

Protecting Agricultural Land: How Informal Institutions and Historical Perspectives Affect
Land-Use Policy

by

Darren Epperson

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Department of Earth and Atmospheric
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Abstract

Land-use pressures in Alberta's agricultural landscapes have intensified in recent years. With the province's broad historical agricultural base and ongoing urban expansion, there have been growing concerns about the loss of prime agricultural land. These concerns and conflicts have been reflected in recent provincial policies that attempt to balance competing land-use pressures. These policies include the 2008 Land-Use Framework (LUF) and the 2009 Alberta Land Stewardship Act (ALSA), which authorizes the creation of policies and management strategies to protect, conserve and enhance agricultural land (ALSA: Government of Alberta, 2009). However, local interpretations concerning province-wide land-use policies and perceived restrictions on private land use have hindered the desired outcomes (Lavelle, 2012).

Since the creation of Alberta's most recent land use policies, various studies have reported a persistent pattern of fragmentation and conversion of prime agricultural lands. While several research projects have measured the spatial context and implications of converting agricultural lands, few have attempted to assess the non-spatial causes of continuing conversion and fragmentation of agricultural land. Following a qualitative case study approach, this research aims to understand better how factors such as social norms and informal institutions influence land-use decisions at the municipal level, focusing on decisions affecting the fragmentation and conversion of agricultural land. This study also considers how these informal factors affect the application of Alberta's land-use policies and formal mandates.

Preface

This thesis is an original work by Darren M Epperson. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project name "Fragmentation and Conversion of Agricultural Land Project", No. Pro00066476

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List of Abbreviations

ALSA: Alberta Land Use Framework
CE: Conservation Easement
CEA: Cumulative Effects Assessment
CEM: Cumulative Effects Management
CLI: Canada Land Inventory
CMRB: Calgary Metropolitan Regional Board
CRB: Calgary Regional Board
CRB: Capital Region board
DPC: District Planning Commission
EIA: Environmental Impact Assessment
EMRB: Edmonton Metropolitan Regional Board
ICF: Intermunicipal Collaboration Framework
IDP: Intermunicipal Development Plan
IRM: Integrated Resource Management
IRP: Integrated Resource Planning
LARP: Lower Athabasca Regional Plan
LPRP: Lower Peace Regional Plan
LUF: Land Use Framework
LSRS: Land Suitability Rating System
MDP: Municipal Development Plan
MGA: Municipal Government Act
MPC: Metropolitan Planning Commissions
NSRP: Northern Saskatchewan Regional Plan
PLA: The Public Lands Act
PLAR: Public Lands Administration Regulation
RAMP: Regional Agriculture Master Plan
RDRP: Red Deer Regional Plan
RPC: Regional Planning Commission
SSRP: South Saskatchewan Regional Plan
TDC: Transfer Development Credit
TPS: Town Planning Schemes
UARP: Upper Athabasca Regional Plan
UPRP: Upper Peace Regional Plan
VECs: Valued Ecosystem Components

Protecting Agricultural Land: How Informal Institutions and Historical Perspectives Affect Land-Use Decisions

Chapter 1: Introduction

Alberta is experiencing a fast-paced conversion of its agricultural land base into non-agricultural uses. With the province's agricultural history and the contribution of agriculture to Alberta's economy, there have been growing concerns about this loss of agricultural land. The Provincial government implemented land-use policies in 2008 intending to slow the conversion and fragmentation of its agricultural lands. However, research such as Stan & Sanchez-Azofeifa (2017) has demonstrated that Alberta's agricultural land base is still experiencing changes because of urban development. This is leading to the irreversible modification of the province's most productive lands, especially areas situated around towns and cities along the Calgary-Edmonton corridor, and in the Peace River region (Benoit et al., 2018; Connell et al., 2016). Though provincial policy expresses a desire to limit the fragmentation and conversion of agricultural land, land-use decisions are mostly made by locally elected councils at the municipal level.

The purpose of this study was to explore how factors such as social norms and informal institutions influence land-use decisions at the municipal level, with a particular focus on decisions affecting the fragmentation and conversion of agricultural land. This study also considers how local informal factors affect the application of Alberta's land-use policies and formal mandates.

To date, most current research focuses on the distribution and extent of land use conversion and fragmentation. Although it is essential to understand what is happening with agricultural land in the province, it is also necessary to explore why such changes are happening in the face of policy directions to protect land. As policies designed to protect agricultural land have been implemented in Alberta, they have often been met with public debate and controversy (Mitchell & Parkins, 2011). Unfortunately, research has shown that at the municipal level the trend of allowing conversion of agricultural land persists (Stan & Sanchez-Azofeifa, 2017; Wang & Swallow, 2016). Consequently, there is a need for impartial and empirical data to inform the discussion and lay a foundation for understanding factors that influence land-use decisions in Alberta.

Using the Province of Alberta as a case study, this research identifies three regions that are experiencing land-use changes demonstrated in previous studies. The results show that while there are Provincial directives in place to guide land-use decisions, social norms and expectations at the local levels affect the decision-making process. Land-use decisions

are not only determined by formal regulations specified in the law but by the discretionary power exercised by elected officials, which can be highly influenced by personal views and beliefs. Thus, development pressures are not only economic but also social and political. Land-use decisions are contingent upon what elected officials consider to be "appropriate," "fair," or "best" for their constituency, and those notions are subjective. They do not always adhere to the vision and goals of the provincial policy.

1.1 Background of Study

According to Statistics Canada (2017a), the Albertan population has doubled over the past three decades, now exceeding 4million. Since the 2011 federal census, Alberta's average annual growth rate has been 1.73%, well above the national average of 1.42%, and the population is projected to exceed 6 million by 2046 (Census Gov. of Alberta, 2018b). The influx of people has increased the competition and demand for Alberta's natural resources, such as land and water (Beaulieu, 2014). This fast-paced economic development, coupled with urbanization, population growth, and industrialization, poses challenges to policymakers in establishing guidelines that balance the usage of natural resources and the protection of essential landscapes (Giovannucci et al., 2012).

In Canada, as in many other countries, there are public concerns over the loss of agricultural land for reasons such as the following: preserving a traditional agrarian lifestyle with historical significance, maintaining a secure food supply, conserving open space, preserving the beauty of rural landscapes, and environmental amenities like groundwater recharge, protecting wildlife habitat, and mitigating the risk from floods (Fleming, McGranahan, & Goetz, 2009; Natori & Chenoweth, 2008). In Alberta, the rationale for protecting agricultural land appears to extend beyond environmental amenities (Wang et al., 2014). Agriculture in Alberta is seen as a both a cultural and economic activity. It has been an essential economic driver for the province with a large export oriented agri-food sector (Wang et al., 2014). Alberta is also known for its rural aesthetic, which plays a crucial role in the province's identity by contributing to its appeal for residents and visitors. A study by Wang & Swallow (2016) demonstrated the public's financial willingness to support efforts in maintaining these rural aesthetics and environmental amenities provided by Alberta's open spaces, such as agricultural lands.

Tensions can arise concerning the restriction of land-use changes. Ideas of 'open spaces' and agricultural land as a common pool resource can conflict with landowners' perceptions of land use and property rights (Wadduwage et al., 2017; Stroman et al., 2017). Differences in ideologies and expectations affect successful implementation of

policies and the prevention of land fragmentation and conversion (Benoit et al., 2018; Pleger, 2017; Wang & Qiu, 2017).

1.2 The Current State of Agricultural Land in Alberta

A study by Haarsma et al. (2014) focused on measuring the amount of Alberta's agricultural land being lost to non-farming uses and identifying the initial drivers behind these land use changes. According to Haarsma et al. (2014), between 2000 and 2012, Alberta experienced about 123,900 hectares of agricultural land conversion to various urban developments. In response, the Alberta Government, municipalities, and the public are striving to find a balance between accommodating the demands of growth with the protection of agricultural land. Due to increasing public concerns regarding the fragmentation and conversion of prime agricultural land, the current Alberta land-use policy framework [Land-Use Framework, 2008] was introduced to address the loss of land while answering the growing need for land for urbanization (LUF; Government of Alberta, 2007). However, recent quantitative analyses have demonstrated that Alberta's Land Use Framework is having little influence on minimizing the impact of urban growth on agricultural land (Connell, 2015; Haarsma et al., 2014; Stan & Sanchez-Azofeifa, 2017; Wang & Qiu, 2017) .

Studies have identified key factors driving the conversion of agricultural land, including modernization, industrialization, population growth, rural-urban migration, and natural resource extraction (Haarsma, Qiu, 2015; Wang & Qiu, 2017). In Alberta, the current and expected population growth creates development pressures for urban growth. North American municipalities accommodate growth predominantly through greenfield development, which mostly affects agricultural lands (Erickson, Lovell, & Méndez, 2013). The demand for new development generates a significant financial incentive for agricultural landowners near urban areas to sell to developers, resulting in the conversion and fragmentation of these areas (Adilu & Begam, 2017; Haarsma et al., 2014).

The conversion and fragmentation of agricultural land have local and global impacts including concerns regarding the production of food, preservation of rural land, economic inefficiencies, and loss of high-quality soil (Weber et al., 2012). Further to this, as the fragmentation of agricultural lands increases, it decreases the viability and efficiency of agricultural operations (Benoit et al., 2018). These changes have impacted the viability of Alberta's rural culture as families are moving off the land and into more urban settings, and as a result family farms become reduced in size and number. Such changes combine to put

agricultural production and food security at risk in the region due to higher operating costs and lower output of products (Adilu & Begam, 2017).

According to Stan & Sanchez-Azofeifa (2017), "the province's remaining prime soils are mostly located near Alberta's urban centers" (p.361). In the last decade, a significant amount of farmland surrounding Alberta's urban areas has been converted to accommodate suburban growth (Haarsma, 2014; Stan & Sanchez-Azofeifa, 2017; Wang & Swallow, 2016). Conversely, according to Alberta's Ministry of Agriculture and Forestry, the total agricultural land cover of the province has increased (Adilu & Begam, 2017). This increase is due to the clearing of grasslands and forests in areas previously considered not suitable for agricultural activities (Martellozzo et al., 2014, Wang & Swallow, 2016). Thus, while the province is rapidly losing prime agricultural land to development, agricultural operations are moving to lower quality soils. Activities on lower-quality soils have can influence the global carbon cycle, soil degradation, habitat loss, surface radiation balance, nutrient runoff, and air quality (Martellozzo et al., 2014).

When moving operations away from areas traditionally used for agriculture, e.g., lowlands and more fertile soils, ecosystems are altered. Water quality is reduced from the runoff of herbicides and fertilizers (Weber et al., 2017). Once the land has been cleared, it must be prepared to grow large amounts of food. This is done using applications of artificial herbicides and fertilizers (Balmford, Green, & Scharlemann, 2005). According to Blamford et al. (2005), the herbicides are intended to prevent the growth of unwanted plants that would steal nutrients from the crop, and the fertilizers increase the nutrients available in the soil so that the crop's yield is maximized. Depending on the fertility of the soils, a more significant amount of fertilizer may be required to meet the demand for agricultural production. Lower quality soils also require irrigation, thus consuming more water. Areas located on the leeward side (rain shadow) of a mountain range – including much of Alberta – are typically arid, requiring supplemental irrigation (Benoit et al., 2018). The use of irrigation can lead to the depletion of groundwater; therefore, lowering the water table and negatively impacting water supplies. Poorly managed irrigation practices can impact wetlands, which aid in water filtration, flood mitigation, and support wildlife habitats (Weber et al., 2017).

In recognition of these concerns, the Government of Alberta has put into place policies to ensure that land-use decisions are aligned with the protection of ecologically sensitive lands, including agricultural land. The aforementioned Land Use Framework (LUF) proposes three main strategies to manage public and private lands and natural resources: (1) regional planning, based on the creation of seven watershed regions that must have a

regional plan to integrate better and coordinate land-use planning across the province; (2) efficient land use, intended to reduce the footprint of urban development; and (3) conservation and stewardship, which aims to protect the environmental, agricultural and aesthetic values of rural lands (LUF; Government of Alberta, 2008; Palmer, Driedzic, & Unger, 2015). The LUF also emphasizes the importance of addressing land use planning at the local and regional levels from the cumulative effects approach to compel municipalities to consider the impacts of their decisions on a larger scale (LUF; Government of Alberta, 2008). However, research has shown that the trend of allowing land-use changes persists (Stan & Sanchez-Azofeifa, 2017; Wang & Swallow, 2016). As such, there is a need to investigate not only the amount of land being converted but also the forces allowing the continuation of agricultural land conversion and fragmentation.

1.3 Social Norms and Expectations Affect Policy

The existence of competing tensions between the desire to preserve land and the perceived right to develop land is at the forefront of current political discourse. The influence this has on formal policy decisions and informal relationships after implementations can be substantial (Fennell, 2011). While municipalities reserve the power to restrict development, external pressures, e.g., public opinion, stakeholders' potential investments and the sense of 'right to land' can influence their decisions (Riessman, 2002).

Agriculture is not only responsible for influencing the physical landscape and contributing to the economy; it has fostered personal adaptive strategy within the socio-ecological relationships as well as forming expectations related to landownership (Oteros-Rozas et al., 2014). Individuals interact with their environment by developing complex relationships and creating intimate associations with external influences, e.g., social norms, political factors, and economic situation (Greiner, Patterson, & Miller, 2009; Vygotskiĭ & Cole, 1978). If the momentum of these relationships and associations are allowed to continue, permissive reinforcement can then become what Ostrom (2005) calls "informal institutions" which can function within or outside of the formal institution (p. 179). For example, Alberta has had some form of land-use planning since the early 1900s with the intent of restricting unregulated urban development. However, historical permissive development has encouraged landowner expectations to form outside of the formal mandates, creating a cultural environment that is challenging to change.

Investigating how individuals view their land-use rights, ideas of what is fair, and their notion of property rights can lead to a better understanding of where the limitations and barriers exist within the province's formal land-use policies (Pannell, 2008). The gap in

literature occurs in understanding the relationships between the stakeholder's expectations and land use practices (Agrawal, 2016). Considering all the influencing elements can aid in creating adaptable municipal regulations, resulting in more realistic long-term solutions (Clitheroe Jr, Stokols, & Zmuidzinis, 1998).

1.4 Research Objectives

The purpose of this research is to examine how informal aspects of decision making, such as local informal institutions and values, affect land-use decisions regarding agricultural land. This involves consideration of the influence social norms and expectations have on goals stated in Alberta's Land-Use Framework and subsequent mandates aimed at protecting essential lands.

The research seeks to meet the following three objectives.

1. Investigate how individual and collective norms and the political context shape informal institutions related to land use planning at the municipal level.
2. Evaluate how the decision-makers view the right to develop land versus the desire to protect land while balancing tensions that arise from landowner expectations.
3. Consider alternatives for policy development, implementation, and effectiveness in response to these influences and tensions.

The data collected and analyzed from the case study will be focused on addressing these research objectives.

1.5 Scope of the Study

The study involved three regions located in Alberta, Canada: Parkland County, Grande Prairie County, and the Town of Okotoks and its surrounding municipalities (Rocky View County and Municipal District of Foothills). The researcher focused on the factors that influence land-use decisions at the municipal level, which prevent local government decisions from aligning with the provincial directives for the protection of agricultural land. The objective was achieved through interviewing elected officials, landowners, planning staff, professionals, and researchers, and through exploring Provincial land-use policies and local planning documents. A qualitative research design employing key informant interviews, observation, and the review of relevant documents was employed in the research. Through the exploration of the land-use decision-making process, the research

addressed the questions proposed in the objectives and contributed to revealing and explaining the factors not widely considered in the literature on land use planning and agricultural land protection.

1.6 Significance of the Study

A study on the influence of informal institutions and expectations stemming from the social, economic, and political aspects found in the culture of Alberta can aid in the development of future investigations for policy resiliency. The objectives have been formulated to feed into a future analysis of considerations and policies that can be used by the municipalities for setting policy relating to the preservation and development of agricultural land.

1.7 Thesis Organization

The first chapter of the thesis presents an introduction to the issue under study. The chapter introduces the researcher's focus and the justification for the study. The background of the study is also presented in the first chapter. Other contents of the first chapter include the research objectives, the purpose of the study, and the scope and significance of the study. The second chapter presents a review of existing literature on how informal institutions and social norms can affect a policy's ability to protect agricultural lands. Also, a review of path dependency and institutional complexity. The third chapter covers land use in Canada and the policies designed to direct land use planning at the federal, provincial, and local levels. Alberta's current land-use policies (and their effectiveness) implemented by authorities to control the loss of agricultural land due to development are also reviewed. The review is aimed at enabling the researcher to identify gaps that are to be bridged by this research. The methodology utilized in data collection, analysis, and presentation is presented in the fourth chapter. In the fifth chapter, the findings and analysis of the research are presented. The sixth chapter discusses the overall findings and identifies gaps in the existing land use policies. The seventh chapter concludes the research findings and states whether the research objectives have been addressed. Recommendations on how the effectiveness of the existing policies regarding control of loss of agricultural land can be improved are framed.

Chapter 2: Literature Review

This chapter presents a theoretical framework that will be used to investigate the research problem outlined in the introductory chapter. First, it will introduce the concept of institutions, including formal and informal institutions. Then it explores how institutions change over time and the influence of path dependency as a form of 'lock-in' that hampers institutional change.

2.1 Institution

In his seminal work on the subject, North (1990) described institutions as the "rules of the game" North explains that institutions are the formal rules and informal norms and their enforcement systems for all aspects of human interaction. Institutions constrain actors through incentives and disincentives that direct the action of members of society. Institutions are stable agreements used to overcome collective action problems and other social dilemmas (Berkes et al., 2003; Chenard & Parkins, 2012; North, 1990; Ostrom, 1995).

In this thesis, institutions are defined as the formal and informal, established (as opposed to transitory) arrangements among members of a community or society that direct and structure human behavior through rewards and sanctions.

2.2 Formal Institutions

Institutions are often conceptualized as being either formal or informal (North, 1990). Formal institutions are described by Vatn (2006) as mechanisms over which social decisions are established and implemented through regulations or rules. In general, institutions are usually concerned with an integrated governance system based on specific sets of laws and governmental regulations and rules, while informal institutions refer to social norm networks, unwritten agreements, and trust (Ostrom, 2005; Van Assche et al., 2014).

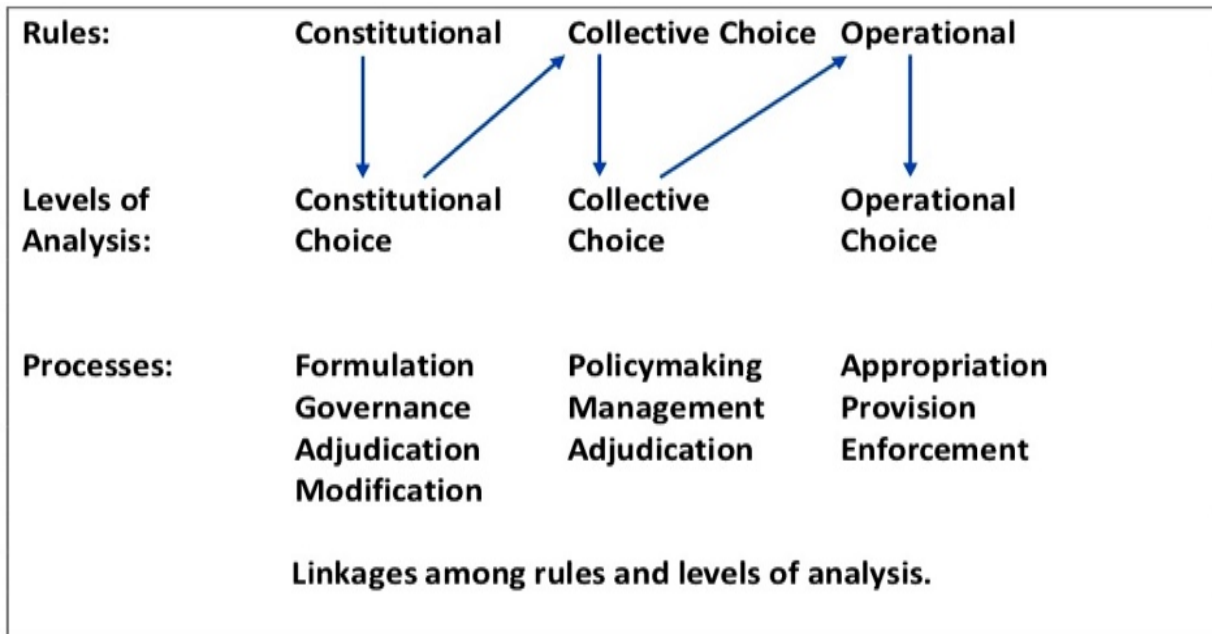


Figure 1: Adopted from Ostrom (1990)

Formal rules exist as part of an institutional system consisting of large numbers of other institutions. According to E. Ostrom (1990), formal institutions exist in a hierarchy that can be classified into three levels, the constitutional level (macro); the collective choice (policy decision level); and the operational level of individual decisions (see Figure 1). The constitutional level effectively outlines who has the authority to make the rules; at the national level, this often is outlined in a constitutional document. For an organization, constitutional rules are often set out in corporate management documents. Collective choice or policy level of institutions are those established to address specific issues by the rule-makers. Finally, the operational level enforces those rules and takes place 'on the ground' as rules are enforced.

In much of the literature, the term institution or institutions is often used to refer collectively to multiple individual institutions. Thus, for example, one might refer to the institutions of democracy in Canada, in which case this would refer to constitutional rules outlining our rights and freedoms, to policy level regulatory rules about how ballots are filled out at a voting site, and then down to individual voting sites where rules are enforced by the formal agents in charge of doing so. Note that while these are presented as separate categories, there may be overlaps between these in many cases, and they should be considered more of a continuum than discrete categories.

A traffic light is an example of the physical embodiment of formal institutions. A traffic light has many rules – cars need to stop on red and proceed on green, pedestrians

can cross when a walk sign is up and so on. Further, there are rules about what happens if you contravene those specific rules. For example, if you 'run' a red light, you may face a fine and demerits that impact your insurance rates and, if you get enough demerits, you can lose your privilege to drive. In addition, rules are enforced by other rules, such as rules regarding who can give you such tickets and your rights to challenge those tickets in court. Constitutionally, the right to make those rules is given to provinces by the Canadian constitution. Thus, the simple rules of a traffic light are embedded in a system of institutions that exist in a hierarchy. These are to solve a collective action problem relating to the efficiency of movement through an intersection. Without an agreed-upon system of control outlined in specific institutions, intersections would be very inefficient, with individuals pushing to get through as quickly as possible, negotiating every movement through the light while trying to avoid getting in an accident.

For the purpose of this research project, formal institutions will be considered those which are codified as rule, regulations, or laws by a formal organization (in this case the provincial and municipal governments).

2.3 Informal Institutions

Pathak and Muralidharan (2016) contend that although formal institutions have been described as explicit incentives and constraints originating from government regulation, informal institutions are implicit and socially constructed guidelines that are transmitted culturally. Zhan (2017) defines informal institutions as socially shared guidelines and procedures, which guide people's behaviors outside the officially endorsed channels. Normativity is pivotal to human beings; social norms are essential in maintaining mutual arrangements (collective decisions) and shared values in cultural groups (Brinck, 2015). According to Keefer and Knack (2005) social norms that prescribe trustworthy or cooperative behavior showcase a substantial impact on how communities overcome obstacles that hinder development.

Informal institutions are those which are not formally codified but rather are jointly understood and agreed upon by some or all members of the communities of interest. An example of a typical informal institution would be that holding the door open for those behind you is the right (as in morally correct) thing to do. Informal institutions will commonly be called 'norms' in this document.

Rimalet al. (2005) distinguish between the collective norms (e.g., norms that are implemented through sanction by other people) and perceived norms (e.g., norms that are implemented through personal beliefs of value). For collective social norms, Rimal et al.

(2005) state that beliefs or norms serve as the existing code of conduct that either proscribe or prescribe the behaviors that institution members or components would enforce. They identify individualized interpretations of the above collective norms as perceived norms. According to Rimal et al. (2005) the difference between the collective and perceived norms tends to highlight the etiological variation between the two social constructs. Collective norms are regarded as operating at the social system level (e.g. the entire institution or social network); therefore, they represent a collection of social institution codes of conduct. Schmidt (2014) adds that collective norms emanate through a system of shared interaction and communication among the member or staff of a social group or institutionalized organization. On the other side, perceived norms prevail at the individual level, which is also referred to as the psychological level since they mostly constructed during the individual's interpretation of the existing collective norms. Due to the interplay of collective norms and perceived (individual) norms, they are closely linked. Returning to the example of holding a door open for others, an individual who does not hold the door open for others (particularly the elderly or others needing assistance) might face social punishment from peers or even strangers who admonish the person. This is the collective norm in action. However, an individual who inadvertently fails to hold the door open for someone might notice their failure to do so and feel internal shame – a form of self-punishment. This is an example of a perceived norm functioning.

