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By

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Abstract

Focusing on Canada’s agri-food sector, this research offers a critical assessment of the social license model as a private self-governance regime. The study specifically seeks to understand the model’s role in the adoption and successful commercialization of biologically derived foods, products and innovation.

Over the years, there have been several efforts to generate broad social acceptance of agricultural biotechnologies (agbiotech) because of the controversies they generate. Questions about acceptance and adoption of new technologies bring to the fore the concept of social license which has been adopted by many different sectors over the last two decades. Despite its widespread adoption, there remain significant gaps and variations in understanding, interpreting and implementing the model. One principal overarching question in this research is: if agbiotech acceptance is a major problem, is social license an effective solution? This study argues that social license will do one of two things in the pathway to agbiotech adoption: facilitate acceptance and successful commercialization or escalate rejection.

This study theoretically unpacks the governance of agbiotech using Ostrom’s Institutional Analysis and Development (IAD) Framework. Through this framework the research finds that social license is, in effect, an attempt to bridge two contrasting agbiotech regulatory architectures: the scientific rationality regulatory approach, premised upon the use of scientific evidence to assess potential risks of new biotechnologies, and the social rationality regulatory approach which supports a broader socio-economic mandate.

The qualitative empirical analysis for this dissertation draws on institutional and discourse analysis, three case studies of successful and unsuccessful agbiotech adoption and commercialization and 27 semi-structured interviews from various agri-food stakeholders across three Canadian provinces: Ontario, Alberta and Saskatchewan.

This research finds that the most noticeable achievement of the social license model is its ability to bring social considerations into mainstream corporate discourse and decision-making and puts the focus on the need for communication and education in the agri-food sector. However, social license as a governance model in Canada’s agri-food sector has been unworkable for several reasons. The concept is basically more rhetorical than methodical, with little or no evidence of an effective or successful implementation in this sector. This is further
compounded by the variations and gaps in the understanding of social license among the diverse stakeholders, contributing to a general lack of consensus as to what social license means in Canada. There is also a misalignment between the original intent of social license and the principal challenges of Canada’s agri-food sector, with the result that social license is acting more as a veto than a bridge. Some stakeholders are already changing the narrative from social license to public trust.

The conceptual overlap and jurisdictional confusion between social license and corporate social responsibility makes social license more of a duplication of effort than a value addition and an incremental adjustment to other existing private self-governance regimes. Social license also fails to address the central issues in the overall governance and regulation of agbiotech: the minimization of risks and uncertainty. Elevating social license to a concept with veto power capable of supplanting government approval of agbiotech innovation is problematic for democracy, the rule of law and public policy and stifles innovation and development.
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Dedication

To my precious mum - Betty Ndelle, my boy - Ndelle Jr. and my entire family.
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List of Acronyms

Canadian Federation of Agriculture  CFA
Canadian Food Inspection Agency  CFIA
Cartagena Protocol on Biosafety  CPB
Civil Society Organization  CSO
Convention on Biological Diversity  CBD
Corporate Social Responsibility  CSR
Dispute Settling Body  DSB
Environmental Non-Governmental Organization  eNGO
European Union  EU
Food and Agricultural Organization  FAO
Genetic Use Restriction Technologies  GURTs
Genetically Engineered  GE
Genetically Modified  GM
Global Agricultural Information Network  GAIN
Institutional Analysis and Development Framework  IAD
National Research Council  NRC
Non-Governmental Organization  NGO
Risk Assessment Framework  RAF
Socio-Economic Considerations  SECs
World Trade Organization  WTO
Chapter 1: Introduction and Background to the Study

1.0 Introduction – Setting the Scene

Public acceptance is crucial to the adoption, successful commercialization and future of all technologies. It is a key determinant of the success of new biotechnologies because environmentally sound and efficient innovation, capable of increasing productivity and profitability in agriculture, will never get used if they are rejected by society. Public acceptance is also a major determinant of the future expansion and development of modern agbiotech (Abelson and Hines, 1999).

Public acceptance of biologically derived and nutritionally enhanced food or agricultural biotechnology (agbiotech), the principal focus of this research, is generally influenced by several factors: insufficient knowledge on potential benefits and risks, perceived uneven distribution of benefits and costs, lack of participation in the decision-making process, concerns around environmental, health and food safety and individual beliefs and perceptions. The complex and controversial nature of agbiotech (explored later in this study) makes public acceptance even more complicated. While there have been several efforts to improve social acceptance of agbiotech, the complexities surrounding biotechnology acceptance and adoption bring to the fore the concept of social license which has been adopted by many different sectors over the last two decades to ensure product or project uptake.

