization located?
2. What geographical scope does your organization cover?
    a. E.g. region, province, country.
3. What pieces did you (and/or your organization) contribute to the project?
4. How did you become involved in the project?
5. What was your overall experience with the project?
6. How did you find the working/partner structure?
    a. Did it work well for you?
    b. If not, why?
    c. Is there anything that could be improved in the future?
7. Overall, did this project benefit your organization/ or further your organizational goals?
8. What are your future interests in relation to similar projects?
9. What do you see as the most important factors related to food system resiliency?
    a. In the RDCK, BC, and/or in general
10. Which of the other partners did you work with?
    a. How would you describe the strength of the relationship(s)?
    b. Who did you work with most closely?
11. Do you foresee working with this partner/these partners in the future?
    a. If not, why not?
12. Do you have any other comments to add?