Norms that exist in a social environment can become institutionalized into formal institutions (rules). Morris et al. (2015) provide an example, "Traffic patterns started as conventions but over time became encoded as laws. As communities created organizations such as police academies and driving schools emerged to enforce and perpetuate these formal rules, lending them greater permanence" (p.3).

2.4 Institutional complexity and Collective Action Problems

Institutions are often developed in response to a collective action problem, which is a situation where individuals acting in their own self-interest results in an outcome that is not optimal for society as a whole (Berkes et al., 2003; Boyd & Folke, 2011; Vatn, 2006). The institutional systems addressing such problems are often dynamic, involving complex norms and rules which have been fostered by actors and agencies (Berkes et al., 2003; Boyd & Folke, 2012; Vatn, 2006). Ostrom (1990) noted that successful institutional arrangements involve "rich mixtures of private-like and public-like institutions defying the sterile dichotomy of antiquated definitions of institutional makeup" (p.14). Ostrom also notes that there are various complex institutional structures and that different communities evolve

their own institutional structure, including a mix of formal and informal institutions. In her work, Elinor Ostrom (2005) emphasizes the need to understand the entirety of the complex institutional system prior to intervention – noting that if individuals who are crafting and modifying rules do not understand how particular combinations of rules affect actions and outcomes in a particular ecological and cultural environment, instituting rule changes may produce unexpected and, at times disastrous outcomes (p.3).

Frunză (2011) indicates that institutions are a network of both informal and formal rules that bring order in the social and economic spheres and edify the application and monitoring of the regulations to ensure efficiency in managing resources. Fundamentally, through institutions, social conflicts can be eliminated and instead bolster cooperation to economize the available resources and use them for production activities (North, 1990; Ostrom, 2005). Moreover, formal institutions enhance the standard functionality of processes with minimal market obstacles. In essence, the functionality of market establishments is not only determined by the capability of the economic workers to unify themselves and work in a competitive milieu but, to a greater extent, by the ability of the government entities to create and apply "rules of the game" and make adequate and necessary corrections when required (Berkes et al., 2003; North, 1990; Vatn, 2006).

The notion of resilience has emerged as a core element in understanding the ideology of sustainable development, together with the environmental challenges faced by humans across the globe (Sjöstedt, 2015). Even though the definitions of institutions differ, the majority of them converge on the idea that resilience is a measurement of a system's ability to adapt to and cope with external pressures (Cole, 2014; Davoudi et al., 2012). Accordingly, resilience in line with the ideas drawn from institutional theory can help bolster an understanding of how formal and informal institutions help further agricultural land conservation.

Regarding the current study of the effectiveness of Alberta's land-use policies, most studies have focused on the functional mechanisms of formal institutions or at the constitutional level (Mitchell & Parkins, 2011; Pierson, 2000). Also focusing on land use, Hobart (2015) emphasized the importance of recognizing both collective norms and perceived norms as an element of land-use decision-making. However, as noted, when studying institutions in a real-world situation, analysis of only formal institutions can have serious shortcomings (Ostrom, 2005); therefore, Hall and Taylor (1996) suggest that research from a variety of perspectives, including the relationship between each level of institutions, would produce compelling insights for expanding institutional understanding. For this research, the focus was on understanding the relationships between these

institutional levels and how they impact informal arrangements, alongside formal ones, have on techniques used with land use management policies.

2.5 Institutional Change, Path Dependency, and Informal Institutions

Path dependence describes phenomena in which decisions or processes are guided by or restricted to a route created by former processes or decisions that continue to influence the current situation (Arthur, 1994). Path dependence (PD) has been used to describe phenomena in sociology, history, economics, human geography, and political science (Danny et al., 2009; Mahoney, 2000; Martin & Sunley, 2006; Pierson, 2000). According to Kay (2005) "path dependency is an empirical category, an organizing concept which can be used to label a certain type of temporal process" (p. 554).

Path dependency has been used almost exclusively within a broad institutionalist framework to label a phenomenon as a whole, not individual mechanisms (Raadschelders, 1998). A policy system is complex, consisting of many interrelated elements and mechanisms. Within a policy system, there are many levels and subsystems (elements). Each subsystem is comprised of its own set of actors, agencies, goals, and mechanisms. As noted earlier, institutions and policies are as a whole consist of various levels that influence the formulation and implementation of the policy.

Heinmiller (2009) evaluates the effect that the path dependency has on collective action in CPR, assessing basin-level water management with a case study of the Murray-Darling Basin of Australia, the Colorado Basin of the US, and the Saskatchewan-Nelson Basin of Canada. Heinmiller (2009) argues that important influences on local governance of common property resources include shared preferences, social capital, trust, collaborative experiences, shared knowledge, and expectations of future interactions, as well as focusing events. According to Heinmiller (2009), path dependency is a principle that is suggesting many adaptations and investments in early resource management institutions can hinder actors from abandoning these institutions, thus affecting and shaping the subsequent collective action efforts.

Similarly, Pierson (2011) weighs into this through his book representing a systematic evaluation of the declaration of 'history' matters' when considering the influences on formal systems. Pierson (2011) realizes that most contemporary researchers unconsciously take a snapshot view of the social world. Pierson's (2011) argument is that placing politics in time can help in enhancing the understanding of complex social dynamics and thus improve the methods and theories formulated and used to explain them. Kay (2005) also adds that

institutional change and path dependency is crucial notions in diachronic approaches to understanding political and social processes.

Regarding land use, Brown et al. (2014) note that historical institutional legacy is one of the significant influences in land use pattern decision-making, especially in regions with long histories of change in land use, which often act to impact institution social norms. Legacy influence is, therefore, captured in the broader concept of path dependency which determines how self-reinforcement would be achieved based on both collective and perceived social norms. Precisely, for the case of decision-making concerning the land-use system, Heinmiller (2009) notes that path dependence would play an essential role in the undertaking of efforts to initiate land-use policy change.

Brown et al. (2014) observe that social, cultural, and economic roles alongside institutional path dependence aspects and their implication for the land-use policies remain unexplored. Kay (2005) proposes that path dependency is applicable as one of the six Ps that all together determine the main socioeconomic influences that play a crucial role in shaping land-use decisions.

2.6 Application to Research

Alberta has a formal system of land use governance outlined in the Municipal Governance Act and implemented at the local level by municipalities. The decision as to whether land-use zoning can be changed rests with municipal councils consisting of elected officials (note that there are appeals possible through the judicial system). The premise of this thesis, drawing from literature on institutional complexity (and anecdotal knowledge of the researcher), is that local level informal institutions may affect this system.

In the last two decades, there has been a shift away from a permissive approach to the development of agricultural land to one seeking to preserve agricultural land. This has been enconced in policy direction at the Provincial government level, but the application of this policy is still undertaken at the local level. This research seeks to identify if existing social norms rooted in values and principles (and networks) affect land-use decision-making related to agricultural land protection at the local level. If so, these informal aspects of the system act as a form of path dependency, halting or slowing the intended changes made in the formal system.

For this research, the focus was on the elements (subsystems) of decision-making regarding land-use management and understanding the effectiveness of policy mechanisms in place. Although there has been a change at the policy level (Alberta's LUF), the

subsystems and instruments of Alberta's land-use policies are grounded in historical land-use policies.

2.7 Summary of Chapter

This chapter presented a perspective on the interaction between formal and informal institutions and the legacy of path dependency in which they continuously transform each other. This chapter also explored how collective action problems often developed into institutions as a response to individuals acting in their self-interest results in an outcome that is not optimal for society. Furthermore, issues addressed by institutions are often dynamic and involve complex norms and rules. Furthermore, it described how institutional change and the phenomena of path dependency in which decisions and processes are steered by or restricted to a course created by former events. Finally, this chapter focused on applying this research by exploring the subsystems of decision-making regarding land-use management to understand the effectiveness of current policy mechanisms and how these subsystems are grounded in historical land-use practices.

Chapter 3: Policy Review

As Alberta's urban areas grow, they often expand onto agricultural land resulting in the conversion of agricultural land to other uses. While there are benefits to the expansion of cities, there are impacts to the potential for agricultural production (including local food production for local markets), on the rural aesthetic surrounding urban areas, and on the environmental services provided by agricultural land fringe (Balmford et al., 2005; Connell et al., 2016; Haarsma et al., 2014; Hofmann, 2005). These impacts have led to efforts to preserve agricultural land. The existence of competing tensions between the desires to preserve land versus the desire to develop the land is an important and challenging issue in Alberta's current approach to managing land use.

This chapter introduces the issue of agricultural land use loss in Canada and, in more depth, in Alberta. It then explores the concept of Integrated Resource Management as a driving philosophy behind resource (and land is a resource) management in Canada. Following this, it provides a brief summary of how agricultural land in Ontario and BC is protected. The remainder of the chapter reviews Alberta's historical and current efforts to protect agricultural lands using land-use management policies and tools.

3.1 Agricultural Land Loss in Canada and Alberta – Framing the Problem

Agricultural land can be defined as an area of land that is utilized for systematic and controlled use of living organisms for the human race (Agricultural Land Commission Act, 1973). This includes food production as well as the growing of plants for fiber, fuels, and organically derived products like pharmaceuticals (Adilu & Begam, 2017).

Agricultural land surrounding urban centers is under pressure from urban expansion, resulting in the conversion and fragmentation of productive agricultural land (Haarsma, 2014). Note that conversion of agricultural land refers to a permanent shift from agricultural to other uses while fragmentation refers to the interruption of tracts of farmland with other forms of development.

Large operations require vast amounts of contiguous lands to move machinery and efficiently use all partials of land to maximize output, i.e., maximizing monetary benefits (Demetriou, 2014). With the inefficiency of fragmented agricultural lands near the urban fringe, the farming operation is forced further out onto otherwise less productive land (Haarsma et al., 2014). It is noted that fragmentation encourages the conversion of agricultural land into urban development as operations move out, leaving vacant fragmented partials (Haarsma et al., 2014).

3.1.1 Agricultural Production

Today's agriculture contribution to the global GDP amounts to 3%, whereas more than a third of the total land area worldwide is involved with agriculture (FAO, 2017). The Canadian agricultural sector in 2016 accounted for 6.7% (\$111.9 billion) of the national GDP and employed 2.3 million people (12.5% of the workforce) in 2016 (Statistics Canada, 2017a).

In Canada, approximately 670,000 km² of land is used for agriculture (Connell et al., 2016). The amount of land used for agriculture represents only seven percent of the country's entire landmass. Nonetheless, not all of the land utilized for agricultural purposes in Canada is within high-quality soil. Thus, even presently, some agricultural activities occur on marginal lands, which may not be reliable for long-term agricultural production (Connell et al., 2016).

Canada has historically identified the quality of its agricultural land using the Canada Land Inventory which rates soils based upon their suitability for agriculture, including soil type, landscape, and climate. Wulder et al. (2008) mention that the attributes applied to define each of these factors are selected based on their tested capabilities to impact agricultural activities (See Figure 2) such as the growth of crops, their availability within the accessible databases, and their availability for measurement.

In totality, the inventory map covers approximately 2.5 million km² of water and land (Pettapiece et al., 1995). CLI is conducted as a co-operative federal-provincial program issued under the Agricultural and Rural Development Act (ARDA) dated back in June 1961. CLI is a modelled mapping tool designed purposefully for effective planning of land use by providing the essential information for the development of land resources both at the federal, provincial, and municipal government levels (Pettapiece et al., 1995).

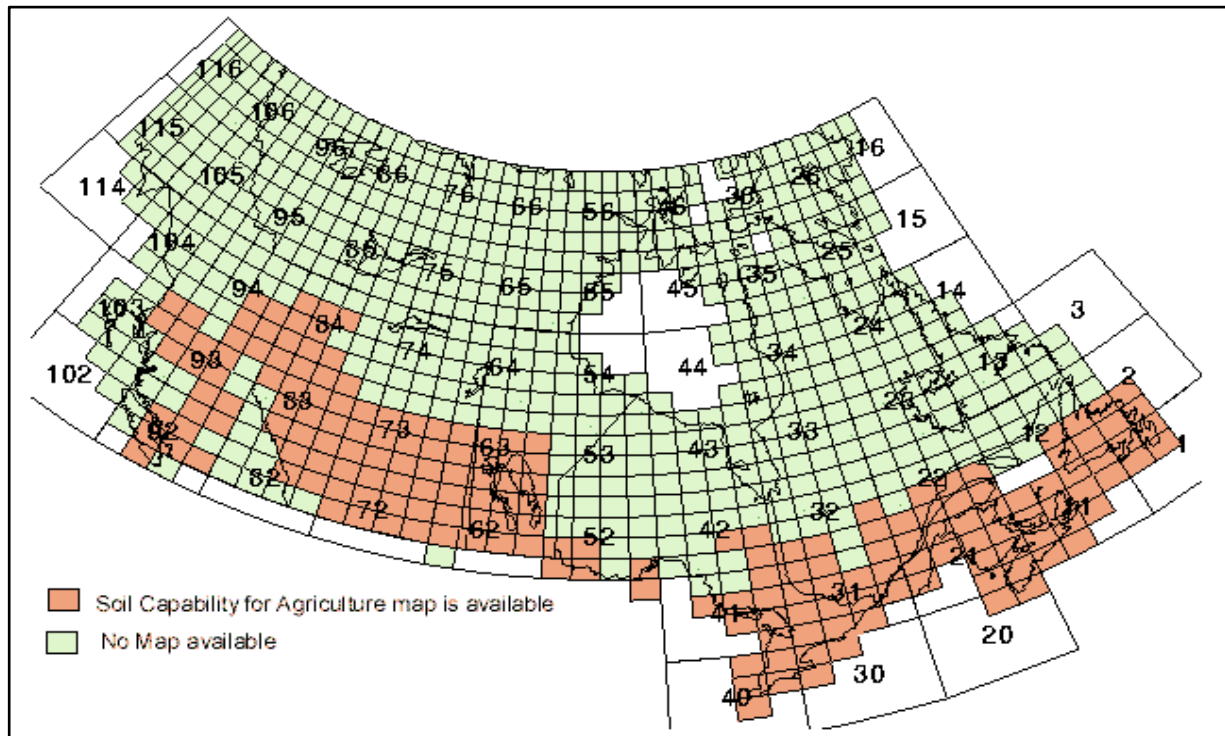


Figure 2: Extent of soil availability/capability for agriculture (Agro: Government of Canada 2015)

While the CLI remains in use, it is now complemented by the Land Suitability Rating System (LSRS) for Agriculture. The tool is used to generate class ratings for various land parcels for certain crops depending on the land quality features, including soil type, landscape, and climate potentials (Wulder et al., 2008). Today, LSRS alongside the CLI system is applied increasingly as an important spatial tool in the evaluation of the potential transformations in crop distribution across Canada, both at regional and national levels.

Alberta plays a big role in agricultural production in Canada. Alberta leads the country in cattle production at 41.6% with Saskatchewan in second at 20.7% (Statistics Canada, 2017b). Alberta is also ranked second in the nation for field crop and total farm area, with Ontario leading in that sector (Statistics Canada, 2017a).

Alberta's agricultural sector in 2016 contributed 23% (\$13.6 billion) to the total Canadian primary agricultural GDP (Alberta Agriculture & Forestry, 2017). Alberta is a leading contributor to the agricultural sector even though the percentage of suitable land is relatively small at $\approx 20\%$ (Jensen & Hu, 2016). The province of Alberta's landmass covers around 650 million km², which 211 million km² in agricultural production. About 130 million km² of this are used for the production of crops, 81 million km² are used for grazing, 243 million km² for commercial wood production, 3,400 km² for acreage development. In comparison, 4,856 km² are used for the transportation network.

3.1.2 Agricultural Lands and Ecosystem Services

According to Cengiz, (2013), an open agricultural landscape is also fundamental to the environmental processes (green infrastructure), which support the functions of human infrastructures, e.g., dams, water treatment plants, and other built structures, also known as 'gray infrastructure.' These environmental processes include the retention of surface water, which aids in slowing runoff from rain and avoids costly damage to the built environment. Surface water is then filtered by the soil and recharges groundwater (Benedict & McMahon, 2006). This water can be used for consumption, such as drinking water and irrigation of crops (Cengiz, 2013). Agricultural lands also aid in the decomposition of organic waste, and a large amount of carbon is stored in soil (Lup et al., 2007). These processes support the organisms which are involved in nutrient cycling responsible for feeding the vegetation and reducing the need for synthetic fertilizers (Chang et al., 2015). Agricultural lands contribute to the economy by supplying products but also by reducing the need for costly gray infrastructure (Benedict & McMahon, 2006)

3.1.3 Agricultural Land, the Rural Aesthetic, and other Cultural Benefits

Agriculture does not only influence the physical landscape; it has influenced the cultural landscape. Individuals and communities interact with their surrounding environment, developing complex relationships with the land and fostering cultural practices (Greiner et al., 2009). Considering how individuals value environmental amenities, ideas of what agricultural land means, and the notion of land use and individual rights is important for land use policy decisions (Benefits, 2012). However, there is a gap in literature in understanding the relationships between the stakeholder's identity and beliefs with the land and land use practices (Agrawal, 2016).

According to a study by Wang & Swallow (2016), research participants valued agricultural landscapes adjacent to roadways, urban centers and were willing to support land protection near city limits experiencing urban encroachment. The motivations for protection varied but the primary concerns were linked to Canadian food security, access to local farmers' markets, and scenic beauty protection. Furthermore, in Alberta, the cultural tie to agricultural land is vital as many associate the province with agricultural production, and rural communities rely on agriculture for economic stability (Robinson, 2014).

3.1.4 Agricultural Land Loss in Canada

Despite advocacy and efforts over the past forty years regarding agricultural land protection, Canada continues to experience the loss of prime farmland across the country (Haarsma, 2014; Stoms et al., 2009; Wang & Qiu, 2017b). According to Connell et al. (2016) less than 10% of Canada's agricultural lands are under the protection of strict legislation and of that 10% only 5% of Canada's prime agricultural land is "free from severe constraints to crop production" (Hofmann, 2005, p 4). As noted by (Caldwell & Dodds-Weir, 2003), "Despite Canada's size, dependable agricultural land is a scarce resource in this country" (p. 8).

According to a review by Statistics Canada (2017b), since 1971, urban expansion has displaced over 12,000 km². Of the 12,000 km², over half was considered to be prime soil, Class-1-2-3, using the Canadian Land Inventory (Hofmann, 2005). The loss of this agricultural land is partially due to the increasing urban population and the new form of urban households using more land for every dwelling (Connell et al., 2015). Other contributing factors to the loss of agricultural lands are the expansion of commercial and industrial activities, used to support population growth.

3.1.5 Agricultural Land Loss in Alberta

After the recent economic boom in mid of the 2000s, Alberta's annual growth in the population of more than 10% over five years has exceeded the national average of 5% (Statistics Canada, 2017a). Alberta's population has increased from 4,010,903 in 2013 to 4,330,206 in 2018 (Census Gov. of Alberta, 2018). The Government of Alberta Census division (2018) is projecting an increase in the population of over 6 million by the year 2041, with the highest growth to occur in the Edmonton-Calgary corridor and in Grande Prairie. The Calgary Metropolitan Region (CMR) occupies an area of 5,107.55 km², with a population of 1,392,609. In 2012 alone, Calgary proper grew by 35,000, and if the growth rate meets the projections (Alberta Census Dept., 2018). The City of Calgary will occupy up to 1800 km², and the CMR will follow suit and double in size, consuming surrounding prime agricultural soils by 2046. The Edmonton metropolitan region (EMR) occupies 9,438.86 km², with a population of 1,321,426 (Census Gov. of Alberta, 2018). According to Haarsma et al. (2014), the region lost 352.5 km² of prime agricultural land between the years of 2000-2012. In step with Calgary, the EMR will double the area of urban development as the population will continue to expand (Census Gov. of Alberta, 2018). Consequently, the increasing competition for resources and land, Alberta's growth has hindered agricultural

operations' ability to continue producing high quality, low-cost products (Wang & Qiu, 2017b).

Historically, as Alberta has grown, growth in rural residential, natural resource extraction, industrial uses, and other developments have resulted in pushing out agriculture (Bott, Chandler, & McKenzie-Brown, 2016; Haarsma, 2014; Weber et al., 2012; Balmford et al., 2005; Haarsma, 2014; Weber et al., 2017). Further, land meant for agricultural purposes has been sold for development, and this has created an excellent retirement fund for some of the producers, albeit at a cost. For instance, urban-related development has been notable along the Queen Elizabeth II Highway between Edmonton and Calgary. The area was initially used for grazing and crop production, but development has now pushed out ranchers, forcing them to move to other lands though less productive (Benoit et al., 2018; Haarsma, 2014; Stan & Sanchez-Azofeifa, 2017b; Wang & Qiu, 2017b).

In Alberta, the most fertile soil (Class 2-3) is located within the Edmonton-Calgary corridor and the Peace River Region; these are also the most densely populated regions of Alberta, accounting for nearly 75% of the province's population (Martellozzo et al., 2014; Stan et al. .2017; Statistics Canada, 2017a). According to Stan (2017), in the Edmonton-Calgary corridor, the amount of land being used for urban development, including industrial activities, increased 52% between the years of 1984 and 2013. A follow-up study by Wang & Swallow (2016) noted that 68% of the soil lost was considered the best soil found in Alberta. Areas located in the Peace River Region, including the County of Grande Prairie, also possessing a large concentration of prime agricultural soils (Government of Alberta, 2016). Refer to Figure 3. The significant urban growth in these areas has created concerns for the water quantity, quality, and the volume of land being lost to hasty urbanization (Benoit et al., 2018).

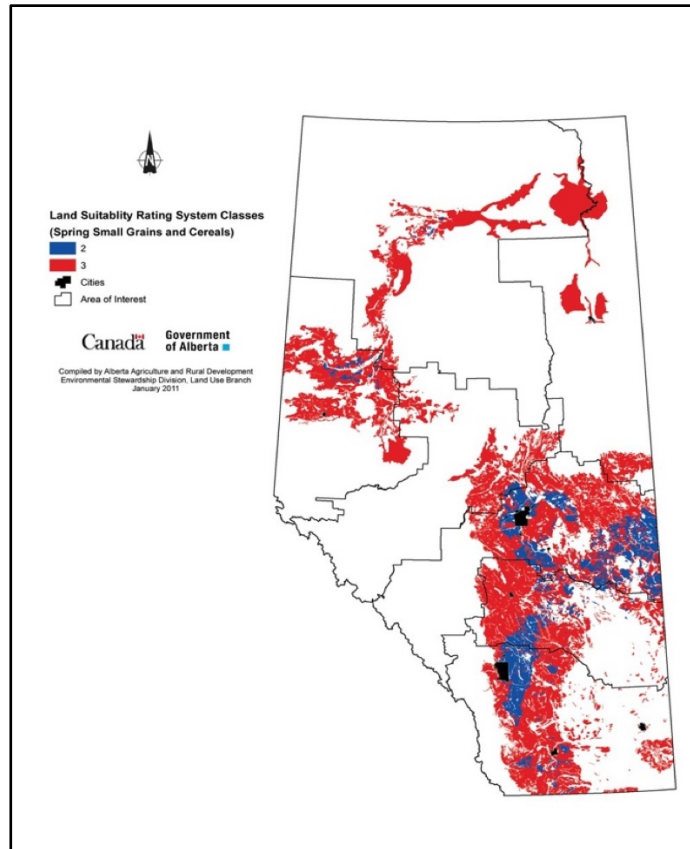


Figure 3. Classes of arable land in Alberta (Government of Alberta, 2016)

Adilu & Begam (2017) noted that between the years of 1988 and 2010, 60% of Alberta's urban development occurred on prime agricultural land. However, the effect of urban expansion appears to have been offset by new agricultural land being put into production. According to the Agricultural Land Fragmentation and Conversion Report (AFCR) (2016), Alberta lost approximately 316 km² of agricultural land to nonagricultural uses between 1988-2010, but expanded 318 km² during 2011-2016, resulting in a net gain of 1.5 km² of agriculture land (Adilu & Begam, 2017; Wang & Swallow, 2016). However, a majority of the new land in agricultural production is now located on Class 4 and 5 soils, i.e., requiring more resources to sustain the equivalent numbers in production (Adilu & Begam, 2017; Balmford et al., 2005; Benoit et al., 2018; Haarsma et al., 2014; Wang & Qiu, 2017). Furthermore, in northern regions of North America, due to climate and weather patterns, some agricultural operations such as field crops, fruits, and vegetables require higher quality soils (Adilu & Begam, 2017). Using LSRS, high-quality soil needed for such operations include Class 1-3 land, while others such as intensive livestock operations, grazing, and greenhouse facilities require LSRS Class 3-7. Furthermore, to emphasize the

impact of losing prime agricultural land, this study focused primarily on areas with LSRS Class 2 and 3 soils.