The social license model originated in the mining sector in less developed countries\(^1\) as a corporate strategy to prevent social risk (Cooney, 2017; Boutilier and Thomson, 2012). In response to growing local opposition to unforeseen and unavoidable mining impacts, the social license model was aimed at ensuring smooth corporate operations and unhindered access to local resources (Bice and Moffat, 2014; Owen and Kemp, 2013; Prno, 2013; Parsons et al., 2014). As the concept moved to developed countries over time, its broad usage became associated with the acceptance and continuing approval of an industry’s operations by the local community and

\(^1\) This will be explored in greater detail in chapter 2 with the discussion on the history of social license.
stakeholders who can influence the success or failure of business operations. At the core of the concept is the need for corporations to conform to certain societal norms and prescriptions in order to gain acceptance and trust so that business activities can successfully operate (Moffat and Zhang, 2014; Prno and Slocombe, 2012).

The explanations of the social license model in corporate and academic literature suggest the need for businesses to incorporate socially responsible behavior in their operations. Implicit in the model is a recognition of the power of local communities and civil society actors to determine the success or failure of corporate activities, even if these companies have received regulatory approval for their operations. In fact, social license is hinged on the idea that a host community can hold a company accountable for its actions (Parsons et al., 2014). As a predictor of social acceptability, social license represents the expectations of local communities and other stakeholders on how local business operations should be carried out (Bice and Moffat 2014; Edwards and Lacey, 2014; Guninngham et al., 2004; Prno and Slocombe, 2012). These expectations are determined by the affected community and differ from one host community to the other. Unlike a statutory license which is granted by legal authorities to legitimate business activities, social license as an ideological concept is not established by any laws or formal procedures. This rhetorical model has no reference to who grants such a license or the procedure for obtaining one.

The social license model has been widely adopted in other economic sectors beyond mining. Morrison (2014) posits that the concept has moved from the resource and extractive industries to any corporate activity that generates controversy. The term has also spread globally, particularly in Australia, Canada, New Zealand and the United States and has been adopted in a range of industries (Mercer-Mapstone et al., 2017; Moffat et al., 2016). Many researchers are exploring the application across different fields of study, including aquaculture (Mather and Fanning, 2019), carbon capture and storage (Gough et al., 2018; Dowd and James, 2014), dams (Demajorovic et al., 2019), energy (Hall et al., 2015), farming (Berger 2011, Martin and Shephered 2011), forestry (De Jong & Humphreys, 2016), oil and gas exploration and production (Thomas 2013), agriculture (Williams and Martin 2011), timber (Wang, 2013), and pipelines (Tertzakian, 2012). Despite this widespread adoption of the social license model, there remain significant gaps and variations in conceptualizing, interpreting and implementing the concept.
1.1 Social License in Canada’s Agri-Food Sector

This study focuses on the operations of the social license model in Canada’s agri-food sector, specifically in the domain of agbiotech foods, food products and innovation. The Convention on Biological Diversity (CBD) defines biotechnology as “any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products for specific use” (Secretariat of the Convention on Biological Diversity 2005, p. 89). With the introduction of genetically modified (GM) crops in Canada over 25 years ago, Canada has positioned itself as one of the global leaders in the agbiotech sector (Bedford, 2018). The country is both a major producer and significant user of biotechnology seeds in the canola, maize/corn, soybeans, sugar beets and alfalfa sectors. Canada’s canola production is one of the most striking achievements in modern agbiotech history, both in the country and across the globe and has established Canada as an international agbiotech powerhouse (Canola Biotech Report, 2016). According to the Global Agricultural Information Network (GAIN) Report (2018), genetically engineered (GE) seeds were cultivated on approximately 12.2 million hectares or 31.5 per cent of the total arable land in Canada in 2018. As agbiotech continues shaping Canada’s agricultural landscape, a critical assessment of the social license model is essential in determining its role in the adoption and commercialization of GE food products and the future of agbiotech in Canada.

Despite its use in the agbiotech space, a generally accepted definition of social license remains elusive. The two most common frames of the model depict social license as a representation of social acceptance and an indication of stakeholder engagement. In the mining sector where the concept originated, social license is usually used in reference to the acceptance or approval given by a society or a social group to a mining company that grants access into a community for the start of a new operation and continuation of its activities (Lacey and Lamont, 2014; Boutilier and Thomson, 2011; Moffat and Zhang, 2014). Phrased differently and more broadly, it refers to the actions taken by corporations or individual corporate actors to secure community, stakeholder or broad public support for specific projects, products or activities. For the purposes of clarity and simplicity, this research will henceforth use social license in the agbiotech space in reference to broad public and stakeholder engagement, acceptance, support, and successful commercialization of biologically derived foods, food products or innovation.
The successful commercialization bit in this definition is of extreme importance because, as will be demonstrated in the empirical chapters of this research, public acceptance of GM foods does not automatically guarantee successful commercialization.