3.2 Land Use Governance in Alberta

3.2.1 Alberta Land Ownership and Use Zones.

Decision-making regarding land-use in Alberta is currently determined by the government's 1948 resolution to segment the province into Green and White Areas. The two areas are currently used to reflect land uses, ownership and how the land is planned and managed (LUF; Government of Alberta, 2007). The Green Zone mostly consists of crown owned land with very little agricultural relevance. As such, this report focuses on areas within the White zone.

The area coverage of the White zone is approximately 42 percent of Alberta province (see figure 4). It is mostly comprised of land owned by individuals and groups (homeowners, farmers, companies, and organizations) (LUF; Government of Alberta, 2007). Within the White zone, 25 percent is public land and is also part of the farming landscape and is utilized for various purposes such as recreation, agriculture, water and water conservation, and wildlife and fishing habitat (Alberta Agriculture and Forestry, 2016). As of 2017, roughly 75 percent of the White Area is privately owned, accounting for approximately 1.7 million individual titleholders, and 50,000 owners who use a considerable percentage of their lands for agricultural purposes (Alberta Agriculture and Forestry, 2016). Within the White Area's private lands, the authority is given to municipal governments to set regulations and make land-use decisions (ALSA; Government of Alberta, 2011). Land-use decisions are made within the provincial government on public land within both the White and Green Areas of Alberta (Alberta Agriculture and Forestry, 2016).

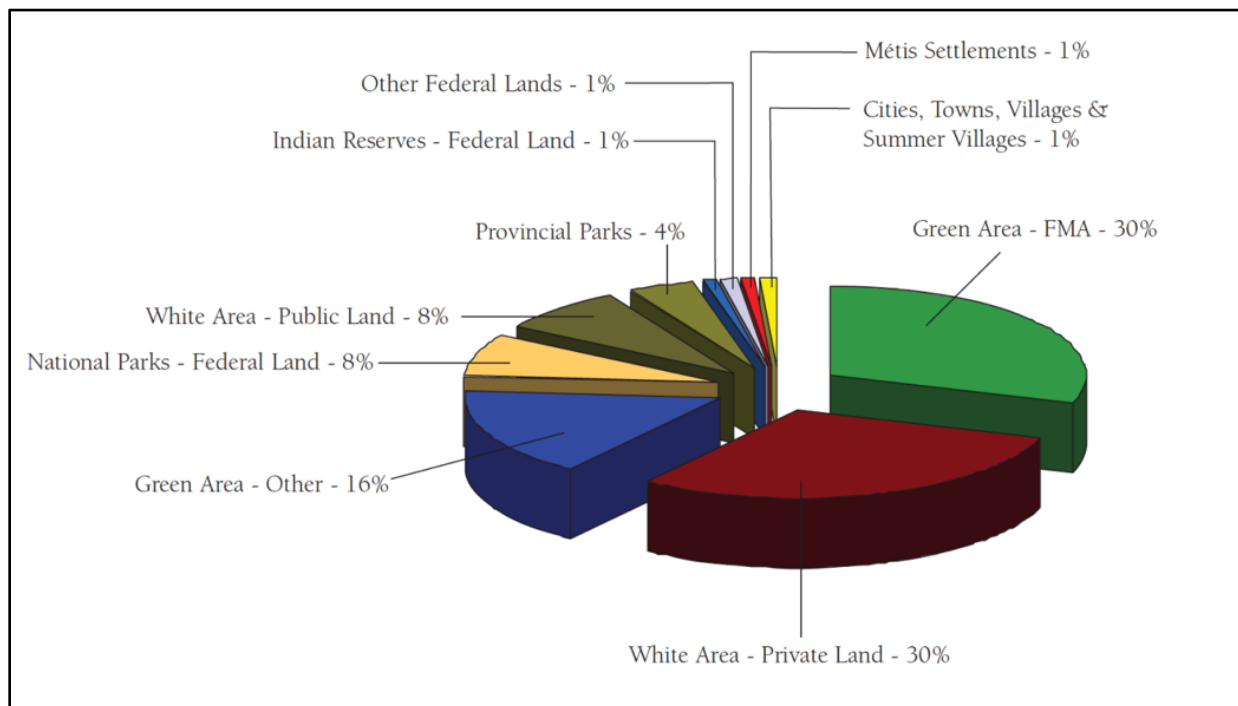


Figure 4. Land use segmentation in Alberta (LUF: Government of Alberta, 2007)

3.2.2 Historical Background to Land Use Planning in Alberta

Alberta has had land use planning since 1912 with the introduction of provincial regulations on subdividing land for urban development. The passing of the first Town Planning Act of 1913 introduced the first hints of regional planning as municipalities were required to send plans to the Ministry of Municipal Affairs for approval of Town Planning Schemes (TPS) (Government of Alberta, 2018). In 1929, the the Town Planning and Preservation of Natural Beauty Act was passed, which primarily regulated subdivision plans, streets, lots and utilities to enable the municipal authority to embrace objective-based community planning efforts (Government of Alberta, 2018).

After the end of the Great Depression and the return of soldiers following WWII, along with the discovery and establishment of oil in the Leduc region in 1947, a population boom created unprecedented growth pressures on Alberta communities. Without a formal planning department, many communities were not prepared for the rapid increase in population (AUMA, 2017). Furthering the demand for new land to be converted into urban development, the widespread adoption of automobiles allowed greenfield developments to be viable and encouraged further expansion into environments that were previously isolated from the community's core (Soans, 2018). Planning departments of many Alberta communities were faced with an unexpected demand for new roads and automobile-related

infrastructure (Soans, 2018). New car-centric residential and commercial developments were built with wider streets, shopping malls and homes oriented around the personal garage which still exist in many of today's urban and peri-urban areas (Soans, 2018).

In 1950 the province undertook a series of amendments to the 1929 Town Planning Act, which were then incorporated into the Town and Rural Planning Act 1950. The 1950 Act gave the Cabinet the power to create a new District Planning Commission to address the urban expansion occurring across the province (Connell et al., 2016). The provincial government partially funded the District Planning Commission (DPC). The DPC acted as the go-between the municipalities and the provincial government. The DPC evolved into Regional Planning Districts after the passing of the 1963 Planning Act, which standardized building codes and land-use bylaws (AUMA, 2016). It also formed the Regional Planning Commission (RPC), which required the preparation of regional plans, and delegated subdivision approval authority to regional planning commissions for all represented municipalities.

In 1974 Alberta Municipal Affairs introduced a proposal for a new Alberta Planning Act, which came to be known as the "Red Book" (Elder, 1979). The new Planning Act proposed changes to regional planning in the province, by centralizing planning powers, arguing that land use planning needed to be made with a greater interest in mind above the point of view of individual municipalities. The new plan reorganizes the Regional Planning Commissions into the Metropolitan Planning Commissions (MPC), located in both Calgary and Edmonton. Members of the new MPCs would be appointed by Cabinet and would be formed as corporations. Doing so would allow the MPCs to contract with municipalities to develop inter-municipal efforts of joint utility and transportation projects. Further changes saw the creation to the Special Areas to aid in protecting identified sites from unwanted developments.

In 1977 the Planning Act (Red Book) was further revised to represent what is still evident in today's planning regime, i.e., formalized development agreements, offsite levies, and reserve dedications. The revised legislation recognized local autonomy, encouraged public participation in the planning process, and designated regional plans as a top document (Dragushan, 1979). However, the changes in the 1977 Act represented further decentralization of previous provincial control. During the time of decentralization, the province's economy quickly grew from 1977 to mid 1980s, resulting in an increase in urban growth, drastic land use changes and significant pressure on municipal infrastructure. During this time, greenfield developments resulted in the conversion of agricultural lands into rural residential and rural commercial/industrial uses. In 1981, planning commissions

for the nine main regions of Alberta had been formed to serve the province's land decision-making needs. However, the downturn in the economy in the mid-1980s resulted in unfinished developments and reduced tax base revenue for many municipalities (Van Assche et al., 2016). Therefore, the RPC and regional plans came under increasing pressure from municipalities to relinquish planning authority.

In 1994 a new Municipal Government Act (MGA) was introduced eliminating the RPC (MGA Review: Government of Alberta, 2015). In 1995, an amendment to the MGA repealed the Planning Act, giving all planning authority directly to every municipality (MGA Review: Government of Alberta, 2015). In place of regional planning, the government of Alberta implemented land-use directives that were meant to direct the planning tasks of the municipalities whilst encouraging inter-municipal collaboration.

With the elimination of regional planning commissions in 1995, inter-municipal disputes between urban and rural municipalities led to the introduction of statutory inter-municipal development plans (IDP). The IDPs intended to ensure that boundaries of two or more jurisdictions were more coordinated (LUF: Government of Alberta, 2007). A good number of the "first-generation" IDPs were somehow weak policy or directive documents, and many municipalities did not complete the IDP (Benoit, Johnston, & Mackenzie, 2015).

In response to public concern and increasing evidence of/about the conversion and fragmentations of agricultural lands, the Alberta government introduced the Land Use Framework (2008), prioritizing the environment, water, protection of agriculture and the well-being of society (Wang & Qiu, 2017b). As a response to the escalating tensions surrounding Edmonton, Alberta introduced the Capital Region Board Regulation (CRBR) in the year 2008, which subsequently created the Capital Region Board (now the Edmonton Metropolitan Region Board). Replacing the weighted voting system of the older Regional Planning Commission, the CRBR afforded each participating municipality one equal vote (MGMB: Government of Alberta, 2019). The CRBR mandated the establishment of a growth plan management for the region, requiring all municipal planning schemes to be concurrent with the Capital Region Growth Management Plan (MGA: Government of Alberta, 2019). The Calgary Regional Partnership (CRP) (now the Calgary Metropolitan Region Board) consisted of a voluntary partnership of surrounding municipalities. The CRP assumed regional coordination tasks, which led to the formation of metropolitan growth plan of the area. According to a report by AUMA (2017) challenges in coming to an agreement on the adoption of the plan compelled the municipalities into pulling off from the partnership. As of 2018, both the Capital Region Board and the Calgary Regional Partnerships have been reorganized into a more formalized platform. The result of contention and other land use

disagreements led to the dissolving of the CRP and required a more direct provincial involvement (MGA: Government of Alberta, 2019).

Table 3.1: Alberta historical planning acts

| Year | Act | Action of Planning Act | Desired goal(s) and outcomes of Act |
|--------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1905 | Alberta: Province | | |
| 1913 | <i>Town Planning Act</i> | Allowed municipalities the ability to control subdivisions and save space for transportation corridors, utilities and public spaces. | Introduced the ability for municipalities to manage land for the interest of the public. |
| 1929 | <i>Updated Town Planning Act</i> | Municipalities were given the ability to declare how land is used via zoning, along with the height, size and type of building | Policy increased the power for municipalities to manage land and prescribe how it is used according to common goals of Albertans |
| 1930s | <i>Great Recession</i> | Population reduced | Regional planning no longer a concern |
| 1950 | <i>The Town and Rural Planning Act</i> (district planning commissions) | Oil boom 1947; Population/economic boom. Province hired professional planning and created district planning commissions. | Contributed to increased power for the municipalities to respond to growth pressures in and around Calgary and Edmonton |
| 1977 | <i>1977 Planning Act</i> | Incremental changes adjusted the processes and governing bodies to manage subdivisions and development. | Regional planning is priority. To develop land thoughtfully with the participation of municipalities and the public without significant delay or burdens. |
| 1995 | <i>Municipal Government Act replaced the Planning Act</i> | Regional planning was removed | Municipalities were again individually responsible for plans, subdivisions and engaging in intermunicipal (voluntary) discussions. |
| 2008-Present | Land-use Framework | Better balance environmental, social and economic needs and provides greater certainty for decision-makers. Create 7 regional plans based on watersheds | 5 of the 7 regional plans are still under development. Intermunicipal collaborations are still a concern. Rural and Urban interest are still at odds. |

3.2.3 IRM and the Land Use Framework

Integrated Resource Management (IRM) is a widely recognized approach to managing natural resources which recognizes the interdependencies of political systems, natural systems, social systems, as well as technology in handling “wicked” problems that are an inherent characteristic of natural resource use (Bellamy et al., 1999). Weber, (2017) describes “coordinating individual decisions to meet collective ecological outcomes is a wicked problem since the best course of action is filled with value judgment, scientific uncertainty, and depends on what everyone else is doing” (Weber et al., 2017a, p. 2). Integrated resource planning (IRP) is a planning focused approach to IRM and can be

defined as a multi-sector and multidisciplinary approach (Bellamy & Johnson, 2000). Bellamy & Johnson (2000) explain that integrated planning involves multiple sectors of the government and various stakeholders that handle environmental and development problems. The goal of using IRP is to foresee and plan for the impacts of anthropogenic disturbances on the ecosystem (Bellamy et al., 1999; Duinker & Greig, 2006; Weber, Krogman, & Antoniuk, 2012). Furthermore, integrated resource planning functions by increasing public involvement, which will encourage more sustainable land use planning (Bellamy et al., 1999). According to Bellamy & Johnson (2000), IRM and IRP were developed out of the acknowledgment of two key factors: "the failure of current disciplinary or sector-based approaches based on rational planning principles to lead to sustainable and equitable resource management outcomes and insights from disciplines other than agriculture, including ecology, policy science, and social science" (p. 267).

Cumulative Effects Assessments and Management (CEAs, CEMs) are a crucial and functional element of the IRM or IRP approaches (Duinker, & Greig, 2006). Cumulative effects are the collective effects of both present, past, and even reasonably foreseeable land-use activities, over a given period, in the environment (LUF: Government of Alberta, 2007). A cumulative effect assessment inspects, monitor, and track the long-term interactions between a combination of effects from one development with impacts from other developments occurring in the same ecosystem or region (LUF: Government of Alberta, 2007). This includes the effects on Valued Ecosystem Components (VECs), citing the correlations concerning other actions, unlike the effects of one action under a study. CEAs increase the scope of traditional project-specific environmental impacts assessment (EIA) to evaluate how multiple activities may cause cumulative effects on larger geographic areas, longer timeframes, and unrelated projects or activities. Nonetheless, CEAs further expands the assessment sales to regional levels and consider not only the impact on an ecosystem but also the impacts on the socio-economic and social wellbeing. CEAs are typically expected to monitor cross jurisdictional boundaries, including effects due to anthropogenic actions; therefore, requiring a robust integrated management system (Duinker, & Greig, 2006).

3.2.4 The Land Use Framework

To address the land use challenges, in 2008, the Alberta government introduced a new environmental management system using Integrated Resource Management (IRM) and strategic development planning (LUF: Government of Alberta, 2007). The IRM approach encourages the use of a sustainable management system which integrates water, land, and

other environmental resources with the cumulative effects from society (Bellamy & Johnson, 2000; Mallon, Cutlac, & Weber, 2016). The provincial government introduced this approach to deal with the “wicked problems” of connecting water and land governance since the process must balance social, economic and environmental needs that are acceptable to a large group of stakeholders (Mitchell & Parkins, 2011; Weber et al., 2017a). Regional plans in Alberta intend to address all “development-related activities, opportunities and challenges in a region over the long term” by integrating cumulative effects management (LUF: Government of Alberta, 2007, pg. 3).

The LUF represents a revival of regional planning in Alberta which strives for integrated land use planning and communication between government departments and stakeholders. However, at this point, it is unclear if or how regional plans and provincial policies will be realized. Provincial land-use planning primarily emphasizes the management crown land (public lands), which accounts for 60% of the Province’s land base (LeSage & Melville L. McMillan, 2008). The Public Lands Act (PLA) and Public Lands Administration Regulation (PLAR) manage and regulate planning on provincial public lands, e.g., resource development and overseeing environmental objectives (PLA: Government of Alberta, 2020). The LUF is accorded legal effect through the Alberta Land Stewardship Act (LUF: Government of Alberta, 2007). According to the Alberta government, the LUF and ALSA moves planning beyond “project-by-project basis” and now implements the integrated resource management approach (LUF: Government of Alberta, 2007).

The passing of the Alberta Land Stewardship Act (ALSA) created the legal foundation for the use of regional planning on private and crown lands (ALSA: Government of Alberta, 2009). The plans by the provincial authority do not directly handle private development on community development and governance, and private property (ALSA: Government of Alberta, 2011). However, they may give municipalities general direction on land-use and more explicit direction regarding environmental outcomes (ALSA: Government of Alberta, 2011).

As per the MGA, municipal development and planning decisions are still made within the municipal level. Nonetheless, as can be seen in figure 5, all municipal, statutory plans and land use bylaws must conform to provincial land-use regulations under the MGA, ALSA’s regional development plans (e.g., the Edmonton Metropolitan Region Growth Plan) which are formed by legislation or inter-municipal agreements and other provincial legislation (Kaplinsky & Percy, 2014). The ALSA also offers a better provincial level of control by creating statutory land use plans for the seven main watershed regions of Alberta, which is mandatorily accounted for local-based decisions. So far, two watershed regions of Alberta

have had development plans completed; that is, South Saskatchewan Regional Plan and the Lower Athabasca Regional Plan (LUF: Government of Alberta, 2020b). The last of these was completed more than six years ago, however, and there is uncertainty if the provincial government will proceed with more, or if political interest exists.

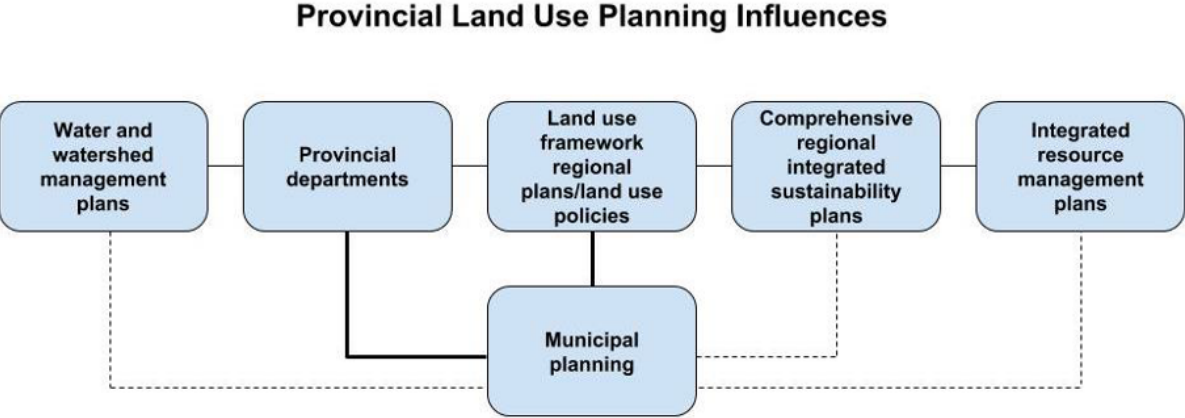


Figure 5. Land use planning hierarchy (Government of Alberta, 2007)

3.2.5 Alberta’s Cumulative Effects Assessment and Management.

Cumulative Effects Assessment and Management (CEA, CEM) is currently an integral element for several environmental impact assessment (EIA) processes. In Canada, CEA is a mandatory requirement provided for under the Canadian Environmental Assessment Act of 1995, section 16(1). The CEA clearly demands the consideration of “any cumulative effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out” (Duinker & Greig, 2006, p.2).

Alberta uses several strategies (non-regulatory tools) to complement the legislation and give life to the monitoring system. For example, the Land-use Framework, Water for Life, Clean Air Strategy, and Alberta's Plan for Parks are some of the strategies. The strategies are designed to provide a higher-level direction for the management goals and provide regional and local decision-makers with guidance (Alberta Environment; Government of Alberta, 2019). In the interest of using an IRM approach, many of these programs are delivered in partnership with organizations, individuals, multi-sector, and multi-agency. Examples provided by the provincial government include species-at-risk programs, management practices, and invasive species management to reduce biodiversity

impacts (Alberta Environment; Government of Alberta, 2019). The government also "encourages the forest and energy sectors to engage in integrated land management practices to coordinate their operations and minimize the land disturbance footprint"(Forest Act; Government of Alberta, 2014).

3.2.6 Land Use Framework Guidelines for Protecting Agricultural Land

According to the LUF: Government of Alberta (2007), the Alberta Land Stewardship Act (ALSA) is a legal instrument used for the implementation of the agricultural land management strategies highlighted in the LUF. As an instrument, ALSA provides an enabling system of legislation that develops a comprehensive outline for the implementation of LUF and offers municipalities the power to pass and implement regulation as appropriate to enhance land conservation, as highlighted in the LUF. Consequently, ALSA adopted four primary tools for the protection of agricultural land, through regulation and conservation (ALSA: Government of Alberta, 2009):

- Conservation Easement - voluntary agreement between two distinct groups in order to protect a property value by applying restrictions to its utilization as well as other relevant development opportunities
- Conservation Offset - a tool applied deliberately to ensure environmental gains to compensation for the negative implications of the development programs.
- Conservation Directives - Conservation directives are a regulatory system for land use that municipal government could use in regional planning to guarantee permanent protection, management, conservation, and enhancement of the natural environment. These have not yet been used in Alberta.
- Transfer of Development Credit - refers to the transfer of development credits (TDC) as market-based equipment used by the municipalities to meets its conservation objectives while focusing development within the regions regarded as suitable.

These four tools are discussed only in a limited way in this document as other than conservation easements which is a voluntary form of protection of an area, they have had almost no impact in Alberta.

3.2.7 Alberta's Regional Plans

The provincial government does not make direct land-use decisions for private lands; therefore, the regional plans introduced through the LUF offer a formalized management approach between the provincial and municipal land-use decisions for both the public and private lands (LUF: Government of Alberta, 2007). According to the LUF, the Government of

Alberta (2007), and under the EMS, Alberta's regional plans must embrace a cumulative impact strategy that includes regulating the effects of both new and existing activities. These plans will be based on the evaluation of socio-economic values and environmental risks, which will then be applied in establishing fundamental environmental goals. The regional plans must regard the contribution by the Métis communities and First Nations, public and concerned stakeholders. They must also determine specific trade-offs as well as appropriate systems for the management of land and other natural resources for given landscapes in a region. All regional plans are to incorporate the CEM approach to identify and outline targets, thresholds and enact the process of monitoring.

The regional plans provide directives for local municipalities' growth plans within that region. The regional plans do not remove the autonomy from the municipality's responsibilities concerning decision-making and respect the rights of private property owners. However, "these decisions must be consistent with regional plans" (LUF: Government of Alberta, 2007, p.19). The process of decision-making outlined in the Land Use Framework begins with province guidance during the development stage of regional plans. The provincial government can have stronger oversight on plans they deem as high priority or of interest for the provincial government (LUF: Government of Alberta, 2007). Cabinet must approve all regional plans and be developed with the inclusion of all Albertans, including multi-sector organizations. Moreover, "because Cabinet approves them, regional plans are government policies and cannot be appealed" (ALSA: Government of Alberta, 2009, p. 27). In instances of disagreements between legislation, ALSA's regional plans supersede any existing legislation (ALAS: Government of Alberta, 2009). Therefore, the regional plans reflect public policy and are enforceable in the Provincial courts, i.e., the regional plans are compulsory and local governments are required to comply (Kaplinsky, 2013).

The LUF implied a deadline for the creation and implementation of seven regional plans (figure 6). The government deemed the South Saskatchewan and Lower Athabasca regions as provincial priorities, i.e., these plans were to be completed by 2010, while the remaining plans were to be implemented by the year 2012 (LUF: Government of Alberta, 2007). Only the South Saskatchewan and Lower Athabasca plans are complete at present with the LUF falling into political limbo with the change of government leadership. With that noted, ALSA and the LUF remain the official approach outlined by the government for integrated resource planning in Alberta, and no alternatives have been advanced.

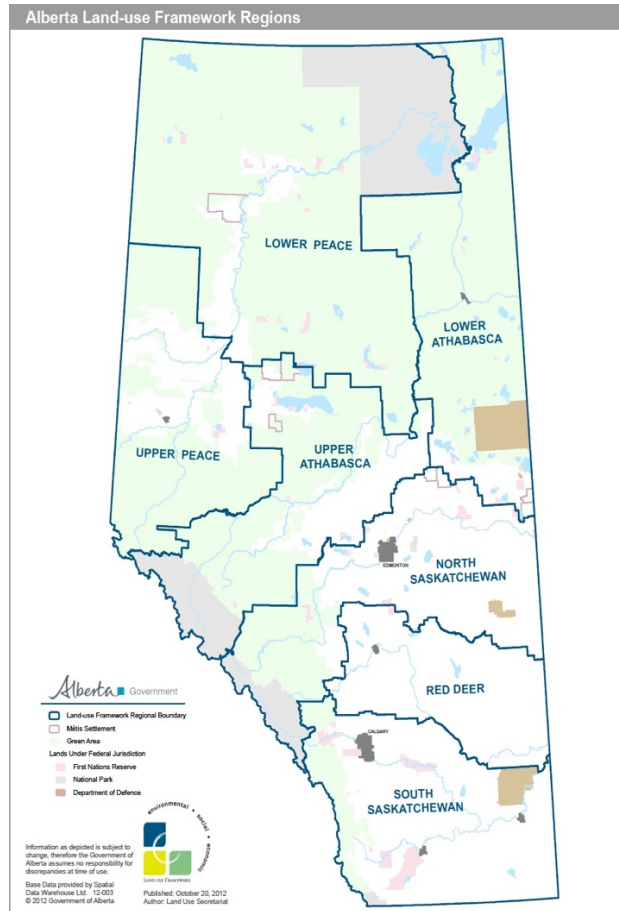


Figure 6: Alberta’s seven watershed regions (LUF: Government of Alberta, 2007)

3.2.8 Regional Growth Boards and Growth Plans

Through active engagement of municipality authorities, the government of Alberta has established several Regional Growth Boards in areas near large population centers. Parkins (2011) states that the central role of the boards is to ensure an orderly and economically beneficial use of land and development resources while maintaining the quality of physical environments. Regional Agriculture Master Plan Task Force Board (RAMPTF), Calgary Metropolitan Regional Board (CMRB), and Edmonton Metropolitan Regional Board (EMRB) are some of the examples of the relevant regional boards. Moreover, by recognizing the regional biodiversity and economic competitiveness, the board is tasked with the responsibility to establish a cohesive and imperative vision for both current and future growth plans such as the Regional Agriculture Master Plan.

According to Kaplinsky & Percy (2014) with the guidelines and policy regulations by the municipalities and other concerned authorities, the Regional Growth Boards carry out

the responsibilities for development and growth planning through the use of the available planning approach under the provision of LUF and ALSA frameworks. The development plans set by the regional growth boards are usually expected to conform with land-use policies as adopted under ALSA, LUF, and any growth monitoring and management plan that are provided for under the inter-municipal agreements or legislation. In addition, in Alberta the regional growth boards are responsible for addressing the challenges experienced by the individual stakeholders involved in the decision-making, planning, and execution of the development policy across all target regions in the province.

3.3 Discussion

In Alberta and throughout Canada, development pressures and competing interests are threatening agricultural lands and natural habitats. It is imperative to examine these drivers as agricultural lands play many roles in the ecosystems of natural, sociocultural, and all stages of economic processes (Wani & Raju, 2018).

As growing concerns continue, the Government of Alberta reintroduced regional planning in 2007. The Land Use Framework (LUF) in 2007, a blueprint for land and resources management in Alberta based on regional planning, efficient land use, and conservation and stewardship (Palmer, Driedzic, & Unger, 2015). The LUF led to enacting the Alberta Land Stewardship Act (ALSA) in 2009; legislation that created the mechanisms to carry out the policy proposal by introducing Municipal Growth Boards and seven Regional Watershed Protection Areas (ALSA: Government of Alberta, 2011).

According to several studies, Alberta is still losing agricultural land primarily due to a significant increase in urban and peri-urban areas, especially within the Edmonton-Calgary corridor (Haarsama, 2014; Martellozzo et al., 2015; Wang & Swallow, 2016). While the focus of current agricultural land loss policy has been on larger cities, research shows that smaller municipalities have grown faster in the past decades (Martellozzo, et al., 2014; Wang & Qiu, 2017; Wang, 2015). Although existing policies encourage municipalities to limit fragmentation and conversion of agricultural land, autonomy remains with local councils, and land-use decisions are in the hands of local elected officials.

Chapter 4: Research Design and Methodology

Chapter four presents the research design and methodology for this thesis. It begins by discussing the application of qualitative inquiry and philosophical stance and rational for using a case study design for this research. Also included are overviews of the study areas and of the research participants who were interviewed. Data collection and analysis procedures are then outlined, concluding a discussion about validity, rigor, and ethical considerations. The following section outlines how qualitative research methods were designed and implemented to achieve these objectives.

4.1 Qualitative Inquiry

Qualitative research enables a researcher to investigate complex issues, particularly in cases where the research is exploratory or empirical, and a complex understanding of socio-cultural processes are sought (Yin, 2009; Creswell, 2013). Qualitative research is "directed at providing an in-depth and interpreted understanding of the social world of research participants by learning about their social and material circumstances, their experiences, perspectives and histories" (Snape & Spencer, 2003, p. 3). Qualitative research is often inductive, meaning that researchers work to find meaning as research progresses rather than prescribing to preexisting theories; researchers utilize a purposefully flexible and evolving research process that allows emerging topics of interest to be explored without limiting boundaries (Mayan, 2016; Strauss and Corbin, 1998). Additionally, a qualitative inquiry has the advantage of using individual perspectives originating from personal experiences on key issues (Creswell, 2013; Yin, 2009).

4.2 Philosophical Stance: Critical Realism

Many researchers have approached land-use policy evaluations from a positivist paradigmatic perspective (Easton, 2010; Natori & Chenoweth, 2008; Yeung, 1997). Existing research (such as Haarsma et al., 2014; Stan & Sanchez-Azofeifa, 2017; Wang & Qiu, 2017b; Wang & Swallow, 2016) have used quantitative modelling and survey-based methods to understand individual preferences and decision-making processes. While these studies have contributed useful insights for policymaking, the modelling and surveys themselves are constrained by the framing of questions, i.e., they may underemphasize potentially valuable insights (Blackstock et al., 2010; Easton, 2010; Natori & Chenoweth, 2008; Yeung, 1997). The emphasis on the positivist perspective may overlook other social

relations and other phenomenon (Blackstock et al., 2010; Easton, 2010; Natori & Chenoweth, 2008; Yeung, 1997).

Critical realism has been established as a working theoretical framework for studying human geography (Fletcher, 2017; O'Mahoney, 2016; Yeung, 1997). According to Joseph A Maxwell (2012a) critical realism "combines a realist ontology - the belief of a real-world that exists independently of our beliefs and constructions, with a constructivist epistemology the belief that our knowledge of this world is our construction and cannot be a purely objective account" (p. 7). As such, critical realism encourages the consideration of underlying causal mechanisms and social relations, generating ideological constructs, and social practices, as well as perceived phenomena. These mechanisms are context-specific, requiring in-depth case study and recognition of alternative viewpoints and expectations (Denzin et al., 2017). In this way, qualitative research allows complex, rich, and context-specific meanings to be generated and, therefore, documented. According to Maxwell (2012a, p.137-138), meanings include "intention, cognition, affect, belief, evaluation, and anything else that could be encompassed in what is broadly termed the 'participants' perspective," are not physical or directly observable. However, they are nonetheless "as real as rocks" (Maxwell, 2012a, p.18), in the sense that they influence how individuals act and therefore have real consequences. Thus, critical realism provides a strong philosophical basis for investigating how individuals perceive land ownership and how those perceptions influence land-use decisions and policymaking.

Further, critical realism provides a framework for a more in-depth understanding of how people's views and expectations are informed by their real circumstances, including their social, cultural, political, and economic contexts. An essential aspect of critical realism is that people studying the framework tend to regard meaning and the idea of individuals as equal to institutional processes and physical objects in terms of value (Maxwell, 2012a, p. 8). Understanding the scenario, researchers involved would not express interest in getting an accurate description of reality as a term; instead, they search to explain different perspectives (Denzin & Lincoln, 2008; Maxwell, 2012a). Doing so allows the researcher to "understand the processes, meanings, and local contextual influences involved in the phenomena of interest" (Maxwell, 2012a, p.94). Although Maxwell (2012a) has not specified a preferred data collection method for guiding a realist form of research, he does indicate that conducting interviews is both a logical and efficient approach to understanding the perspective of others can be "a valuable way of gaining a description of actions and events" (p.106, 107).

4.3 Qualitative Case Study

In this study, a qualitative case study design was applied to explore the informal aspects of attitudes and expectations landowners have concerning land-use in locations experiencing development pressures and the loss of agricultural land. As a result, the qualitative approach used the inductive method to explain the phenomena being observed. While two assumptions helped craft the objectives of this research project – first, that agricultural land protection faces challenges due to governance issues and related informal influences, and second, that land-use expectations related to informal historical institutions were likely to be observed, maintaining flexibility enabled data collection and analysis to move within and beyond these notions and into the perceptions and experiences of key participants. Given the complexities and numerous variables involved, the study produced descriptive data that the researchers have to interpret using a rigorous and systematic approach to transcribing, coding, and analyzing themes and trends.

Qualitative case studies increase a framework's value through conceptualization and comparison by drawing on naturalistic methods to collect data. Therefore, allowing better insight into a person's reality by accessing their meanings and experiences (Lincoln & Guba, 1985). Within policy evaluation, qualitative case studies can also help to reveal issues in a broader policy context, contributing to the case's in-depth description of variables, i.e., facilitating a rich analysis by providing an opportunity to identify patterns in the data that add to and refine the theoretical framework (Mills, Durepos, & Wiebe, 2010).

4.4 The Rationale for the Qualitative Case Study Approach

Using a qualitative case study in this research allowed the researcher to collect in-depth data on the study areas that would have been challenging to collect if other research designs were used. This research investigates phenomena that are not well understood or known and that is complex and nuanced. As noted earlier, qualitative case studies are beneficial for researching such issues, and therefore, this approach was chosen for this research.

An in-depth understanding of interactions and social processes is crucial. It helps the researcher study the formal aspect of expectation and interest of landowners within the regions experiencing agricultural land loss and development pressure (Mills, Durepos, & Wiebe, 2013). Using qualitative methods have the advantage of being flexible, and they were quickly adaptable to changes in the study of environment (Yin, 1994).

The case study research was chosen as the phenomena being studied existed within the municipal decision-making processes regarding land use. As such, this provided a focal point to develop an intimate and comprehensive understanding of the complexity of the situation in each case. To enhance the study's depth, it was determined that a multi-method approach to data collection would be valuable. As such, document analysis, observation, and interviews were used, allowing the researcher to verify findings across multiple sources. Furthermore, incorporating concurrent research with these methods in this study was considered an appropriate approach to enhance the depth and richness of the data collected and analyzed.

4.5 Case Study Areas and Justification

The case study includes three communities facing development pressures in Alberta were chosen for this research: (1) Parkland County, (2) Grande Prairie County, and (3) the Town of Okotoks and its surrounding rural municipalities (Municipal District of Foothills, Rocky View County, and Wheatland County). Geographical and physical locations of these regions have been captured, as shown in Figure 7 below.

The areas selected fall under the Alberta legislative framework, including the Land-use Framework (LUF), the Municipal Government Act (MGA), Alberta Land Stewardship Act, ALSA, and the Soil Conservation Act (LUF: Government of Alberta, 2007). The study areas are currently experiencing development pressures, and thus the rate of loss of agricultural land to create room for development is high (Benoit, 2016; D. Haarsma, Doll, Bentley, Qiu, & Scott, 2014; D. G. Haarsma, 2014; Stan & Sanchez-Azofeifa, 2017; Wang & Swallow, 2016). Further, the study areas were selected because they have experienced intense conversion and fragmentation of their agricultural land base. The Calgary and Edmonton metropolitan regions are characterized by a rapid population growth, translated into increased demand for residential and recreational uses, especially alongside major highways. Increasing urbanization, such as residential housing, small acreage lots, and commercial development, occurs in Calgary and Edmonton's best-quality agricultural land. This has propelled land values while exacerbating conflicts amongst agricultural and urban land uses (Stan & Sanchez-Azofeifa, 2017; Wang & Swallow, 2016). These ongoing landscape transformations have triggered key issues concerning agricultural lands' future base and the environment's quality (Wang & Swallow, 2016).

The study areas were also selected because they are characterized by livestock and crop production, energy and forestry sector initiatives, rural residential growth, and other land uses. In many of these areas, the mentioned activities have persisted for well over the

century. The landscapes are highly valued due to their diversity and their role in food production, energy sector, resource extraction, and cultural heritage promotion. However, other vital contributions of Alberta's landscape include carbon sequestration, water filtration, the provision of tourism and recreational opportunities, the support of wildlife habitats and biodiversity go unnoticed (Rugani et al., 2019). The landscape diversity and the complexity of the development pressures are the main reasons why these areas were considered the most relevant case studies to examine the informal values reflected in the land-use planning process.

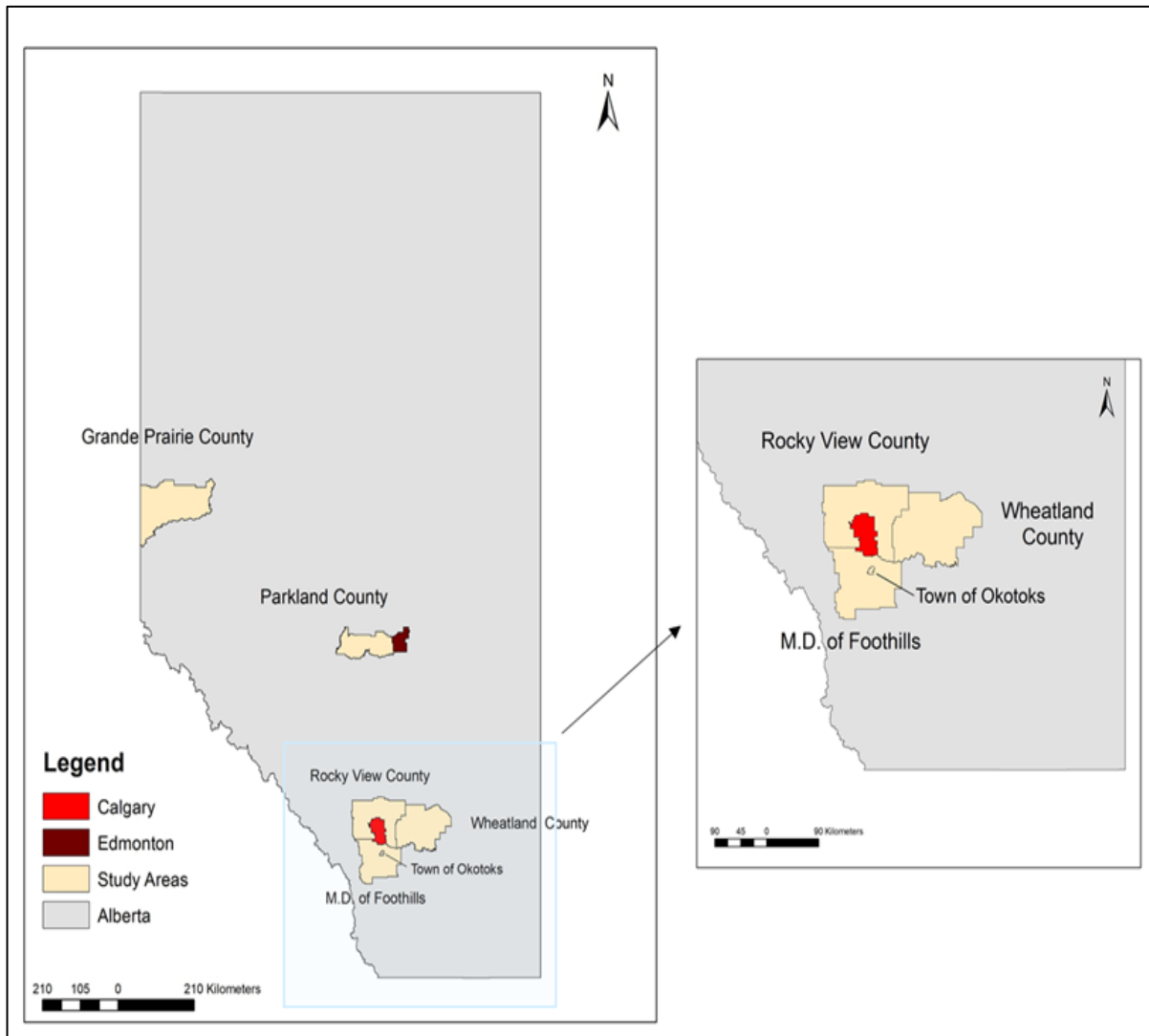


Figure 7. The geographical location of the selected study areas: Parkland County, Grande Prairie County, and the Town of Okotoks and Surroundings. (Author Elaborated)

4.6 Data Collection

Data was collected from February 2016 to February 2019. The methodology used semi-structured and informal interviews, observations, and document reviews. Moreover, since the precautions are taken to ensure quality research was assessed as a component of the trial, they were captured in an explainable structure in the study outcomes section. See Figure 8 below.

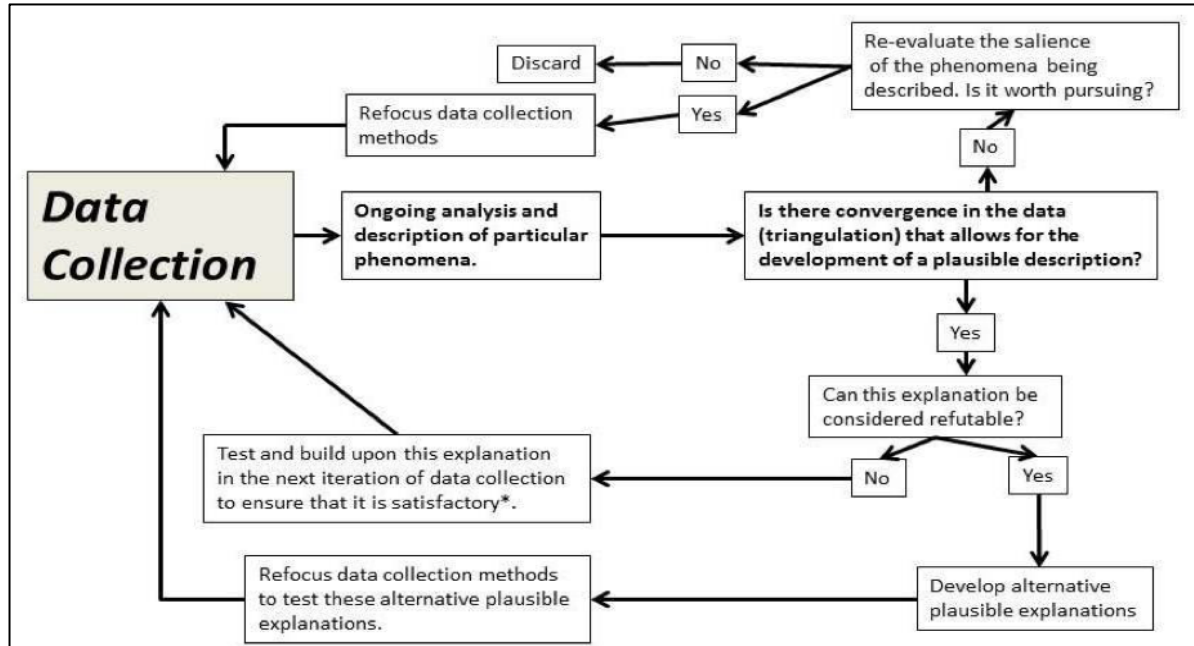


Figure 8. Schematic description for the explanation building (Hobart, 2015)

4.6.1 Semi-Structured Interviews

In each of the three regions, one on one semi-structured key informant interviews were carried out and guided by the questions outlined in Appendix B to gain insight into stakeholders' values, expectations, and policy experiences related to agricultural land loss and development pressures. Interviewing progressed until the data's saturation point (e.g., new information or data would no longer be obtained from the subsequent interviews) (Miles & Huberman, 1994, p. 74). Key participants interviewed included landowners, elected officials, municipal planning staff, professionals, and other experts. Semi-structured interviews followed the direction and questioning of the interviewer but were allowed to evolve conversationally. Doing so allows for more in-depth explanations and the inclusion of other relevant information necessary for an in-depth understanding (Creswell, 2013). Therefore, interview questions did not always need to follow a designated order, and new

inquiries could be included, as was done on most occasions. Allowing space for narratives provided by the participants are used to understand better the perceptions of complex relations since a person's values can be locked up in layers of life experiences and emotions that can be difficult to unravel (Kvale, 2007; Soliva, 2007). Understanding a person's experiences exposes the "raw material" (Moen, 2006, p.6) that otherwise may not be observable.

Fifty-three Interviews were conducted consisting of eight-three individuals, as five of the interviews involved groups of three or more participants. The locations of interviews were conducted in offices, homes, and local restaurants, accommodating the participants' preferences. Informed consent was acquired before the interview, following ethical procedures. Interviews were digitally recorded, and the researcher completed verbatim transcriptions. Follow up emails, phone calls, or in-person meetings were conducted on the final content to ensure accuracy. Changes to the transcripts were made, and the revised transcripts were used for analysis. Eighteen of the interviews were carried out over the telephone. Thirty-five in-person interviews were conducted, thirteen were not recorded at the participants' request or when the environment did not allow it; in these cases, handwritten notes were taken, and for accuracy were processed immediately following the interview. If multiple nonrecorded interviews occurred on the same day, ample time between interviews was given to allow the researcher for reflection and to make notes.

4.6.2 Sample Justification and Recruitment Challenges

When using a qualitative research approach, it is crucial to use a purposeful sampling data generation process, pursuing participants and content which can provide reliable and relevant information (Creswell, 2013; Maxwell, 2012; Mayan, 2016). According to Creswell (2013, p. 61–62), the researcher chooses individuals and contexts by asking a number of questions:

"What kind of characteristics of individuals am I looking for? Who can give me the most and the best information about my topic? In which contexts will I be able to gather the most and best information about my topic? The researcher then selects individuals (or other data sources) and contexts from which a great deal can be learned about the phenomenon".

In qualitative research, key participants pose specific expertise related to the examined issues (Maxwell, 2012; Mayan, 2016). To better understand the diverse elements, pressures, and values that characterize Alberta's land-use and planning regimes, this study required a heterogeneous selection of participants who live, are represented, and or worked for the three regions identified for this case study. The research drew on three exploratory

interviews completed in Okotoks, Calgary, and Parkland County, paired with two group meetings with regional experts and a meeting at AUMA in the fall and winter of 2016 and 2017. These exploratory interviews were informed by informal conversations with leading land-use policy experts, municipal staff, and elected officials. The sampling technique used was purposive, with the participants being chosen through a random snowball and maximum variation sampling, attempting to locate information-rich participants who could best answer the research questions¹.

Two key considerations shaped the number of interviews completed. First, practical constraints would play a role in determining the number of willing participants who could be recruited. For instance, elected officials and planning staff can be restricted by work processes and election cycles. Secondly, the aim was to achieve a point of data saturation. According to Guest, Bunce, & Johnson, (2006) a point of perfect data saturation would be actualized after twelve interviews whereby purposive sampling of a homogenous participant group is conducted.

4.6.3 Informal Interviews and Observation

During the data collection process, the researcher also applied informal interviews to address and investigate current themes when the opportunity arose (Denzin & Lincoln, 2008)

One of the most common qualitative research methods includes interviews and participant observation (Ritchie & Spencer, 2002). The researcher used observation to describe and understand the landscape settings and verify land-use patterns interviewees referenced. As part of the effort to improve the quality of information collected, the researcher attended four land use re-designation cases. According to Maxwell (2013), observation is often used to describe settings, behaviors, and events, while interviewing is used to understand actors' perspectives and goals (p. 102). By combining the methods of formal and informal interviews with observation, the researcher collected additional information that was missed using the methods outlined in this chapter (Maxwell, 2013). Additionally, observation contributed to the verification and understanding of political boundaries and development patterns discussed in the section on inter-municipal development plans.

¹ In purposive sampling the researcher selects participants that have direct knowledge of issues relevant to fulfilling the research goals. Maximum variation sampling seeks out participants with the widest range of perspectives, knowledge and experiences; in snowball sampling participants identify other people who have knowledge of the issues of interest to the researcher (see Kvale 2007).

4.6.4 Document Analysis

Document analysis is an analytical approach that qualitative researchers commonly use to examine recorded data, including policy documents, such as local and regional land-use policies and other vital documents. Documents are accessible data that can supplement and provide added context to qualitative interviews (Creswell, 2013). The researcher examined documents to analyze provincial and municipal land-use policies, grey literature on regional planning, and Alberta's agricultural land management regime. The main sources were land-use planning documents and policies, council meeting minutes, and other available records such as research organizations' publications and local newspapers (see Table 2 below on the input chart of documents). The researcher incorporated and used existing reports and research associated with this topic as a guiding template (Strausse & Corbin, 1998). This document analysis method has become common during the last decade, especially in the social sciences (Yin, 2009). In this case, it was useful as it enabled the researcher to draw inferences based on reliable documents and images of the study areas.

The research project used an intentional sampling method to select the key legislation and policies, including the current agricultural land-use planning documents for each case. The development of policy is recognized as an evolving process. The development of policy typically goes through a series of phases, which begins with the initial description of issues to implement policy proposals and goals, to the success and outcomes of policies (Rist, 2000). For this study, documents were selected to represent the three phases of Rist's (2000) policy cycle: policy formation, policy implementation, and policy accountability. Various actors involved in the policy development, including the formal policymakers and particular interest groups and the community constituents, can influence a policy's success. Local, regional, and provincial experts in land-use issues served as "key participants" to confirm the plans and policies that were most applicable to this research. The study included other documents and reports that help clarify the role and viewpoints of different stakeholders with influence on local land-use planning issues.

Table 4.1: Documents reviewed for research

| Parkland County | County of Grande Prairie | Okotoks & Surrounding Municipalities |
|------------------------------------------------|--------------------------------------------|-----------------------------------------------|
| Provincial Land Use Framework & ALSA | Provincial Land Use Framework & ALSA | Provincial Land Use Framework & ALSA |
| Municipal Government Act | Municipal Government Act | Municipal Government Act |
| Municipal Development Plan | Municipal Development Plan | Municipal Development Plan |
| North Saskatchewan Regional Plan | Intermunicipal Development Plan | Provincial Land Use Framework & ALSA |
| Edmonton Metropolitan Region Board | Area Structure Plans | South Saskatchewan Regional Plan |
| Intermunicipal Development Plans | Land Use Bylaws | Calgary Metropolitan Region Board |
| Area Structure Plans | The Subdivision and Development Regulation | Intermunicipal Development Plan |
| Hamlet Area Redevelopment Plans | Agriculture documents | Area Structure Plans |
| Land Use Bylaw | Annexation News Releases & Correspondence | Land Use Bylaws |
| Conceptual Schemes | Conceptual Schemes | Regional Partnerships & Planning-Urban Fringe |
| Master Site Development Plans | Economic Development | Sustainable Okotoks |
| Future of Agriculture Study | Growing the North | Acquisition of Land for Municipal Purposes |
| Council Meeting Minutes | Tri-Municipal Industrial Partnership | Okotoks Flood Plain |
| Area Zoning Maps and Future Growth Projections | Growth and Economic Development Strategy | Extension of Utility Services |
| Land-use Allocation Documents | Tri-Municipal Industrial Partnership | Encroachment Policy |
| Council Meeting Minutes | Council Meeting Minutes | Beyond Town Boundary |
| | Land-use Allocation Documents | Land Use Classification Guidelines |
| | Upper Peace River Region Plan | Water Allocation |

4.7 Data Analysis

4.7.1 Thematic Analysis of Qualitative Interviews

Data were analyzed using the qualitative "framework approach" outlined by Ritchie et al. (2014) and paired using an inductive process of thematic analysis with the help of NVivo (11) software (Creswell, 2013; Maxwell, 2012; Yin, 2009). A Framework is a "systematic but flexible analytical process that supports key steps in the researcher's ability to move around and return to earlier ideas within the research design" (p. 283). This occurs within a five-step process of familiarizing, thematic framework identification, indexation, charts, and drawing mapping for interpretation (Ritchie et al., 2014, p. 297).

In this research, the Framework was utilized as follows. The first stage, 'Familiarization,' required the immersion in the data by reading through interview transcripts numerous times and making notes to understand the material's scope and

diversity. At this stage, the researcher was able to begin noting possible themes in the data and areas of interest. To 'Identify a Thematic Framework,' the second stage investigated and established emerging themes forming a primary table where data could be coded. The table was split into two main categories that followed the research objectives. The first considered the findings of the key participants' perspectives, experiences, and expectations attached to agricultural land and land-use. The second considered municipal goals and actual practices concerning land-use. Within these categories, various themes and sub-themes were identified, which followed both specific lines of questioning and recurring concepts in interview transcripts. The third stage involved using NVivo to code the data into identified and 'Index' themes. The analysis then focused on interpreting meaning to address the implicit messages contained in the texts (Joseph A Maxwell, 2012b). Conceptual diagrams and analytical memos were developed throughout the analysis process to assist in conceptualizing the preliminary interpretations of the data (Yin, 2009). When all data were coded, the fourth stage was 'Charting' using NVivo to create two separate thematic charts, one for each of the main index categories. Charts were arranged with columns representing themes (and subthemes) and rows representing individual participants. Charting allowed data to be visualized to make comparisons across the data and helped the results' writing process. The final stage, Mapping and Interpretation, involved inspecting the charts and coded data to explain why results emerged as they did. In particular, this involved reconsidering the relevance of fundamental concepts of this research, such as the influence of formal and informal institutions. The data analysis process was kept flexible so that the researcher could reflect on parts of the thematic framework to identify new themes, if available. By following the five steps outlined by Ritchie et al. (2014), this research's thematic analysis remained consistent with the Framework approach.

4.7.2 Analysis of Documents

Document analysis commonly involves examining textual data and identifying the patterns of words, their relationships, and their frequency of occurrence (Creswell, 2013; Maxwell, 2012; Mayan, 2016; Yin, 2009). In this case, it commenced with initial themes generated in the interview analysis, and then went back and forth between interpretation and textual data to refine these classifications and identify new ones (Creswell, 2013; Maxwell, 2013). The frequency of occurrence of some words was recorded. However, since this method could miss important information from the context of where these words appear, extra data were also examined (Creswell, 2013; Maxwell, 2013). The relevant information was compiled into a table containing distinct columns for policies, reports, and

legislation or statutory plans, alongside a brief description to clarify the context where each theme was present. The document analysis results were compared with the thematic analysis of the interviews for each study area.

4.8 Validity and Rigor

4.8.1 Validity

The researcher took extra caution when using the design approach to avoid personal influence on the data collected; in qualitative research, it is easy for the researcher's biases to influence the interpretations of the data collected and thus change the overall findings (Creswell, 2013). Part of the caution involved avoiding undue bias during the interpretation of the findings of the study. For content analysis, the data's interpretation entirely depends on the researcher's credibility (Yin, 2009).

1. The validity of the data generated by the qualitative analysis will be confirmed by the design of the theoretical framework using triangulation:
2. Use multiple methods for comparison of interpretation (Creswell, 2013).
3. The technique of soliciting the research subject's point of view is critical for establishing credibility (Lincoln Guba, Egon G., 1985).
4. Compared themes to preliminary categories identified earlier in the analysis to confirm the new theories supported by existing data (Strausse & Corbin, 1998).

Also, the researcher used the descriptive analysis method in analyzing the findings of the study. Further, data was collected and analyzed using different methods, including semi-structured and informal interviews, and documents and observation analysis. Following the evaluation of data collected using each of the methods, the researcher used the 'Framework,' which involved a systematic and analytical process in looking for any discrepancies of interpretation between methods (Ritchi et al., 2014, p. 297). Therefore, the data collected and analyzed using these three different methods were compared for validity and accuracy (Creswell, 2013; Maxwell, 2013). The researcher established a negligible difference in the data collected and analyzed, suggesting that the margin of error and bias in the descriptive analysis was minimal. Thus, the researcher's accuracy in reporting the information acquired offered more accurate descriptions of specific themes for consistency (Maxwell, 2013).

The data collected was interpreted based on the themes formulated for the study. The interpretation was based on the impact of development pressures and the effectiveness

of the existing policies in protecting against agricultural land loss in the region. Thus, the interpretation was structured systematically and focused on the objectives as previously mentioned, including interpretation of comparison and establishing credibility. The research aimed to evaluate the researcher utilized their interpretive skills as gained during training on qualitative studies and applied their professionalism. Therefore, personal bias was acknowledged, and efforts were made to minimize it in interpreting the study's findings (Maxwell, 2013). The researcher strived to understand the research participants' intentions, viewpoints, and thoughts accurately.

According to Yin (2009), common threats to a case study's validity is the proclivity to focus on evidence that supports the researcher's assumptions. Yin (2009) offers a method of avoidance by thoroughly examining data that did not fit with the researcher's speculative conclusions and frequently revising those speculative conclusions appropriately. Maxwell (2013) also notes the importance of understanding deviations and differences in facts and minimizing bias by considering alternative understandings of invalid data. During the coding process, opinions or suspicious data were identified for further analysis and recorded for an "evidence trail" (Yin, 2009, p.127). Regular meetings between the researcher and experts in social sciences or other related professions provided a form of peer-review (Yin, 2009). The speculative themes and conclusions were reviewed.

4.8.2 Rigor

There are various aspects of inquiry that enhance the credibility of a study. As a result, the researcher, in this case, sought to address and enhance the credibility of this qualitative study. For example, the researcher ensured that things were kept in context since this is a cardinal principle in such a qualitative study (Yin, 2009). This was necessary because the methods, findings, and conclusions of the study are context dependent. As a result, the methods, findings, and conclusions of the research reported specific situations (land use & perceived property rights, decision-making), certain people (landowners, elected officials, professional planners, and researchers), as well as specific periods (during a time when the areas are experiencing development pressures). The approach helped enhance the study's reliability and ensure that the data applies to the study purpose.

For further credibility, the researcher sought to establish the credibility of the study by including any information on the researcher that might have affected the collection of data, its analysis, interpretation, as well as the conclusions drawn. Such information included in the qualitative report includes the personal connections between the researcher and the participants, the situation or context, and the topic. The researcher's role was to

maintain intellectual rigor and make sense of the information gathered. The researcher also engaged in immersion as he returned to the data several times to confirm that themes, categories, interpretations, explanations, constructs, and the conclusions drawn were sensible and reflected on the nature of the phenomenon under study. The researcher engaged in the following activities laid out by Maxwell (2013), to ensure the credibility of the study:

1. Prolonged engagement: here, the researcher spent sufficient time in the context of research to become sufficiently familiar with the context's crucial aspects. Further, it helped in identify the contextual factors that influenced the subject under study, the factors leading to increased loss of agricultural land in Alberta, and the population's values, behaviors, and expectations concerning fragmentation as well as the conversion of farmland into non-agricultural land use.
2. Persistent observation: the researcher was keen on observation concerning the subject, and this helped him identifying and focusing on the most relevant aspect of the study. Therefore, the focus and observation were crucial in collecting the relevant and appropriate data for the study.
3. Triangulation involves using different data sources in this study, qualitative interviews, case studies, and document analysis. The strategy was adopted to help the researcher reduce systematic bias in the study's data collected and used. Findings were checked against different perspectives and sources. The process also guards the researcher against accusations that this research is based on findings from a single method, personal bias, or a single source.
4. Intellectual integrity: the researcher sought to demonstrate intellectual integrity, lending credibility to the study results by searching for negative cases and any disconfirming evidence that did not fit the general patterns. The researcher had identified this in terms of the key participants' values, expectations, and experiences with the loss of agricultural land. The process involved identifying alternative explanations and themes to findings, inductively looking for organizing the data, and logically thinking about other explanations. Since this was a qualitative study, the research took steps to challenge such bias forms through conscientious and active search.

4.9 Ethical Considerations

The research followed the University of Alberta's ethical guidelines and in the Tri-Council Policy Statement (TCPS2) (Government of Canada, 2014; 2018) for research involving human participants. Recruitment of interviewees was done by contacting potential participants using phone or email. Participation in the research project was entirely voluntary. If the person consented to participate in the research project, they had the option of backing out from the interview at any given time without explaining why and without prejudice. All participants were provided with a letter outlining the purpose of the study. There was no compensation or direct effect on the participants other than contributing to the advancement of knowledge. The risk level of this project was minimal and participation was anonymous, with all identifying factors removed. All documents containing any identifiable content remain locked in a secured environment. Therefore, this research was conducted in an ethical manner consistent with TCPS2.

4.10 Case Study Area Details

4.10.1 Parkland County No. 11

Parkland County is located in Alberta's central plains, approximately 240 kilometers east of the Canadian Rocky Mountains. The county shares its eastern border with the City of Edmonton and has a population of 32,097 (Statistics Canada, 2017a) with a land base of 2,388 km² (Census Canada, 2016). The County includes six electoral divisions and encompasses the Town of Stony Plain and Spruce Grove, seven villages, seven hamlets, and service areas. The County has several country residential communities that are dispersed throughout the region. The County is bordered by Leduc County, Brazeau County, Yellowhead County, Lac Ste. Anne and Sturgeon County.

Parkland County's landscape possesses a diverse supply of natural amenities and features. Large areas of forests, lakes, wetlands, riparian areas and other natural areas are essential components of the rural, agricultural, and peri-urban landscapes that distinguish Parkland County. The county's diverse landscape accommodates many vital industries, such as agriculture, oil, gas, manufacturing, tourism, transportation, and distribution activities (Parkland County, 2019). The county's location attracts residents from Edmonton in search of small acreages or larger residential homes. Parkland County has the highest population among rural jurisdictions in the Capital Region.

Conversely, the area has seen an increase in residents finding work outside of the county (ISL Report, 2015, p. 8). As a result, the county has reported a loss of 31% in

individual farms, and between the years of 2001 to 2011, a loss of 296 individual farms occurred (Parkland County, 2017). However, agriculture in Parkland County still contributes over \$50 million annually to the local economy and remains a significant industry (Parkland County, 2017).

Parkland County faces increasing growth and development pressures from a variety of sources, e.g., residential neighborhoods, natural resource extraction, commercial and industrial developments, along with other pressures stemming from the expansion of the Edmonton urban region, which has a population of more than 1 million (Statistics Canada, 2017a). Many of these forces compete for the same land and resources used by agriculture, making decisions within the County both complex and challenging. As of April 2019, the City of Spruce Grove, located within Parkland County, announced the "strategic interest in achieving a collaborative annexation of 1,280 acres of land for future economic development, land use, and sustainability" (Parkland County, 2019). Moreover, Parkland's agricultural land has and continues to experience conversion due to changing economic conditions, complex drivers, and the shift in property cost and expectations among historic and new land ownership.

Parkland County adopted the Municipal Development Plan Bylaw 2017-14 (MDP) on October 10th, 2017. The MDP is a high-level plan that establishes a 30-year vision for future growth. The MDP outlines growth by identifying where it will occur, including residential, industrial, and recreational development. The MDP also contains future land use policies, infrastructure and transportation requirements, and areas for environmental protection (MDP: Parkland County, 2020). Found within the MDP is the Land Use Bylaw No. 2017-18 on September 26th, 2017. The Bylaw controls land use in the County and includes various development regulations that must be followed. Therefore, land use planning processes in the County are generally guided by documents and plans at both the municipal and provincial levels. The processes are outlined in the County's Planning Document Hierarchy.

Notably, Parkland County is a municipality incorporated under the Municipal Government Act of Alberta. Under this legislation, a council is mandated to pass bylaws to govern its municipality to benefit the government and its people (MGA: Government of Alberta, 2019). Parkland County participates in the Edmonton Metropolitan Region Board (EMRB) and is in the North Saskatchewan River Regional Plan (NSRP). As of June 2020, the NSRP is still under development (LUF: Government of Alberta, 2020a)

4.10.2 The County of Grande Prairie No. 1

The County of Grande Prairie No. 1, Alberta, is located in the Upper Peace River region of Northwestern Alberta (Figure 7), which is within the Canadian Boreal Interior Plains, is 160 km east of the Rocky Mountains and 460 km northwest of Edmonton. The County of Grande Prairie has the distinction of being the first formed county in Alberta in 1951. It includes nine electoral areas with a land base of 5,507 km² and a population of 22,303, which is a 13.1% increase since 2011 (Statistics Canada, 2017b). The County surrounds the City of Grande Prairie and consists mainly of large and small farms and acreages. It also encompasses three towns (Beaverlodge, Sexsmith, Wembley), with one village and 14 hamlets. The County has several country residential communities that are dispersed throughout the region. Horse Lake First Nation is also located within County boundaries. The County is bordered by the Municipal District of Greenview #16, Birch Hills County, and Saddle Hills County and the Province of British Columbia.

The majority of Grande Prairie's economy includes forestry, construction, agriculture, exploration, and oil and gas extraction. The Peace River region of Alberta and British Columbia is the northernmost farming and agricultural region in North America. According to Agriculture and Agri-Food Canada, (2018), using the Canada Land Inventory (CLI) rating system, 40% of the county's land is prime agricultural land. The remainder is marginal farmland with a forested perimeter. The region has had oil and gas exploration and extraction occurring for more than 60 years. However, large scale activity started in the 1970s. The recent growth of natural resource developments, such as oil and gas, has led to an increasing threat to the area's agricultural lands. The growth has an increasing demand for infrastructure development and support services for the surrounding settlement areas.

The County of Grande Prairie follows land use planning policy and legislation documents within its legislative framework at the provincial and regional levels (LUF: Government of Alberta, 2007). The Upper Peace Region Regional Plan is not yet in place. At a local level, the County of Grande Prairie has several relevant legislation documents. The most influential, the By-law 3074 Municipal Development Plan, per the MGA, was adopted in September 2017 (County of Grande Prairie, 2020). The County of Grande Prairie has an Intermunicipal Development Plan (IDP) with the City of Grande Prairie, adopted in 2010. The county's watershed and regional plans fall under the Upper Peace Regional Plan (UPRP) which, as of November 2021, has not been started (LUF: Government of Alberta, 2020d) The County is under the Alberta municipality's sustainable economic growth programs through increased agricultural land productivity. This is projected to ensure a reliable food supply to the county's steadily increasing population (Kennett, 2001). The County's Integrated

Community Sustainability Plan identifies the importance of high-quality agricultural soil and minimizing non-agricultural development on these lands. However, there is no agricultural plan for the area (County of Grande Prairie, 2019).

The County of Grande Prairie surrounds the City of Grande Prairie, which has a population of 69,088 residents, up 37.6% from 2007 (Stats Canada, 2017a). According to Statistics Canada (2017a), the city is one of the fastest-growing cities in North America. In 2016, the City of Grande Prairie announced the annexation of 63 km² to accommodate the growing population and to expand the industry.

4.10.3 Okotoks and Surrounding Municipalities

The Town of Okotoks is considered a bedroom community situated along the Sheep River, approximately 18 kilometers southeast of Calgary. The Town is surrounded by the Municipal District of Foothills and Rocky View County just to its north, and the Town of High River is 26 kilometers to the south. Based on the census conducted in 2016, the Town of Okotoks reported a population of 28,881, up from 8,510 in 1996 (Statistics Canada, 2017a); thus, ranking it as Alberta's largest Town.

The location of Okotoks makes it attractive for individuals wanting to escape the city of Calgary but encourages out-commuting for work (Town of Okotoks, 2018). The Town has been characterized by small businesses and lower employment within the Town's boundary. The area's agricultural operations have been evolving into "consolidated or precision agricultural operations," and other lands are being transformed for residential and commercial uses (Economic Development; Town of Okotoks, 2018).

Located south of Okotoks is the Town of High River. According to Stats Canada (2017a), High River increased the land area of 84.72% from 11.58 km² in 1996 to 21.39 km² in 2016. Taking advantage of the growing population of both Okotoks and High River, M.D. Foothills has started developing the Highway 2A corridor between the two towns with more industrial development planned for the future. Therefore, creating pressure on both land and municipal relations. Adding to growth is servicing the area with potable water (Economic Development; Town of Okotoks, 2018).

The Town's regional plans include a clear framework to direct long-range planning and development throughout the entire Town and its surroundings. The Government of Alberta, in July 2017, approved the annexation of about 20 km² of land for the expansion of Okotoks, ending a 25-year finite growth restriction (Town of Okotoks, 2018). The Town is now expected to gain approximately 60-years of land supply that will allow it to develop its

housing and other services, including forestry and agriculture. The town's principal land-use priority is residential housing, schemed to accommodate its rapidly increasing population.

The Town of Okotoks follows the provincial framework's guidance and has developed the Municipal Growth Plan and other legislative documents (see appendix # 9). Okotoks falls under the South Saskatchewan Regional Plan, adopted in 2014 (LUF: Government of Alberta, 2020b). Moreover, the Town has prepared the Growth Plan "Okotoks 2080" to guide its current and future economic growth and development to sustain its projected 2080 population growth of 70,000-90,000 people (Town of Okotoks, 2018).

The Town's planning hierarchy involves sustainable food production, economic prosperity, effective planning and land use management, and a healthy and clean environment.

4.10.4 Municipal District of Foothills No. 31

MD of Foothills No. 31 is a municipal district located within the southern regions of Alberta. The county borders Calgary's southern border, which is the third most populated city in Canada and surrounds the Town of Okotoks, one of the fastest-growing communities in the country (Statistics Canada, 2017a). MD Foothills has a land base of 3,636 square kilometers and a total population of 22,766 (Statistics Canada, 2017a). MD of Foothills is divided into five districts and surrounds six municipalities: Towns of Okotoks, High River, Turner Valley, Black Diamond, and the Village of Longview, along with ten Hamlets and the Eden Valley Indian Reserve. Five rural municipalities border the MD: Rocky View County, Wheatland County, the MD of Willow Creek, the MD of Ranchland, and Vulcan County and the Tsuut'ina Nation to the north and the Kananaskis Improvement District to the west. MD of Foothills is a rural municipality with substantial cropland and ranching operations while also having one of the province's highest commuter populations (MD of Foothills, 2020). While the total population of the MD of Foothills and the municipalities it surrounds has more than doubled in the past 20 years (Statistics Canada, 2017a). As of 2016, the county possessed 1,083 farms, 322 fewer than reported during 2006 (Agriculture and Forestry; Government of Alberta, 2016). The total land area of the MD of Foothills increased between 1996 and 2006 but has since decreased slightly due to area annexations. The Town of High River and Black Diamond have ongoing annexation applications (MD of Foothills, 2019). In 2017, the MD of Foothills lost more than \$4 million in tax revenue on abandoned oil and gas lands. The tax-base was split approximately 80 percent residential and 20 percent industrial. However, the municipal council is moving closer to 60-40 by developing commercial and industrial areas in the MD's northern sections (MD of Foothills, 2020). The

Highway 2A Corridor between Okotoks and High River has been identified as the leading location for industrial and commercial development to balance "environmental and social needs with the region's economic objective" (MD of Foothills, 2020).

The County services residential, commercial, industrial uses and is home to a significant agricultural base. The primary agricultural land use is ranching and forestry. However, the land coverage for agricultural use has consistently decreased, citing loss of the land to annexation and increased rural residential housing development. In 2013, the county council adopted a new growth plan and management strategy entitled "GMS A Vision Forwards," which focused on providing a policy framework that would help the county council manage agricultural land loss, control development and growth (MD Foothills, 2020).

The county currently operates under the Land Use Bylaw 60/414, passed January 2015 (MD Foothills, 2020). The MD is currently involved in nine intermunicipal development plans (IDPs) with the City of Calgary, the Village of Longview, the Towns of Okotoks, Black Diamond / Turner Valley and High River, The M.D. of Willow Creek, the M.D. of Ranchland, Vulcan County and Wheatland County (MD Foothills, 2020). MD of Foothills falls under the South Saskatchewan Regional Plan (SSRP), adopted in 2014 (LUF: Government of Alberta, 2020c). As of 2020, MD of Foothills is one of the ten members of the Calgary Metropolitan Region Board (CMRB). Moreover, the county has developed a strategic growth plan targeting to achieve long-term economic and environmental goals through agricultural lands' effective use.

4.10.5 Rocky View County

Rocky View County is situated within Alberta's southern regions, whereby it surrounds all but the southern border of Calgary. Rocky View County is also bordering First Nation Reserves, municipalities, including MD of Foothills, City of Airdrie, the City of Chestermere, Town of Cochrane, Town of Crossfield (see Figure 7). According to the 2016 census, the county has a total population of 39,407 (Statistics Canada, 2017a). This population represented an increase of 13.5 percent from 2006. According to Connell (2015), as of 2015, 39 percent of the population lives within the agricultural land, 47 percent within the residential land, and 14 percent in hamlets. Connell (2015) confirms that agriculture remains the most common land use in the county, amounting to over 90 percent of the total land use.

Some of the primary agricultural practices within the region include large-scale forestry, cropping, and ranching. However, the county has emphasized tax base diversification through regional commercial and industrial, and natural resource

development (Connell, 2015). Currently, the City of Calgary is reported to significantly affect Rocky View County's landscape (Benoit, 2016). Annexation processes from the neighboring municipalities have reduced the county's land base and increased pressure diversifying for tax revenues (Rocky View County, 2009)

Increased growth of gas and oil activities within the region is considered the second largest or common factor leading to agricultural land loss. The increased population growth has generated several challenges, such as highly speculated land values, which in recent years has surpassed the value of agricultural productivity (Connell, 2015). With all these results, it is a high probability that land would be sold for urban-related development. The county's eastern portion is intersected by the Highway 2 corridor and is a focus for the county's commercial and industrial growth plans (Rocky View County, 2019)

Rocky View County falls under the regional plan, South Saskatchewan Regional Plan. The county has developed an Agricultural Master Plan (2011) and uses the 'County Plan' to guide the overall growth and development for the county (Rocky View County, 2019). Within the 'County Plan' is the Inter-Municipal Development Plans, which they are part of five IDPs and have six more under review (Rocky View County, 2019)The county adopted an Agricultural Master Plan in 2011 and has noted 35 recommendations to protect and continue the "flourishing agricultural industry through innovation and diversification and is promoted and recognized as vital to the County's social, economic, and ecological integrity(AMP: Rocky View County, 2011)

4.11 Summary of Chapter

This chapter has presented the methods of data collection, which included semi-structured and informal interviews, as well as the research design and qualitative framework, and the study areas. The researcher has also described and justified each of the different methods and why they were considered appropriate for this qualitative research. NVivo was used for managing transcripts and for the data analysis process. Further, the approaches applied to achieve validity and rigor were presented, and the ethical considerations in conducting this research were identified.

Chapter 5: Results and Analysis

The objective of this research is to present an analysis of how social norms and informal institutions influence land-use decisions at the municipal level, with a particular focus on decisions affecting the fragmentation and conversion of agricultural land. Additionally, this research sought to expand the context of these influences by evaluating how the principal decision-makers view and deal with the tensions regarding the 'right' to develop versus the desire to preserve agricultural land

This chapter sums up the findings of this research, classifying them into the state of Alberta's agricultural land, the influence of social norms and informal institutions, and land-use governance and policy.

5.1 The State of Alberta's Agricultural Land

The regions of focus for this study have some of Alberta's highest quality agricultural lands. These regions are currently experiencing relatively rapid economic growth and have undergone an extensive land-use change, resulting in the loss of agricultural land and open spaces. Alberta has been recently reported as one of the crucial regions in meeting the international agricultural market's demand, considering its high production of cattle, grains, and other farm products. Despite recent policy attempts, it was observed that urban expansion and resource-based activities have continued to displace agricultural land in the communities studied. Further, the findings revealed that urban activities have expanded onto otherwise more fertile and higher quality agricultural soils; and according to a land conservation expert (AB-CO-2), "this pushes agricultural operations onto soils that are generally poorer, resulting in higher water demands for irrigation and fertilizers."

Ultimately, this is increasing the short and long-term cumulative effects on already burdened ecosystems. During the interview process, an elected official (RV-EO-1) shared a perspective supporting these findings:

Whether we're talking about the inevitable results of urban growth, resource extraction or development of industrial activities on our lands, policy has failed in recognizing the value of what the landscape provides by protecting us from flash floods and or maintaining the groundwater needed for all human activities. The farther we push agriculture away from its [traditional] rich soils, the harder we push the landscape's ability to provide and protect our cities.

The valuable landscape RV-EO-1 refers to is the irreplaceable ecosystem services (ES) in conjunction with agricultural lands. Ecosystem services have continued to experience pressure related to non-agricultural development programs, including industrial

and residential growth. Furthermore, the current agriculture sector in Alberta is vital for the social and economic well-being of many local communities. Much of Alberta's landscape is used for some form of agricultural production, and any disruption has a ripple effect. According to an interview with a land conservation expert AB-CO-3, "To protect the functionality of Alberta's wellbeing is to understand and protect what remains of Alberta's rural communities and the ecosystem services agricultural land provides."

5.2 The Influence of Social Norms and Informal Institutions

Through the research, it became clear that social norms and other local informal institution are having an impact on efforts to protect agricultural land in ways that are not currently considered in the regulatory and legal systems. These are discussed below

5.2.1 Perceived Property Rights and Permissive Development

During the interview process and document analysis, a critical theme was the widespread existence of a belief that landowners should be free to develop their land as they see fit. In essence, there is a perceived right to develop land. Most respondents indicated that they believed this, at least in part, or that many of those whom they deal with held this belief. These beliefs are rooted in a history of permissive development and politically established notions of freedom from government interference. However, even though Albertans do have broad rights to use, own, and enjoy their property, all private land in Alberta is subject to statutory and common law (Kaplinsky, 2013) which restricts development rights. In Alberta, the provincial government has given municipal governments the authority to use zoning to restrict what can be developed on any parcel of land.

This perceived right to development was a common point made by respondents. For example, an interview with a Parkland County developer, PKL-D-1, shared:

As a landowner first and a developer second, I have always viewed Alberta as a place of unchecked opportunities [regarding land ownership]. I moved from another province to take advantage of Alberta's willingness to observe and encourage land [development]. This province's success has been at the hands of Albertans and the Government's inclination to see that landowners can use their land for profit. Other provinces have restricted land use to the point where its residents see land as a dwelling place but not an investment. It is different here in Alberta. Developers are encouraged to build, and landowners are able to access this encouragement in the way of selling at market price or developing their land as they see fit.

The research found that many officials disagree with any policy taking away the 'rights' of landowners allowing them to sell their land for maximum profit. Several interviewees expressed a personal desire to protect agricultural land but felt that it is no

one's place to deny a landowner the opportunity to profit from their land sale. Elected official Interviewee, GP-EO-3, responded:

We allow them to work the land for profit, so why can't we allow them to sell their land for a profit? Who am I to tell them if they can or cannot make money? "How can I say no to a long-term landowner in need of capital?"

As found in the analysis of the interviews, expectations of 'fair compensation' are largely anticipated – even in cases where governments simply restrict redevelopment opportunities. Landowners see this value as a right and not just an expectation. Edmonton area landowner interviewee E-LO-2 stated:

Regarding the gamble of owning land (yes, I view land ownership as another form of gambling). If my family or I purchased land 40 years ago at a set price and the City is now knocking on my door, offering me a sizable payout for development purposes, I am owed that value. I held the risk, and I took the chance; it is my due. I am not the unlucky guy on the other side, watching his land value go down because he gambled wrong, and the trend is moving away from him. If the Government decides my land needs to be removed from the potential of development, it is my right to be compensated fairly. Alberta has been good for this, unlike BC [British Columbia], where they restricted development back in the 1970s, and many farmers lost out. That's why I am here [in Alberta].

It is important to note here that no such compensation requirement exists. If the land is currently zoned as agricultural land, the municipality can refuse rezoning applications without compensation provided that they are doing so in line with the public good (as outlined in their statutory planning documents). The landowner in this interview is likely discussing cases where land trusts or others have entered into agreements to prevent development on agricultural land for land preservation purposes.

5.2.2 The Issue of Fairness and a Fear of 'Being Wrong'

For many of Alberta's municipal councils, decisions regarding land-use changes are encumbered with tensions and the stakes are high. For land near areas of urban and industrial growth, if sold at market value, the profit can be life changing for the landowners. Many local decision makers interviewed indicated that they wanted to be fair in decision making and that they feared 'being wrong' in making decisions that deny landowners access to the potential wealth.

They were often reluctant to make decisions to refuse the development of agricultural land, denying individual landowners the opportunity of significant profit, unless they were absolutely certain that doing so was very important for the greater public good. When the benefits of agricultural land protection are distributed (across the local community

and society overall) and the costs, as perceived by the elected officials, are borne by a single landowner – there is a tendency towards being permissive to development. As elected official PKL-EO-1 stated during an interview "I'm not going to say no when it appears we have plenty of land, water, and demand for growth. Well, at least for this part of the country."

Tied into the earlier discussion about perceived rights to develop land, many respondents saw land as an owner's investment, and for many people, it represents their expected pension – a means to fund their retirement. They use their land for ranching, agriculture, mining, recreation, and homesteads. An interview with an elected official and 3rd generation landowner, GP-EO-2 explained their position:

We are seeing a lot of farms, either consolidating or a spouse working in town just to afford life outside of farming. The shift in crop types like canola, which requires large volumes of produce to reap a profit, encourages land sales. That is where we see more generational farmers, as well as those that are closer to urban development, take advantage of these demands. As the land price goes up substantially, and the price for crops go down, we can't afford to farm it because the better use for it is in commercial or industrial or residential land. From a financial standpoint, not from a standpoint to feed the world or whatever. I've never met a farmer that farms for the sake of protecting the land; they are the most involved form of a stockbroker or businessman. It's about making a living and doing so in the most maximizing way possible. Landownership is an investment, and the only way to get a return is to one day sell your shares.

For an elected official, not allowing an individual to profit off their land-based solely on the 'goal' of preserving agricultural land, in some cases, might be considered unfair. The elected official interviewee, WL-EO-1 from Wheatland County, stated their concern:

The fear of saying no to one landowner for reasons laid out in a guidebook [LUF] is a fear I must weigh against my constituency's right to profit. What if I rule 'no' and they lose out on money they may need to survive?

This 'fear of being wrong' was a theme reiterated by a majority of elected officials interviewed. Interviewee, PKL-EO-3 stated:

I've been at this [public office] for a long time, and at the beginning of my political career, applications for changes in land use or a parcel out [subdivide] was a stamp and go process. But now that [a large city] is at our corner and land values are on the rise, along with concerns for the loss of farmland, application approvals aren't so easy. I am constantly weighing the cost and benefits. What if I get this approval or denial wrong? Is this application denial going to affect the landowner's financial future? Is this specific parcel really that important to the cause of protection? Will this decision be the one that ends my political career? I endlessly worry about being wrong.

Related to this, was a sense that what is fair and what is right should be determined at the local level and that elected officials should reflect the values of their constituents, which often did not align with a desire to preserve agricultural land in the face of development pressures. Local officials and decision-makers reported pressure from their constituency to uphold 'their right' to maximize profits by selling their land for development. It was frequently noted that elected officials must consider their current and future voters when deciding on an application for a land-use change.

Farmers are the ultimate optimists, but it is my experience that they will hold you [elected official] accountable. They vote! I wish I could look at every application as a black or white matter. Before every decision, I ask myself, can I say yes or no and explain why it is in everyone's best interest for this answer? I have to consider how my constituency sees me fighting for them. I'm not the hired employee with a stamp of approval or denial that is protected from the voters (Interviewee, PKL-EO-2).

5.2.3 Time and Security of Tenure

An analysis of the research findings also found that the length of land ownership influences final decisions concerning land-use changes. Some local decision-makers feel that long-term community members have a greater right to develop and profit from land than more recent land buyers (including developers). This relates to the finding discussed in the previous section. If a developer buys a property and then seeks to rezone, councilors feel it is fair to say no (relative to saying no to a long-time farmer) because the developers understood the risk of a 'no' decision when they bought the land. Legally, all have equal access to the uses permitted in the legislation and the ability to develop the land into a new use is also equal – decisions should be based upon what use is in the public interest, not at all on who owns the land. However, during the interview process, it became evident that land ownership length is a factor that decision-makers consider when making rezoning and subdivision decisions. A second factor related to this was a sense that long term agricultural landowners 'know' and respect their land and that that knowledge is relevant to the decision. In other words, the landowner themselves would have the best knowledge about how the land should be used due to their long-term usage and tenure of it. Interviewee, FH-EO/LO-1 stated, *"The landowner knows best. Consequently, if a newly arrived landowner attempted the same, approval was less likely. How would they know? They hardly know the land."* PKL-LO-1 confirmed this notion by stating:

Farmers are the pillars of the rural economy and have been the community's backbone. We've worked hard for what we have and many of the [rural] towns are here because of our investments and the risks taken. We know the land and what it

takes to keep it [rural economy] going. We should have the last word and the right to make [land use] decisions.

Furthermore, decision-makers reported another influential factor during the interviews: whether they knew the family and if the landowner was an established community member. It was more challenging for many interviewees to say no to a person known by them than it was for a person unfamiliar to them. As expressed by one of the interviews participants:

Tom, I know you need this partial-out, but, buddy, my hands are tied... say hello to your family for me.' Then I [also] have to worry about losing their vote, plus the votes of everyone they talk to in the community. If it's an application from a newcomer or an invisible land investor, a no is not a problem (Interviewee, RV-EO-1).

Further interviews with elected officials pointed out the concern about making land-use changes for unknown individuals. For example, the elected official described and influencing factor in land-use change applications (FH-EO-1):

When I receive an [land-use] application from an individual I do not know; I'm suspect of it coming from a developer outside of the community if not the country. I will not go into details, but I know bank loans work differently for developers purchasing land for development versus long-time landowners wanting to sub-out (partial out a section of land for development). Interest rates are higher, terms are different, and defaults happen more often. I say yes, set a precedent, and it falls through. Then I say no to a 4th generation applicant, and they will bring the previous approval up. It is all a mess. I stick with what I'm certain about.

Rural Alberta communities can have 4th generation family operations still involved in agricultural productions. The study found that elected officials consider their constituencies and long-term ties to local families. When land-use decisions are being made by a council deeply rooted in these communities, saying no without legislative support can influence their verdict.

5.3 Land-Use Governance and Policy

During the interview process, participants had mixed feelings concerning the current approach established in the Municipal Government Act (MGA) and LUF, which leaves land-use decisions at the local level. Furthermore, due to local election concerns, decision-makers sometimes felt that it would be better (for land protection) if the provincial policies could bound their decision-making, forcing them to say 'no' to land-use change applications. With that noted, many of the same elected officials were conflicted as they did not want to give up their autonomy. which in lies many nuances to these issues to be considered.

Through document analysis and interviews, the research found that governments tend to differ largely in their applications of land-use policies due to differing political views between individuals and jurisdictions. Some participants expressed concern about this lack of anticipation for social and political views in the LUF and how that will hinder the alignment of land use goals. Interview participant AB-RS-2 said:

Even though there have been updates to the legislation for clarity and direction for more coordinated implementations, the lack of recognition that differences in political views and social expectancies between municipalities still dominates my concerns. One cannot develop a piece of environmental legislation based solely on scientific evidence and formulation, expecting robustness towards shifting public views.

Some aspects of this are discussed further below.

5.3.1 Ambiguous Directives

A consistent theme throughout the analysis process was a perception that Alberta's land-use legislation to protect agricultural land employs ambiguous language that allows a lot of opportunity for local governments to disregard it. While initially more direct, through the political process, the ALSA was amended due to public concerns over it being too restrictive and intrusive on property rights in 2011. According to an Alberta land-use planning law expert, AB-RS-1:

The amendment was the ambiguous rephrasing of terms concerning compensation for any landholder suffering a compensable taking. Unfortunately, the definition of compensable taking is vague and only settled the concerns of the perceived restrictions but did not clarify the actual legislative abilities afforded to ALSA.

This amendment occurred in part because the public was concerned that this piece of legislation was too restrictive concerning private landowners' rights, and it might be in transgression of their property rights. An Interview with an Alberta land-use planning expert, AB-RS-3 spoke to this, saying:

Although property rights have historically remained at the discretion of legislation, pervasive allowances for land-use changes and minimal [land development] restraints by the governing bodies for the past 50 years have allowed entrenched beliefs and traditions to dictate how land is used.

The 2011 ALSA amendment created a more moderate land management approach, leaving considerable discretion to local governments. Unfortunately, ambiguous provincial language and open-ended conditions in the amended ALSA removed the legally binding capacity of regional land-use planning efforts. As a result, power remains with local

governments and elected officials must navigate their constituencies' expectations and existing norms while interpreting vague land-use guidelines.

A planning department staff member in one of the case communities, interviewee, GP-S-1, explained their struggle with setting their municipality's planning agenda while trying to follow the guidelines laid out in the LUF:

It's fantastic that we have this guide [LUF] to help us develop what Alberta's province sees as the future for sustainable growth. However, when we [planning staff] take the final product to the council for approval, they ask, 'how does this stand up in the face of opposition? Can we [the municipality] interpret and deliver evidence of enforcement on behalf of a provincial mandate?' It changes the outcome when language such as 'endeavor to protect' is used instead of 'mandate or statute.' Elected officials are going to side with what is legally allowed before they jeopardize their position as a public figure on a 'hopes and dreams' guide.

Related to this, was an indication by many elected officials that these 'hard to make' decisions would be easier to make if the Province had stronger policy. Many expressed a desire for a 'backstop' with land-use decisions, even if they disagree with the policy. For instance, interviewee WL-EO-1 responds:

I believe in protecting farmland. I am a rancher and see the fragmentation of ranches and agricultural land being lost to the growing cities. But the current systems [land-use legislation] in place are not the answer. I have to worry about making the best decisions for my community and the people that vote me in. I am required to do what is fair but also what is in the best interest of the community, today and in the future. If the provincial policies were more explicit and more of a "this is required by statute," then we [decision makers] can make the best decisions for the working land without the fear of looking like we're playing games of preferentialism for some and denial for others.

The LUF has no legally binding limitations and regulations concerning the preservation of agricultural land, leaving discretion to local councils. Since the removal of the Regional Planning Commissions (RPC), all land use decisions fall to local elected officials. Local decision-makers do consider broader issues; however, when facing individual applications, other considerations can override the guiding principles of the LUF.

Interviewee, PKL-EO-1 said:

Look, it says right here in the LUF that we must protect the land, but if they [the applicant] wants to develop a subdivision and it fits within the municipal mandates, I'm looking past it [LUF's guiding principles] because it's not law and my constituents have been allowed for decades to use their lands as they see fit, they expect me to uphold the traditions and their rights. Why am I all of a sudden saying no without reason?

5.4 Competition Between Municipalities

Respondents indicated that there is intermunicipal competition for development on or near municipal borders that remains an issue. Municipalities face pressure to allow the development of land within their municipality because they fear if they say 'no' to development in order to protect agricultural land, neighboring municipalities may negate their effort by saying 'yes' to development. Further, communities not adjacent may say 'yes' to development. As a result, municipalities feel like their efforts to preserve farmland may have no overall benefit while hurting their citizens and their tax base.

In all three study regions, municipalities discussed the imbalanced tax structure placed on residential versus commercial/industrial uses. Elected official GP-EO-1 stated, "*Municipalities will allow non-residential development near existing population centers to capitalize on the current urban population.*" Since tax revenue generated from a newly developed commercial or industrial area is higher than the tax revenue generated from residential developments, the ideal scenario for a municipality is to balance both types of development to internalize costs and benefits. However, in some cases, one municipality must absorb the cost of servicing a growing residential area while another municipality takes advantage of this growth to generate revenue through industrial development, thus creating synergies and tensions between them.

Further, this shows that inconsistencies mar the existing policies regarding land use in Alberta. After reviewing recent development zones, the research found evidence that municipalities have leaned towards urban (industrial/commercial) greenfield developments. Therefore, this has increased land loss through fragmentation and conversion of agricultural land into non-agricultural uses. According to interview participant RV-EO-1:

As an elected official, I cannot sit back and watch the neighboring municipality build upon our border and take potential revenue out of our county. So, we developed lands in the [...] portion of our county for industrial and commercial uses. I know that residential would be a higher density development, but it just can't generate the same tax revenue as does commercial and industrial.

The findings of this study show a recent increase in annexations occurring around the province. For the most part, land acquired in an annexation process is undeveloped or currently used for agricultural purposes. The research found that the primary reason why the municipality wants to expand is to diversify its revenues. Municipalities also are interested in preparing for peaks in the housing demand due to present and future population growth. The research shows a pattern of neighboring municipalities developing on political boundaries to take advantage of resources supplied by other jurisdictions. Some

annexations have occurred to prevent this from happening. A land-use planning staff member also noted that municipalities want to "*avert being boxed in by neighboring municipalities*" (Interviewee, OK-S-1). Several municipalities expressed the desire not to develop their newly annexed land during the interview process, but they feel the need to do it to justify the increased administrative and maintenance cost. Therefore, there is an overall need for new regulations and policies in Alberta to ensure efficiency in the annexation process and improve accountability in land acquisition in Alberta.

The document analysis showed that in 2016, the City of Grande Prairie in northwestern Alberta annexed more than 6000 hectares of open land. According to interview participant and elected official, GP-EO-1:

The City of Grande Prairie was required to annex the land as almost a defence mechanism on two fronts. One is to defend the area so that it does not get fragmented in advance of the City organically growing into the area. Second, is to have room to grow and generate tax revenue, so we do not [financially] starve.

Surrounding much of the City Grande Prairie, the County of Grande Prairie has zoned land for industrial development and, in some areas, residential if not already in agricultural production. Entering the City from the north on Hwy 43, the transition from county to city limits is challenging to distinguish. As a planning staff member, GP-S-2 described it as:

The City is ringed with industrial and commercial development. By doing so, the county [of Grande Prairie] is taking advantage of the city services, e.g., roadways, water, and other city amenities.

Regarding the annexation, the City needed to grow its tax base and preserve areas for future growth; however, little consideration was given to preserving farmland. As interviewee participant GP-EO-1 explained:

The perverse thing about that is, we annexed an extensive rural area. As an elected official, my job is to try and fill it up and try and encourage development on it. Right? Because on at least one level, the thing I am compelled to do on behalf of my citizens to ensure we have the revenue available to meet the service demands of a growing community, regardless of if I personally want to protect it.

This shows the increased competition for the available land between agriculture and growth and development in Alberta. According to the data collected, it was evident that urban development and economic expansion are currently winning the competition as more agricultural land is being lost through fragmentation and conversion into non-agricultural uses such as constructing roads and expanding the urban centers.

The regions of this study showed that the conflict of taxation deficits and constricting one municipality with another's development patterns had deepened the argument for a new system for how governments co-exist. Interviewee participant GP-EO-1 addressed this concern:

Across Alberta, local Government is built on a system that reflects the way the province was 100 years ago, when you had well-defined rural areas and well-defined urban areas, and there was a clear separation of responsibilities. Alberta today is far more integrated. Do we need a city and a county? Maybe we just need one municipality.

The research also revealed that the County of Grande Prairie does not allow the developments on the borders as a direct planning method. Instead, it results from landowners taking advantage of the higher land prices due to an urban center's proximity. As interviewee GP-EO-2 from the County of Grande Prairie described it:

As long as the application is deemed complete and in the province of Alberta, it is our legal obligation to at least make the applicant heard. Under the legislation, as long as it meets all the legislative requirements, we are bound to it, we can have our opinions for sure, but we must abide by the legislation.

As land prices continue to increase, landowners are more apt to sell their land. The region of Grande Prairie has experienced lower growth pressures as compared to larger urban centers like Calgary. However, as found in the research, institutions such as taxation structures and differing perspectives on land uses are experienced across the province. Regardless of the types of pressures, conversion and fragmentation is a permanent result.

According to the documents analyzed, the discrepancy amongst multiple governments concerning the best use of land will continue to propagate inefficient growth. In addition, uncertainties such as low commodity prices, speculative market land prices, and other hidden factors can exacerbate existing institutional imperfections. The themes highlighted in this case study show that finding a balance with multiple jurisdictional agendas is beyond infrastructure agreements and Intermunicipal Collaboration Frameworks. As long as agricultural activities' profits must contend with speculative land prices and 'outdated' institutional structures, land use and planning conflicts will continue.

5.4.1 5.1. Inter-Municipal Collaboration Frameworks

Document analysis showed that the economic decline of the early 1990s, combined with tensions between urban and rural municipalities, resulted in many Albertans viewing regional planning as a limitation to an economic rebound. Interviewee GP-S-3 explained the shift in public perception:

As a whole, the province was looking for ways to get out of the economic slump, and many individuals, along with many municipalities, worried that regulatory powers could hinder the rebounding economy. In addition, there was a movement in thinking that urban development and growth of the building market could encourage more investments and allow money to flow back into local municipalities. The provincial government responded.

Therefore, the provincial Government dismantled the Regional Planning Commissions (RPC). Planning instruments were streamlined to allow for more municipal autonomy and to ease development standards. However, regional planning's primary purpose was to deal with issues that transcend municipal boundaries in ways that might not favor individual interests but benefit the entire region. Unfortunately, by shifting power back to individual municipalities, the province compromised the higher-level decision-making process. Moreover, by institutionalizing the shift of power, the provincial Government impaired the entire regional planning system. With municipalities directing land-use decisions as they see fit, the conflict between bordering neighbors has escalated.

In 1994, legislation was created to ensure some inter-municipal cohesion (AMUA, 2018). The Provincial Government introduced the more 'flexible' Intermunicipal Development Plans to ensure cooperation for practical issues such as the provision of infrastructure and transport services. This planning system persisted until 2007, when the Land Use Framework (LUF, 2008) was introduced, a new policy that restructured decentralized planning. This marked the reintroduction of a form of regional planning. The new LUF guides municipalities in seeing through local municipalities' planning obligations, including working with neighboring municipalities. After creating the LUF, economic demands, individual agendas and continued tensions between municipalities led the Provincial Government to create the Intermunicipal Collaboration Frameworks (ICF) under the modernized Municipal Government Act of 2016 (MGA). As stated in the MGA, any municipality sharing contiguous borders must develop ICFs to enter into collaborative agreements to provide transportation, water, wastewater, solid waste, and emergency services. ICFs were introduced in 2016; upon the MGA review, in most cases, they are still underway. Municipalities are also required to issue Intermunicipal Development Plans (IDP) as part of their ICFs if they had not already adopted them under the previous MGA. Informants shared with the researchers that unclear directives and varying requirements regarding ICFs and IDPs have led to delayed actions. The data collected concerning the existing framework regarding the development and protection of agricultural land in Alberta is not precise, as inconsistencies characterize it; this further highlighted the need for a well-defined framework to ensure consistency in requirements regarding IDPs and ICFs. As stated by interview participant, land-use planning law expert, AB-RS-2:

The attempt to mandate municipalities to develop and follow ICFs at the same time, bending to the idea of municipal autonomy, has the potential to send mixed messages. A more defined mandate with follow-through will better ensure focused land use, i.e., better protection of agricultural land in Alberta.

The tensions between centralized planning and local autonomy have been evident throughout Alberta's planning history. As discussed in previous chapters, political parties have had different views on the power of planning; therefore, using this as a political platform. Interviewee AB-RS-3 commented on this issue, saying:

In doing so, not only has political campaigning affected the public's expectations of property, but it has also generated tensions between municipalities. Land-use planning is a component of politics; therefore, these tensions expose a need to explore how the social and political contexts can influence a new planning system.

Another finding is how the conflicts between urban and rural municipalities have historically been an ongoing inter-municipal coordination success and failure factor. During the document review, it was confirmed that the origins of town planning were established by urban municipalities' needs. The purpose of the first plans or schemes was to manage subdivisions and specify critical urban systems and services. Despite the province's efforts to make inter-municipal planning a feasible option, for some rural elected officials, elected official PKL-EO-1 shared that *"the overall planning system has viewed rural municipalities as reserve land for future urban growth."*

According to an interview with a land-use law expert, AB-RS-3, *"the underrepresentation of rural municipalities in regional bodies persists still to this day."* Collaboration between local governments is already complex due to their reluctance to resign part of their autonomy to a neighboring' more urban' authority. The rivalry between municipalities has been traditionally expressed as competition for land, e.g., annexations or *"land-grabbing"* (Interviewee, PKL-EO-1). Thus, adding to the tension of the urban-rural distrust can and has resulted in marginal cooperation. Furthermore, since the population boom in the past decade, the urban-rural relationship has become even more complex, especially in Edmonton and Calgary. As a result, the Municipal Government Act was updated in 2017 to reorganization the Edmonton and Calgary metropolitan regional boards, attempting to mitigate the impact of the booming population and to develop an *"equal representation growth plan that does not give precedence to one municipality over another majority, still hinder the validity of today's MRBs."* (Interviewee, AB-PO-GRP).

The MGA's 2017 requirement to form the Edmonton and Calgary Metropolitan Region Boards (EMRB and CMRB) is not the first attempt at urban-rural inter-municipal coordination. The Edmonton District Planning Commission (EDPC) was initiated in 1950,

followed by the Calgary District Planning Commission (CDPC) in 1951. The DPC's were established to deal with issues that Alberta's two major cities could not accomplish autonomously. According to interviewee AB-PO-1 regarding this time, *"some of the issues both regions faced were disorganized fringe developments, financing issues, loss of agricultural lands, and barriers to economic, industrial and residential growth."* These problems require cooperation among numerous municipalities as the resources are not limited to or contained by one jurisdiction. Adding to the tension, the DPC's also faced many challenges of uncertainty and lack of explicit provincial direction for fulfilling the planning and management purposes enacted by the 1950 Town and Rural Planning Act. The barriers of political interest and distrust can contribute to the "watering down of the policy's language" (Daoust-Filiatrault & Connell, 2015). Multiagency cooperation is restricted by more than just physical boundaries but also by social and political contexts. As seen with the 1950s DPCs and the more recent MRBs, coordination and the perception of equal representation are vital for the municipal corporation's success.

The research found a correlation between the changing intensities of inter-municipal cooperation and the economy, i.e., less cooperation between municipalities during economic downturns due to pressures to spur growth. However, the research found that economic concerns were not the only force affecting regional cooperation's success. Rural communities perceived the planning authorities as having an urban preference. For example, in the past, Calgary areas outside of the City were held from development for future urban growth, i.e., no longer available for development by rural municipalities. To further the distrust, in Edmonton in 1954, a Royal Commission led by George Fredrick McNally recommended that the EDPC need to annex areas surrounding the City in order to minimize fragmentary development. This added to the historical tensions undermining cooperation between urban and rural municipalities.

A survey of Alberta municipalities done by the Alberta Association of Municipal Districts and Counties (1980) found that most urban respondents believed regional planning was successful, while most rural respondents thought regional planning was too restrictive and leaned in favor of urban municipalities. The more recent reorganization of the Calgary Regional Partnership (CRP) is another example of the urban-rural divide. According to the Municipal Government Act 2017, the participation of stakeholders in the CRP was provided for to be voluntary; however, as time continued to pass by, massive withdrawal of the municipalities indicated a concern of weighted urban biases representation (Government of Alberta, 2018). However, with the latest amendment of the MGA, both the Edmonton and Calgary area municipalities have consequently cooperated to form a more collaborative and

cohesive body for equal and fair representation (MGA, Government of Alberta, 2017). According to an interview participant, the Edmonton MRB is *"neither a new level of government nor have the same status as municipalities; therefore, decision-making within the Board relies entirely on the willingness of municipalities to collaborate"* (Interviewee, AB-RS-3).

Regarding agricultural land protection requirements and guidelines, the intense debates and discussions over the need for protection of agricultural land has led to appropriate policy and agreements allowing for stakeholders and policymakers to make well-informed decisions between the municipalities' officials and, thus, discloses some of the causes of previous distrusts and conflicts leading to variations or differences. For instance, this research found varying perceptions of the reliability of how and where plenty and fertile agricultural land are available. One of the interviewees, PKL-EO-1, confirms this argument by asserting that:

Historically, land that has been set aside by the urban planners for protection to only be annexed and later developed reinforces the perception of the rural municipalities' views and needs such that they are not being considered when making land-use decisions for the region.

According to the document analysis, the Land Suitability Rating System (LSRS) is used by the Government of Alberta to inform agricultural planning activities. Subsequently, regional partnerships such as the Edmonton Metropolitan Regional Board (EMPR) have adopted LSRS when identifying prime agricultural soils in surrounding areas. Differing from the Canada Land Inventory (CLI), LSRS evaluates the suitability of land for crop production based not only on soil quality but considers other factors such as landform and climate. The LSRS has a soil rating system from 1-7, where Class 1 is the soil most suitable for crops and other related springtime activities. Class 7 is the least suitable for cultivation. Despite the appearance of extensive coverage of prime cultivation land, Alberta has a shortage of Class 1 soil, and most of the Class 2 soil is located in the Edmonton-Calgary corridor, which is the most economically feasible location for urban development.

In the interviews conducted for this research, several interviewees of rural municipalities expressed concern about using LSRS by regional boards such as the EMRB. A common question posed by participants was, *"are the regional boards, which are predominantly urban, using the LSRS classification tool to protect prime agricultural soils, especially near the urban fringe, as a method of landholding for future annexations?"* (Interviewee, PKL-EO-2). They also question if larger cities strive to protect agricultural land under the guise of sustainable land use planning only to renegotiate the qualification when

the time comes for them to expand the city limits. Thus, regional boards can be perceived as a potential platform for municipalities to reach beyond their jurisdiction as an attempt to control what happens outside their urban fringe.

Document analysis also showed that a report in 2016 by the Alberta Urban Municipalities Association (AUMA) pointed out that the lack of cross-border coordination has led municipalities to create their agricultural plans utilizing in-house soil classifications and land descriptions, thus exacerbating the issue of alienation and distrust. In a group interview with AB-PO-GRP, many participants stated that *"to date, this distrust on behalf of some rural municipalities has hindered the cooperation of inter-municipal agreements as seen with the Calgary Regional Board losing rural participation."* However, regional boards were created by the Provincial Government to aid in the collaboration between inter-municipal boundaries. The incentive is that everyone benefits from the positive externalities resulting from protecting open spaces and agricultural land. Unfortunately, conflicts between rural and urban ideologies can interfere in attempts to resolve cross-border disputes. Furthermore, plans such as the ICFs and IDPs are encouraged to focus on service provisions and collaborations of land use planning regarding the cost of infrastructure, tax revenues and natural resource extraction.

Rural municipalities near larger urban centers must always weigh the question of protecting land for environmental reasons against the need to remain economically viable. According to interview participant GP-EO-2, *"It is important for rural municipalities to develop lands and generate tax revenue, especially areas close to urban centers, revenue opportunities allow rural municipalities to remain complete."* AB-RS-3 stated, *"However, the expectations of new developments wanting urban amenities in rural settings increase the demand for urban infrastructure, i.e., threatening agricultural land."* Individual municipalities address land-use changes based on the values and expectations held by local decision-makers. Conversely, when the decisions are made at the regional level, local municipalities' conflicting values and expectations can be overruled by the governing body (Interviewee, AB-RS-3). Nevertheless, according to interviewee AB-RS-3,

Alberta's past attempts and subsequent failures at achieving optimal regional planning has created an entrenched distrust and individual motivations that exacerbate inter-municipal rivalry. Thus, municipalities develop economically focused and antagonistic planning systems even within a formal regional governance setting.

Although many challenges face future MRBs and inter-municipal relations, the MGA's new attempt at rebalancing the level of influence is creating an equal representation. As a result, all participating municipalities now have more but equal input in the collaboration

efforts laid out in the growth plans. Doing so makes this regional model viable and more sustainable over time, but it is a crucial component of Alberta's long-term land and resources governance.

5.4.2 Economic Drivers

The data also shows that for many municipalities in Alberta, remaining economically viable can be difficult. In an interview with a land-use planning law expert, AB-RS-3 said, *"Historically, Alberta's planning is reactive to the state of the economy."* An example given was that municipalities capitalize during periods of population growth and economic demand by expanding urban developments and resource extraction. Document analysis revealed that, in times of economic security, more centralized regional planning has flourished. For example, during the 1950s boom of the oil industry, regional planning flourished, and the province invested a significant resource in planning legislation. Interviewee AB-RS-3 said that *"Unfortunately, for decades, the overall driver in Alberta has been economic growth, thus, overshadowing land protection efforts."* Larger urban areas have continued to grow outward in the form of residential low-density, large-scale commercial developments, and industrial operations. The standard design of suburban development is auto-centric and located on former agricultural lands and natural areas (greenfields) (Soans,2018). Reasons beyond the scope of this research have contributed to the outward expansion of cities and towns in lieu of the redevelopment of urban centers. Nevertheless, tax revenue arrangements, permissive subdividing, and auto-centric developments were reasons uncovered during this analysis.

5.4.3 Economic Trends and Policy Development

Alberta possesses a diverse physical and cultural landscape. Document analysis of past and present legislation shows that, historically, land-use planning in Alberta has focused primarily on the land's physical attributes and reflects the influence of economic trends during policy development.

In the Land-Use Framework, the Government of Alberta (2008) provides a "vision, desired outcomes, and guiding principles for land use planning." The Government's vision stated in the LUF is that "Albertans work together to respect and care for the land as the foundation of our economic, environmental and social wellbeing" (p.15). The desired outcomes are a "healthy economy supported by our land and natural resources, healthy ecosystems and environment, and people-friendly communities with ample recreational and cultural opportunities" (p.15). The guiding principles are that "all decisions will be

sustainable, accountable and responsible, supported by a land stewardship ethic, collaborative and transparent, integrated, knowledge-based, responsive, fair, equitable and timely, respectful of private property rights, and respectful of the constitutionally protected rights of Aboriginal Communities" (LUF; Government of Alberta, 2008, pg. 15).

The guiding principles of the LUF require the consideration of the sustainable use of land and the concern of losing agricultural land. However, the document analysis paired with interviewee viewpoints highlighted concerns that the LUF would maintain the status quo and the economic focus of land-use decision making. For example, the first strategy proposed by the LUF was the creation of seven watershed regions. However, a review of these regions and the Lower Athabasca and South Saskatchewan Regional Plans analysis demonstrated that although water management is addressed, the real priority is understanding how land supports economic activities and creates policies to maintain economic growth and maintain water conditions.

Although the LUF states that the use of thresholds for managing cumulative effects will be adopted, it was found during the analysis that it remains unclear who will be setting the thresholds. The Regional Advisory Council (RAC) for each identified watershed region is responsible for advising each regional plan's design. According to the LUF, the *"RAC will provide advice on addressing trade-off decisions regarding land uses and on setting thresholds to address cumulative effects"* (LUF; Government of Alberta, 2008, p. 29). Therefore, members of the land-use provincial cabinet and regional advisory councils will be appointed. According to interviewee AB-RS-1, *"This is not efficient or democratic. Land-use planning in the province must be removed as far as possible from the political process."* The process of how RAC members are appointed or the criteria that they must meet is not clearly described. For example, the North Saskatchewan Region (NSRAC) council comprises farmers, councilors, executives from industry, developers, planners, biologists, conservationists, and ranchers (NSRAC; Government of Alberta, 2018). The NSRAC members represent the social, economic and environmental interests of the region. However, according to interviewee AB-RS-2, *"without provincial regulations for the selection and appointment of RAC members, it is difficult to guarantee that proper representation will occur in other regions."* The Regional Advisory Councils' rulings are legally binding; therefore, all government agencies and departments must adhere to the mandates set forth by councils. Unfortunately, this means that the appointed authorities will have more power than independent and science-based advisors. The new RAC structure relies more on the current political party's position and allows many to question the real focus of the LUF.

Notably, this research found that municipalities are usually not much engaged in regional land-use planning and development. Therefore, the local governments' sole responsibility is to create context statements and other relevant statutory plans that will synchronize and coordinate with regional and provincial policies and regulations.

Chapter 6: Discussion

Building upon existing literature and based on a multi-region case study of Alberta, this research has contextualized the widely debated issue of agricultural land loss and detect possible relationships between land-use planning and the influence of informal institutions. This research focused on exploring why significant conversion and fragmentation is still occurring despite the directives set out in the Land Use Framework. Alberta's urban expansion results from several key factors locked up in institutional legacy, making it hard to recognize and difficult to change.

6.1 Influence of Social Norms and informal institutions

The overarching findings of this research was that complex informal institutions are affecting the effectiveness of formal institutions regarding the protection of agricultural land. It suggests that to be effective, land-use policies must anticipate the influence of informal institutions, including perceived property rights. Policy issues such as vague directives or ambiguous language will often allow existing path dependent social expectations and informal institutions to influence and shape any formal policy where a vacuum exists. As stated by Folke et al. (2005), drawing conclusive land-use policies based only on (physical) scientific data is "underestimating the power of social relationships and has consequently led to the failure of many efforts in land use management" (p.462).

The study's findings were consistent with the literature on institutional change, social norms and land-use planning concerning common pool resources (CPR). The influence in which norms and expectations drive the creation and continuation of existing informal institutions is more significant than most current IRM policies are designed to address. As seen in the review of historical attempts of IRM and the findings of this research, it is paramount that accurate interpretations of the goals and outcomes are achieved regarding regional planning, coordination.

The findings of the document analysis and participant interviews regarding Alberta's land use policies show that the consideration of land ownership values, social tensions, and political context is not fully recognized in the current Land-Use Framework, i.e., making it challenging to uphold at the local level. As seen in 2009, ALSA's attempt to protect prime agricultural land was reconstructed by the public's misperception. Views circulated about ALSA as an infringement on property rights and its 'top-down' approach would remove individual rights. In contrast, the introduction of ALSA established legislation, giving protection of private property more brevity.

Throughout this study, the evidence of influential power behind public perceptions, especially perceptions of property rights, is deep-rooted in a legacy system. Douglas North (1990) describes this element as an evolutionary process for informal institutions [collective objectives]. This research found that Alberta's historically consistent and sustained laissez-faire land-use decisions has reinforced the province's early development approaches, therefore, locking in the informal institutions and making change more difficult, i.e., that institution is now strongly path dependent.

It was found in the interview process and confirmed with document analysis, Alberta has a history of allowing municipalities to do as they see fit, including approving changes in land use so that land can be sold at market value for development. However, since the post-war redevelopment efforts of the 1940s, market-based financial arrangements and government subsidies have mispriced the land on the fringe of urban centers. As city centers age and populations grow, people desired more space and new infrastructure. With poorly designed policies and distorted financial institutions, suburban developments became more attractive for both the public and municipalities, entrenching institutional legacies favoring sprawl and incentivizing the idea of landownership as an investment for future development.

The introduction of the Alberta Land Use Framework in 2008 came up against the current path of 'grow as see fit.' Landowners had become expectant of guaranteed approval of land-use change applications; conversely, ALSA was enacted to curb a sprawling urban fringe, i.e., curbing landowners' right to sell. Once the Alberta Land Stewardship Act was enacted in 2009, an undertone of public uncertainty was already in place. As mentioned earlier, the public pushback led to an amendment of the Alberta Land Stewardship Act in 2011, displaying the level of influence public perceptions can have on policy and the pressure experienced by local decision makers.

The study also showed that as a result, the amendment of ALSA created a less restrictive and more moderate land management approach, leaving a considerable amount of discretion to local governments, i.e., increasing the ability of persuasion. Without clear and direct provincial mandates, local decision-makers are obligated to balance what is fair between the desire to preserve land and the right to develop. This increasing pressure on decision-makers puts into question the effectiveness of current provincial policies and their ability to withstand growing demands. Unlike other provinces such as Ontario and British Columbia, which have implemented more restrictive policies to control urban sprawl and protect farmland, no large-scale solution has yet been fully implemented in Alberta.

Creating an institutional landscape that protects the environment, supports diverse communities, and encourages a thriving economy involves extensive collaboration between the government, stakeholders, and the public. With any land-use decisions, officials need to ensure that legislative acts are met while progressing the objectives of their municipality. Meeting these requirements and promoting fair and efficient land use is a complex and challenging job in a political environment that historically has tolerated permissive development. Changing the public's expectations requires all levels of governance in Alberta to ensure the follow-through with goals and regulations that protect against the loss of agricultural land in the area.

As seen with the implementation of the LUF, moving away from a top-down regulatory approach to a more decentralized platform of governance can come with a limited understanding of the implications that a new approach can have. Therefore, local decision-makers are confronted with the task of identifying and understanding governance challenges and then determining appropriate and fair resolutions for their region that also fits with the directives from the provincial government. This applies pressure on the decision makers to navigate and decide what is fair for their constituency, at the same time adhering to vague provincial directives that do not consider the informal institutions and social norms without any backstop or provincial support. Furthermore, for the local decision makers, saying 'no' to a landowner's application for land-use changes can have ramifications in the upcoming election year. Therefore, if the 'no' is not backed by a higher level of legislation, the question of 'what is right' for the protection of agricultural land conflicts with the 'what is fair' and 'what is best for the securing of votes' dilemma.

6.2 Land-Use Governance and Policy

In recent decades, pressures placed on the environment are becoming more visible, focusing on ecosystem services provided by agricultural lands. Planning efforts to curb urban expansion have evolved to adapt more sustainable models such as smart growth agendas, higher density infill, and mass transit-oriented developments (TODs). However, these measures face many entrenched institutional challenges.

Buitelaar et al. (2007) suggest two methods of introducing institutional change: institutional change by evolution and institutional change by design. During the planning process, the government must consider external threats before moving forward with a policy framework. As previously discussed, Alberta has had a relaxed approach to land use policy for several decades, allowing persuasive informal institutions to evolve. On the other hand, the introduction of an institutional change by design (LUF & ALSA) disrupts the paths

entrenched by the historical land-use decisions [legacy]. Although this study identifies obstacles in Alberta's land-use documents, policy design can incorporate adaptability and resiliency by anticipating these obstacles. Below are considerations for linking institutional changes with resilient land use planning.

Various critical considerations should be made to ensure that a more resilient planning framework is developed and implemented. The first of these considerations is that there is a need for an increase in clarity (decreased ambiguous language) and consideration of the relationships between the LUF, local municipalities, and community; this means that the relationships between these three entities should be clearly defined to avoid conflicts. Notably, Parkins (2011) notes that decision-making, especially concerning land use, could be fairer when there are mechanisms and strategies for conflict solving, appropriate approaches to implementation changes, and elaborate clarity of the undergoing processes. The second consideration is that the LUF could provide more than just directives. By using a legislative approach and follow up on municipal land use plans and execution (meeting the goals laid out in the LUF), participation will be more consistent. Unfortunately, the current policies do not provide legislative support (backstop) for local decision makers facing difficult land-use change applications. Furthermore, there is no mechanism in place for provincial level follow-ups on implementing the LUF's goals, creating room for exploiting the current land-use policies. As a result, events of continued losses of agricultural land through conversion are on the rise. The third consideration is a need for increased alignment between decision-makers and policy goals (minimizing external influence); external pressures such as development pressures should be kept at bay when formulating policies to guide land use in Alberta. Three key factor contributing to increased rates of land fragmentation and conversion is first, the position of decision-makers and their need to adhere to their constituency's expectations, thus failing to align policy goals to the adequate protection of agricultural land from loss. Second, there should be a synchronized implementation of the LUF at the local, regional, and provincial level, anticipating the influences of institutional legacy (financial incentives, subsidy programs, economic drivers, taxation structures). Third, the relationships between land use policies and social complexities should be anticipated and addressed when developing land-use policies. This will allow local municipalities to make decisions that are in sync with other jurisdictions without the compromising the provincial goals of protecting agricultural lands.

6.3 Disseminating Scientific Data and Timeline of Policy Response

This research found that circulating scientific data related to land-use practices and protection impacts the effectiveness of policy acceptance and overall success. The public should be given free access to information gathered regarding land-use changes and impacts in attempt to not alienate them. Furthermore, although the public is not directly involved in policy development, the success of the policies lies in the hands of the public's perceptions.

Land-use policies are also reliant on how long the development period is. This research found that time affects the acceptance and implementation of the new policy. The development period should be open to the public. However, the results of this study found that there is a decisive juncture of time to avoid misinterpretation and misleading advice by opposing stakeholders. The research found that the staggered implementation of each of the seven watershed's regional plans has left many of the remaining plans vulnerable to continued interpretations, political misrepresentations, and overall skepticism. In particular, misrepresenting the regional plan's intentions and shifts in political parties have left them vulnerable to the party's desire to continue the LUF's initial objectives. This also applies to shifts in a political party. If a new or an extended developing policy overlaps a political party shift, it is more likely that the policy will fail or not make it into legislation.

6.4 Municipal Competition as a Collective Action Problem.

The issue of intermunicipal competition for development identified in the research is a typical collective action problem where multiple actors (in this case municipalities) looking after their own interests result in a non-optimal outcome. In the institutionalized practice of the provincial government to honor municipal autonomy has consistently affected the focus and effectiveness of the LUF and ALSA. The lack of provincial oversight and directions has allowed municipalities to elude LUF directives and disrupt multijurisdictional collaboration. The solution to such situations is to craft agreements that balance the interests of those involved. There is a need for new policies and regulations that strike a balance between the interests of municipalities and the different types of developments (commercial/industrial development and residential development). As other research has shown, inter-municipal competition creates an opportunity to form alliances to influence land-use decisions, resulting in alienating other municipalities (Spicer & Spicer, 2013).

Intermunicipal Collaboration Framework (ICF) is the newest implementation and, in most cases, still in the creation process. However, increased alignment and synchronized

ICFs between municipalities must be guided and reviewed for consistency by the provincial government. For consistency to occur, legislation must be created to direct decision-makers at local, regional, and provincial levels. Moreover, the imbalanced tax revenues are a primary driver for municipalities to expand onto undeveloped lands in an attempt to diversify their revenues. With residential taxes generating lower revenue, municipalities annex surrounding land to capitalize on higher revenue taxes such as commercial and industrial development. The second reason is to prepare for any large-scale residential development because of the increased population. The third reason is to guarantee that the municipality will have enough land for future growth. The research shows a pattern of neighboring municipalities developing on political boundaries to take advantage of resources supplied by the other jurisdiction. Some annexations have occurred to prevent this from happening but, in turn, must develop the newly annexed land in order to justify the increased cost. Consequently, this usually leads to the loss or fragmentation of agricultural land.

6.5 Urban-Rural Rivalry and Distrust

Another finding from this research is the continuous tensions and distrust between urban and rural municipalities, especially when it comes to urban growth and agricultural land management. The historical underrepresentation of rural municipalities in regional boards are still an issue. The rivalry between municipalities has been traditionally expressed as competition for land and unbalanced forms of revenue. Several interview participants expressed the LUF's desire to protect agricultural land as "*another form of urban government landholding for future expansion.*" Thus, adding to the tension of the urban-rural distrust can and has resulted in marginal cooperation. As the population continues to grow, and urban centers like Edmonton and Calgary expand, these tensions are becoming more complex and nuanced. Fluctuations in the economy and the desire to meet growing demands or, during slow economic times, to spur growth continue to put pressure on the policies designed to resolve municipal border tension. Furthermore, rural municipalities with borders near urban centers must weigh the option of protecting agricultural lands and remaining economically viable in way of developing lands for capturing tax revenue. At the same time, urban centers continue to expand outward, applying pressure on the neighboring municipalities and continuing the tension and distrust.

6.6 Economy Drivers and Policy Development

This research found that historically, Alberta has placed significant economic importance on the policy-making process. Previously, land-use planning in Alberta has focused primarily on the land's physical attributes and reflected the influence of economic trends during policy development. During periods of economic growth, rapid urban development puts pressure on local governments, and the competitive nature of municipalities overrides the provincial desire to protect open lands in place of restricting development. On the other hand, a slower economy has historically resulted in less provincial input about urban growth and an increased desire to undo restrictive land-use policies to reduce spending.

The recent implication of the LUF and ALSA has emphasized protecting land over the 'fast growth' economy that has been historically desired. Furthermore, the LUF and ALSA adopted policies that enable the protection of environmental values that had been neglected by past land use policies and developed tools to protect land with environmental, aesthetic or agricultural values from development pressures while allowing growth in the most strategic areas. However, the lack of understanding these values outside of their economic worth presents a significant barrier to using these tools. This research also found that the 'agricultural land, agricultural values, and agricultural operations' mentioned in the current land-use policies are not defined in the ALSA and not mentioned in the LUF, adding confusion to the already vague directives; this encourages local interpretations and decisions leaning towards individual growth agendas and not regional goals.

6.7 Supporting Tools to Preserve Agricultural Land

The findings of this study also showed that the Government of Alberta needs to lay out a more detailed outline of goals to protect agricultural land and then create an incentive for municipalities to adopt these practices. This research has shown that local decision makers have not genuinely committed to the agenda identified in the LUF. Although municipalities have the right to say no, without legislative support from the provincial government, land-use decisions remain in the hands of the historical legacy of permissive development. Also, with the minimal commitment by the provincial government to the preservation tools provided in ALSA, the tools will remain largely inactive. Hence, the inconsistency found in the desired outcomes and actual deliverables; the Municipal Development Plans (MDPs) must be supported by legislation to enforce oversight. Even though the provincial government requires creating MDPs, elected officials are not obligated

by the court to carry out the goals. Therefore, the provincial government should support municipalities in formulating and enforcing land-use policies using the existing tools found in ALSA to protect against agricultural land loss in the region. Such support will also help ensure that land-use changes are documented and tracked rather than lost during political changeovers. Furthermore, the provincial government can reduce the pressure elected officials experience by finding a balance between how a landowner can use their land without interfering with the overall goals of policies.

By utilizing ALSA's preservation tools backed by provincial legislation and fiscal support, local decision-makers will be more likely to restrict land-use changes without the concern of backlash from their constituency. In this case, the provincial government must also consider supporting sufficient compensation to landowners when protection policies reduce opportunities to sell at market value. Even though compensation is not always a right, landowners being restricted from selling their agricultural land to developers expect compensation. The perception of land ownership and the expectations of permissive land-use changes coupled with the anticipated right to compensation can hinder agricultural land preservation efforts in many ways. It is up to the local decision-makers to enforce the preservation mandates in a cultural context steeped in a legacy of laissez-faire development. Therefore, through the use of the ALSA alongside other policies, the provincial government must consider a program that supports and ensures adequate compensation for restricting land-use changes on existing agricultural lands. Such support from the government will also enable the agricultural landowners to get value for their land and reframe the perceived concept of development for profit

Chapter 7: Conclusion

This thesis has examined how non-spatial aspects such as informal institutions influence land-use decisions at the municipal level, focusing on decisions affecting the fragmentation and conversion of agricultural land. The study also examined how informal factors at the local level affect the application of Alberta's land-use policies and formal mandates. This involves considering the influence social norms and expectations have on goals stated in Alberta's Land-Use Framework and subsequent mandates aimed at protecting essential lands. Without clear directives from the provincial government to support local decision-makers in the efforts of preserving agricultural land, there will remain a lack of momentum and cohesiveness in policy implementation. By assessing the provincial level Land-Use Framework (LUF) and supporting municipal documents for the three regions of study, several crucial gaps between municipal collaborations and provincial guidance were found. The mandates and directives laid out in the LUF do not anticipate the influence of informal institutions, therefore, remain disadvantaged to the unseen nuances of social norms. The interviews with landowners, decision-makers and many invested stakeholders uncovered the continued influence of expectations seeped in historical legacies and entrenched societal practices. This section provides an overview of the research, organized around its objectives.

1. Objective 1: Investigate how individual and collective norms and the political context shape informal institutions related to land use planning at the municipal level.

Governance systems are established, in part, to control land-use and growth policies. However, the current systems have not fully achieved this regarding Alberta's agricultural land loss mitigation objectives. Despite the recent advancements of Integrated Resource Management (IRM) used in provincial land-use policies, many shortcomings are apparent regarding the influence of informal institutions. The impact in which norms and expectations drive the creation and continuation of existing informal institutions is more significant than most policies focused on land-use/resource management are designed to handle.

The 2008 Land-Use Framework and Alberta Land Stewardship Act are tasked with considering effective agricultural land uses and utilizing preservation tools to minimize the human footprint. However, the decentralized model and nonbinding directives in Alberta's land-use policies allow for informal institutions created by social norms and political contexts to remain the primary driver of land-use decisions. As a result, there is a need for

authorized regional plans in Alberta that direct local decision-makers to reinforce effective regulations and policies to curb the loss of agricultural land to urban development and expansion.

2. Objective 2: Evaluate how decision-makers view the right to develop land vs. the desire to protect land while balancing tensions that arise from landowner expectations.

The Land Use Framework is a set of guidelines that seek the protection of resources that the people of Alberta rely upon. Many officials disagree with any policy taking away the 'rights' of landowners allowing them to sell their land for maximum profit. Many decision-makers expressed a personal desire to protect agricultural land but felt that it is not their place to negate a landowner's opportunity to profit. Although the legislation gives municipalities the power to refuse any application attempting to change the current land use, many officials reported that it is difficult to say no. Removing the figure of Regional Planning Commissions (RPC), local decision-makers are now vulnerable to the entrenched social norms and expectations. With no 'backstop,' local decision-makers consider these issues; however, other considerations can override the desire to protect agricultural land when facing individual applications. Consequently, the elected officials must consider their current and future voters when deciding on an application for a land-use change.

3. Objective 3: Consider policy development, implementation, and effectiveness over time in response to these influences and tensions.

Alberta's LUF does not fully anticipate how complex social dynamics affect policy. For example, by decentralizing the land-use planning, the provincial government has authorized local municipalities to see through the LUF's higher-level objectives. Therefore, local decision-makers are more susceptible to the influences of social complexities. Although local officials do have a better understanding and insight into local land-use interests and concerns, anticipating the relationships between land management sciences and social complexities requires legislative support at the provincial level. Moreover, the uncertainty and exposure to entrenched expectations and a legacy of permissive development at a local level impede policy development and long-term effectiveness. Future development of protection policies regarding agricultural land must consider the influences mentioned above and create policies supported by provincial legislation and are resistant to political shifts. The right to say no to land-use changes does not always encourage the protection of agricultural lands.

7.1 Reflection on Methodology

For this qualitative study, a sufficient data saturation point was achieved from the interview sessions with landowners, developers, professionals, conservation organizations, elected officials in Parkland County, Edmonton, The City of Grande Prairie and the county of Grande Prairie. The saturation was strongly supported by the findings of another study with a similar methodology whereby nearly 70 percent of usable data was established from the first ten transcripts (Benoit, 2016). Following recruitment challenges, data saturation was never attained for the elected officials from the Town of Okotoks; however, by incorporating the surrounding municipalities of Rocky View County, Wheatland County and M.D. Foothills, data saturation was achieved for the region.

Recruiting elected officials and landowner participants for the study posed some challenges. While many participants made their initial contacts, scheduling conflicts and election cycles affected the number of confirmed participants. This was particularly difficult when other interview sessions had been organized in the Calgary region as the researcher only had a minimal time frame in the areas and could not reconnect with the officials as scheduled. In addition, several officials that had initially agreed to meet cancelled out of concern that the topic is political and felt uncomfortable discussing it at a time of re-election. After the elections in October 2017, some of the selected participants who had lost their positions withdrew their participation in the study after the interview process. Recruitment challenges are well recorded in similar research areas and have been referred to as a "formidable task for researchers researching during sensitive times" (Liamputtong, 2007, p.48). Nonetheless, many participants contributed to the three regions of study to gain in-depth information on land-use experiences and challenges.

The casualness of the interview approach was extremely helpful in acquiring highly detailed information from individual participants (Reeves et al., 2017). For this research, informal interviews and conversations played a vital role in understanding the topic and collecting data. Due to the timing and nature of the study's topic regarding land-use planning and agricultural protection, many workshops, conferences, and other land-use-related events created opportunities for the researcher to engage in informal conversations. At the time of interactions, the researcher was familiar with the research topic; therefore, the conversations enhanced the data collection process by providing in-depth participant knowledge and further introductions for future participant interviews (Reeves et al., 2017). Despite these limitations, this research design enabled an in-depth investigation into the effectiveness of agricultural land protection policies at both the provincial and municipal levels in key Alberta regions experiencing rapid urbanization.

7.2 Recommendations

In Alberta, more direct provincial guidance and higher-level decision-making around land-use changes and inter-municipal collaboration could encourage a longer-term approach and help alleviate some of the current development pressures. In alignment with continued local autonomy, more direct provincial governance may also enable difficult decisions at the local level because of the informal influences and other pressures that decision-makers face. A critical factor missing in the current policy is the consideration of finding an acceptable balance between tax revenue structure, societal expectations and policy goals. This balance is crucial for procedural fairness of the land-use planning process and would encourage policies designed to protect agricultural land.

7.3 Limitations and Areas for Further Research

This study focused on three particular regions in Alberta, intending to generate comprehensive insights from qualitative analysis. However, to some extent, this thesis is inherently limited by its case study design; although participants shared a wealth of knowledge, experience, and various perspectives, they cannot be considered representative of Alberta as a whole. Furthermore, the study focused on local elected officials, planning experts, and landowners within the three regions, but it did not include provincial officials interested in drafting the provincial land-use policy. Further research is needed to understand land-use issues from other perspectives such as natural resource extraction, Indigenous communities, ecological planning, and a deeper look into the institutional theory and economic structures, e.g., taxations. Finally, this study was constrained to an interpretation of the policy framework at the time of research, i.e., it may have missed current developments or policy-evolving outcomes.

7.4 Conclusion

The findings of this research are not stand-alone issues that can be addressed individually. They simultaneously interact to inform public expectations, shape policies and incentivize economic growth, ultimately influencing land management decisions. Building on key research findings and theoretical insight, this research has highlighted several critical gaps and suggested areas for consideration to enhance policy and develop provincial guidance and legislative support for the local decision-makers tasked with enforcing the desired goals put forth in the Land Use Framework.

In summary, there is evidence that the agricultural land of Alberta is under pressure and at risk of fragmentation and conversion to non-agricultural developments, including urbanization and industrial development. Analysis of the data collected for this research and other studies clearly show several significant changes in agricultural land use. Notably and foremost, the province is experiencing fragmentation and conversion on its most fertile land. A thorough investigation at the municipal level reveals extensive spillover effects of Alberta's urban expansion in the three regions within this case study. The average total loss of agricultural land to the non-agricultural development is still insignificant; however, the actual proportion of agricultural land lost to non-agricultural developments within Alberta's metropolitan regions is relatively higher. This concentration of agricultural land loss within the rural municipalities surrounding major urban centers confirms the potential of targeted land use and development policy to minimize undesirable fragmentation and conversion. Policymakers at the provincial level are encouraged to account for the influences of informal institutions and anticipate the tensions local decision-makers face regarding land-use changes. The development of legislation that supports local decision-makers to make the right decision and protect agricultural land will allow for the continuation of local autonomy while supporting difficult decisions. Nonetheless, regional variation factors in these drivers of influence should be applied to provide extended direction on localized and sustainable urban expansion.

7.5 Contributions to the Field

This research finds that most current research focuses on quantifying the spatial distribution and extent of land use conversion and fragmentation. Although it is essential to quantify and track changes with agricultural land in the province, it is also necessary to explore why such changes occur in lieu of existing policy aimed at protecting agricultural land (Mitchell & Parkins, 2011). To the best of the researcher's knowledge, minimal research has explored how the entrenchment of public expectations and social norms found in Alberta can impede the abilities of local decision-makers (e.g., elected officials, planning agents, and policymakers) to affect change.

This research also contributes to the literature on property relations and the effectiveness of governance regarding land-use policies. Historical legacies of permissive developments and the laissez faire management of Alberta's land-use changes have fostered the informal institutions and path dependencies that create obstacles to achieving the contemporary goals laid out in the Land Use Framework. For example, this literature has discussed the challenges of implementing and enforcing allusive provincial policies designed

to be upheld at the local level while navigating the relationships of property and the public (Boschman et al., 2014). It is found that historical practices guided by institutional path dependencies and informal institutions can have spillover effects that challenge the success of contemporary land-use policies. In turn, there is a need for more long-term formal regional planning institutions immune to political shifts that are more focused on the incorporation of scientific data, enhanced public education, and public policy development (Parkins, 2011).

Another contribution of this research is to the literature on inter-municipal collaboration. The evidence indicates that inter-municipal competition is one of the most significant influencing factors for decisions on land-use changes. The majority of residential development occurs close to cities and towns; however, the tax revenue from industrial and commercial developments drive the competitions between municipalities at their borders, resulting in continued farmland conversion (Blais, 2010). Therefore, agricultural land is subject to the growing pressures from business and residential development that support the financial goals of municipalities in diversifying the tax base.

Finally, this thesis aims to recognize the complexity in the process of developing land-use protection policies and how informal institutions and public expectations evolve out of and, in turn, the continuation of institutional path dependency. Furthermore, the complexities that arise when making difficult decisions at the local level in an institutional structure aiming for local autonomy and minimal influence of regional planning. This research intends to contribute to and expand academic expertise in the field of human geography, urban geography, and land use planning. It is also expected to contribute to related discussions of the loss of agricultural land and perceived land use rights. Clarifying the role of tensions found in these discussions will aid in how municipalities integrate them into the Land Use Framework.

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Appendix A: List of Research Participants

| Organization/Area of Representative | Professional Role(s) | Code | # of Participants |
|-------------------------------------|------------------------------------------------|------------------------------|-------------------|
| Edmonton | Elected official | E-EO-1 | 1 |
| Edmonton (NE) | Landowner | E-LO-2 | 1 |
| Alberta | Provincial Planning Organization | AB-PO-1 | 1 |
| Alberta- South | Land Conservation Organization (Action for Ag) | AB-CO-1 | 1 |
| Alberta-South | Land Conservation Organization (Action for Ag) | AB-CO-2 | 1 |
| Alberta-Central | Land Conservation Organization | AB-CO-3 | 1 |
| Alberta-Central | Land Conservation Organization | AB-CO-4 | 1 |
| Alberta | Land Conservation Organization | AB-CO-5 | 1 |
| Alberta | Land Conservation Organization | AB-CO-6 | 1 |
| Alberta | Provincial Gov. Staff/ Ag & Forestry | AB-GS-1 | 1 |
| Alberta | Research- Ag-Land Protection Planning | AB-RS-1 | 1 |
| Alberta | Research- Ag-Land Protection Planning | AB-RS-2 | 1 |
| Edmonton Area | Research- Ag-Land Protection Planning | AB-RS-3 | 1 |
| Alberta | AUMA MD Meetings | AB-PO-GRP | 8 |
| Alberta- South | Municipal group meeting | AB-EO-GRP | 10 |
| MD Foothills | Planning Staff | FH-S-1 | 1 |
| MD Foothills | Planning Staff | FH-S-2 | 1 |
| MD Foothills | Elected official | FH-EO-1 | 1 |
| MD Foothills | Rancher 3 rd Gen | FH-LO-1 | 1 |
| Grande Prairie | Planning Staff | GP-S-1 | 1 |
| Grande Prairie | Planning Staff | GP-S-2-GRP-H GP-S-2-GRP-D | 2 |
| Grande Prairie | Planning Staff | GP-S-3 | 1 |
| Grande Prairie | Elected Official | GP-EO-1 | 1 |
| Grande Prairie | Elected Official | GP-EO-2 | 1 |
| Grande Prairie | Elected Official | GP-EO-3 | 1 |
| Grande Prairie | Elected Official | GP-EO-4 | 1 |
| Grande Prairie | Landowner | GP-LO-1 | 1 |
| Grande Prairie | Landowner | GP-LO-2 | 1 |
| Parkland County | Landowner | PKL-LO-1 | 1 |
| Parkland County | Landowner | PKL-LO-2-GRP | 3 |

| | | | |
|----------------------|------------------------------------------|-------------|----|
| Parkland County | Ag Planning Committee | PKL-S-1-GRP | 3 |
| Parkland County | Planning Staff | PKL-S-2 | 1 |
| Parkland County | Ag Planning Staff/ Archive Doc Review | PKL-S-3-GRP | 2 |
| Parkland County | Land Developer | PKL-D-1 | 1 |
| Parkland County | Land Developer | PKL-D-2 | 1 |
| Parkland County | Community & Cultural Services | PKL-S-4 | 1 |
| Parkland County | Elected Official | PKL-EO-1 | 1 |
| Parkland County | Elected Official | PKL-EO-2 | 1 |
| Parkland County | Elected Official | PKL-EO-3 | 1 |
| Parkland County | Elected Official | PKL-EO-4 | 1 |
| Okotoks AB | Planning Staff | OK-S-1 | 2 |
| Okotoks AB | Elected Official | OK-EO-1 | 1 |
| Okotoks AB | Elected Official | OK-EO-2 | 1 |
| Okotoks AB | Archive Documentation | OK-S-2 | 1 |
| Rocky View County | Elected Official | RV-EO-1 | 1 |
| Rocky View County | Landowner | RV-LO-1 | 1 |
| Rocky View County | Landowner/ Ag Land Protection Org. | RV-LO-2 | 1 |
| Calgary Region | Action for Agriculture Org Meeting | RV-CO-GRP | 10 |
| Wheatland County | Planning Staff | WL-S-1 | 1 |
| Wheatland County | Elected Official | WL-EO-1 | 1 |
| Wheatland County | Landowner | WL-LO-1 | 1 |

Note: GRP=Group Interviews

Appendix B: Interview Guide for Elected Official, Professional Planner, Municipal Employee

Loss of Agricultural Land: Analysis of Tensions surrounding Land Use Decisions Interview Guideline (professional planner/municipal employee)

1. Can you tell me about how growth is occurring in your municipality, including where growth is occurring and why it is occurring there?
2. Have there been any efforts to restrict the development of agricultural land or to prevent the fragmentation of agricultural land in your county/ or municipality?
3. There is often a sense that people have a right to develop their land. If so, in your day to day role, do you face any tension surrounding the right to develop verse the desire to preserve these lands?
4. How has this affected your decisions?
 - a. Has there been any resistance or support from the general public or interested parties? Explain.
5. In your experience and opinion, what attitudes and values do you think are commonplace amongst the public or amongst subsets, such as farmers, urban residents, developers and others in terms of the right of individuals to do what they like with their own land?
6. Do you hear much about the need to preserve farmland, or perhaps people lamenting the loss of farmland? Can you discuss that? Again, have you noticed trends amongst specific groups? Do people indicate that they lament the loss of agricultural land or raise the issue in other ways?
7. In your opinion, what are the biggest challenges in protecting agricultural farmland in your area?
 - a. Prompt about regional issues, attitudes of the public, the role of the province and so on.
8. What do you think might happen in the future with regards to development pressures on agricultural land and why?
9. Do you know of anyone that have experienced similar issues surrounding this topic and I could talk with them?

Appendix C: Interview Guide for Individual Landowner

Development Pressures Near the Urban Fringe: Analysis of Personal Values Individual Landowner Guidelines

Note location of land in relation to Urban boundaries.
Address.

(first walk the interviewee through the consent form and explain all aspects of it. Explain the purpose of the research and how this interview fits in.

Intro questions,

1. When did you move to the area?
2. Where from?
3. Length of residence?
4. Occupation?

Details:

What do you use your land for?

How do you value your land?

- Income/investment?
- Local Food source
- Historic Family ties/nostalgia?
- Scenery/open space
- Environmental purpose?
 - Wildlife habitat
 - Rural recreation

Research focus questions.

1. I am curious about how growth has been occurring in and around Edmonton over the last few decades. Perhaps we can try our best to roughly outline how the Edmonton area has changed over time. (Have map of area available nearby)
2. So, it seems as though there has been a lot of changes to the use of the land in the area over time. I'm wondering if you have any thoughts about what your personal experiences have been with this change? (after discussion gently prompt about agricultural loss and fragmentation and natural area loss or change if they don't arise in the conversation).
3. (If there is discussion about the loss of agricultural land, prompt for specifics" What is it that you miss most about the changes?
4. Do you feel the pressure from Urban development?
 - Encroaching Urban boundaries
 - Land conversion
 - Fragmentation
 - Economic pressures
 - Changes in land values
5. What do you feel is the main motive behind your efforts to stop the sale of boundary lands to development for high values? (if they do not share methods, ask)
 - A. What methods are you attempting to support motive?

6. What do you think about other ways of limiting the loss of agricultural land (If they need examples, introduce other measures one by one including)?
 - A. Market based Mechanisms: Tradable Dev. Rights, Transfer Dev Credits, Direct support payments, Tax deferrals...
 - B. Zoning restrictions: exclusive ag zoning, nonexclusive zoning, Development controls...
 - C. Land Trust, Banking: Voluntary groups purchase Dev. rights from farmers
 - D. Greenbelts, Ref Ontario, and others).
7. Do you think APPROACH A would work? Who do you think benefits from this? Who do you think is harmed by it? (Repeat for other approaches).
8. What do you think might happen in the future with regards to development pressures on agricultural land and why?

(Thank participant and ask them if they have any further questions in regards to the research?).

Appendix D: Elements of a Cumulative Effects Management System (Government of Alberta, 2008)

| Elements of a Cumulative Effects Management System |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">▪ Outcomes-based: Steered by precisely highlighted outcomes basically for the needed quality or setting condition both for today and the future, while acknowledging social, environmental, and economic implications in relation to meeting the objectives. Actions will be controlled closely to realize the outcomes. |
| <ul style="list-style-type: none">▪ Place-based: Different areas would have varied outcome and needs. |
| <ul style="list-style-type: none">▪ Knowledge-based: System foundation is performance management and sound knowledge based, comprising of evaluation and information to establish whether the outcome is achieved or not as well as systems of management requirement. |
| <ul style="list-style-type: none">▪ Adaptive: They can easily adapt to transitions when the performance outcomes are not as expected or the danger of failing to attain results in future when situations change. |
| <ul style="list-style-type: none">▪ Shared Stewardship: Involves collective processes to enhance the development results while constructing commitment to achieve shared responsibility necessary for the outcome realization. |

Appendix E: Alberta's Environmental Management System's Regulatory Tools

| Alberta's Environmental Management System's Regulatory Tools |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alberta Land Stewardship Act: Provides a means by which government can give direction and provide leadership in identifying the objectives of the province, including economic, social and environmental objectives. |
| Environmental Protection and Enhancement Act: Provides for the assessment and regulation of activities to minimize their environmental impacts, based on principles including continuous improvement and pollution prevention. |
| Water Act: Provides for the allocation and use of Alberta's water resources and the protection of rivers, streams, lakes and wetlands. |
| Climate Change and Emissions Management Act: Provides for the management and reporting of emissions of carbon dioxide, methane and other specified gases, and requires measurable reductions in greenhouse gas emissions for specified activities. |
| Public Lands Act and Public Lands Administration Regulation: Provides for the setting of land disturbance standards and land conservation tools in support of biodiversity management. |
| Wildlife Act: Provides for harvesting limits and designation and recovery of species at risk. |
| Forests Act: Provides for the sustainable management of Alberta's forests, including a legislated requirement for reforestation. |
| Provincial Parks Act: Plays an important role in protecting natural diversity and intact habitat for supporting biodiversity, in addition to ensuring a wide range of recreation opportunities and tourism experiences. |
| General Fisheries (Alberta) Regulation: Provides for harvesting limits. |
| Mines and Minerals Act: Governs the management of rights in Crown-owned minerals, including the levying and collecting of bonuses, rentals and royalties. |