Proponents of the model say without a social license, enterprises may fail. Frank et al. (2014) posit that in some cases where there has been no public support for mining activities, companies have encountered noticeable delays, cancellation of regulatory approval and significant pressure to abandon projects. Other authors, such as Roy (2018) who note that the concept is fairly new in agriculture, assert social license for a new agricultural technology is quite important in securing acceptance and approval and its absence often leads to consumer and public opposition and a more challenging regulatory environment. This current research questions this assertion. If agbiotech acceptance is the major challenge in the agri-food sector, is social license the most effective solution? This study argues that social license will do one of two things in the pathway to biotechnology adoption and commercialization: facilitate acceptance or escalate rejection.

The debate around the social license model is divided. On one side of the divide are promoters of the model who underscore its importance in responding to the challenges of corporate activities from members of the public, including local communities, non-governmental organizations (NGOs), the media and other civil society actors (Morrison, 2014). Opponents dismiss the model as nebulous, amorphous and intangible, making its implementation almost impossible (Franks et al., 2013; Bice, 2014). The disagreement over the importance of social license as a self-governance model in the agbiotech space calls into question its operational utility and value addition to agbiotech adoption and commercialization. The lack of consensus on the concept’s utility is further compounded by the gaps in understanding and interpreting the model. One of the major challenges of social license is that the absence of a generally accepted definition has left the model open to personal interpretations. The next section will attempt to depict some of the conceptual gaps associated with the concept.
1.2 Mapping Conceptual Gaps and Variations in Understanding Social License

While there has been widespread adoption of social license by different sectors, the academic and corporate scholarship on the model as well as the data from this research reveal gaps and variations in understanding and applying the concept. The term social license means something different to almost every actor in the agbiotech supply chain. Authors explain these conceptual variations in different ways. Edwards and Trafford (2016) say the concept has a variety of meanings and understandings, with usage that primarily serves the interests of corporate and non-corporate actors. For Bice (2014), the concept’s language and meaning are continually evolving with changing societal expectations, while Owen and Kemp (2013) assert that social license is used differently by different industries. Without clarity, boundaries and clear-cut operationalization strategies, social license will remain an abstract concept with differing meanings and interpretations that create differing expectations and outcomes. This will amplify, rather than reduce conflict among users of the term. The identifiable gaps in the conceptualization and application of the term means that social license faces the risk of not being a credible concept in fixing the problems it was originally intended to resolve.

Apart from conceptual challenges, the social license model also faces definitional hurdles, as previously noted. First, the term ‘social license’ is misleading. The word ‘social’ falsely denotes society as a whole granting a license for an enterprise to operate, while the notion of a license falsely depicts a tangible legal or statutory permit for business operation. Rather, the social license bears no resemblance to a legal license (Morrison, 2014).

One reason for this conceptual error is the assertion by social license advocates that the concept emerged as a result of regulatory shortcomings that failed to consider the social impacts of resource or project development on the local population (Cullen-Knox et al., 2017; Forrester et al., 2015). As a result, they claim that social license fills this regulatory void. The results of this study and evidence in the literature clearly indicate that social license is yet to deliver on any of the promises of its advocates.

Secondly, as previously mentioned, the absence of an agreed definition of the term social license leaves the concept open to various interpretations. The consequence is that the term now means different things to different stakeholders and even those in the same sector.
In order to critically assess the role of social license in agbiotech adoption in Canada’s agri-food space, it is necessary to understand how stakeholders in this sector conceptualize and use the model. The conceptual vagueness of the social license model is very evident in the way the model is understood and explained by some stakeholders in Canada’s agbiotech supply chain, the key research participants in this study. These stakeholders include government officials, industry representatives, farmers, civil society actors, including anti-GMO organizations and other interests groups.

According to the data from this study, social license is about public trust and market access:

‘Social license really boils down to public trust. The social license framework involves social impacts of agricultural biotechnology, hormone use and science skepticism. It allows producers to access materials and international markets, helps attract innovation, investments and people in the sector, and helps support decision-making in agbiotech’. (Respondent 9)

One participant who explained the reason for shifting the narrative from social license to public trust, said:

‘Social license is the bigger part of public trust or an interesting alternative to the term public trust. The concept of a license is a little bit dangerous because your license can be taken away from you and there are questions about how you gain the right to grant a license. There has been a shift from social license to the use of the term public trust because it is less of a power play and more of a relationship term’. (Respondent 6)

To another, social license goes beyond accepting practices and includes beliefs and behavior:

‘Social license is the willingness of the general public to accept certain behavior or practices or even beliefs. It is real and very important in the agbiotech space because we are trying to make advancements for the better good of society, but if society does not agree that these things are important, it would influence our ability as a sector to get supporting regulation and funding to pursue these activities which we agree are for the greater good.’ (Respondent 11)

Yet another discussant prescribes what social license should entail:

‘A positive conversation in social license is building a system that people want rather than fixing a system that is not working. Society has told us the rules that they want to see operating in the agri-food system and we should build that system’. (Respondent 4)

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2 This will be discussed in greater detail in Chapter 8 with the field data analysis.
Another participant’s conceptualization of the acceptance component of social license includes acceptance by employees:

‘Social license is the overall acceptance by employees, stakeholders and general public of what a company produces. Does the public really know and understand the role that a particular technology or biotech innovation plays in society?’ (Respondent 24)

According to a National Farmers’ Union’s (NFU) submission to the House of Commons Standing Committee on Agriculture and Agri-Food on April 12, 2019, they refer to social license as “a strategy for corporations to avoid regulation” and assert that public trust is “a pre-requisite for social license” (p. 3-4).

These different descriptions of social license amplify the fact that the model is a poorly conceptualized idea. These varied conceptualizations and interpretations of the social license model among actors in the same sector, although troubling, is of great analytical significance to this study. It raises the question of what exactly is a social license and what it is trying to achieve or the problem it is intended to fix in the agbiotech space: build public trust, ensure good employee relations, secure market access, validate beliefs and behavior or justify escape from regulation? An uncontested acceptance of the model with its marked conceptual variations, simply inserts more confusion than order into the agri-food system. Because there is no official reference as to what should constitute a social license and no established procedure for acquiring one, it then becomes difficult to say whose conceptualization and interpretation is right or wrong and why. What this means for the agri-food system is that any of the actors can adopt the term social license and give it a meaning that suits their own interests and objectives and find a justification for it.

The extensive adoption of the social license model in many different sectors despite this major flaw, is indicative of the fact that the model has largely been adopted blindly. This unchallenged and unquestioned adoption of the social license model by its supporters in several sectors could be explained by Flyvbjerg’s (2009) concept of optimism bias, a psychological explanation for decision-making based on ‘delusional optimism, rather than on a rational weighting of gains, losses, and probabilities’ (p. 349). The author links over-optimism to cognitive biases, those systematic errors in the human thought process and information processing that ultimately affect decisions and judgements. Where optimism bias is in play,
computational errors usually result from over estimation of benefits and underestimation of costs, leading to the choice of initiatives or projects that are unlikely to deliver expected outcomes. The evidence of this in relation to social license can be seen in Demuijnck and Fasterling’s (2016) research that found limited empirical evidence of the impact of social license on business success, which is strikingly disproportionate to the frequent assertion of the need for social license. The evidentiary proofs of successful operationalizations of the social license model are fewer, especially relative to the widespread adoption and propagation of the concept in the corporate sector. This scant empirical evidence of the model’s contribution to business success raises serious questions about its usefulness and value addition as a self-governance model.

1.3 Where Social License and Public Policy Intersect

Although social license is poorly defined, most authors agree that the model’s conceptualization must be premised on credibility, legitimacy and trust as its basic elements (Thomson and Boutillier, 2014; Black, 2013, Moffat and Zhang, 2014). Jijelava and Vanclay (2017, p. 1078) define credibility as ‘the extent to which a project or company is considered to be believable – that what the company says and does is realistic and likely, together with a perception by the community that the company is honest and not engaging in any deception. [While] trust is a strong form of credibility in which members of the community have confidence that the company will make decisions at least in their mutual best interest, if not in the best interests of the community itself.’

Legitimacy, a multifaceted core theme in the social license discourse, is normally used in reference to social acceptability and mostly explored in terms of organizational and project or product legitimacy. According to Suchman (1995), legitimacy is defined as “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (p. 574). Proponents claim that the demands of social license legitimate the participation of affected communities and other external stakeholders in the democratic governance and decision-making processes of resource or project development. An approved social license, according to the concept’s
supporters, legitimates an industry’s commencement of its activities in a particular region or permits market access for a specific innovation in the agbiotech space. Similarly, the absence of a social license legitimates project, product or innovation opposition or even justifies protests on the basis of unmet societal or stakeholder demands.

However, beyond product, project and corporate legitimacy, this research asserts that from a policy lens, the adoption of a conceptually expanded social license model raises important questions about the legitimacy of a country’s democratic institutions and regulatory system. Casting doubts on democratic and regulatory legitimacy is detrimental to building and maintaining credibility and public trust in a state’s governing ability. Investigating the assertion on the link between social license and the legitimacy of democracy or government legislation, will require a critical examination of the various competing frames and expanded uses of the social license model and its implications for democracy, regulation, and public policy in general.

What is clear in the social license scholarship is that much attention has been given to what constitutes a social license and factors that facilitate its acquisition (Joyce and Thomson, 2000; Gunningham et al., 2002; Moffat and Zhang, 2014; Thomson and Boutilier, 2011; Prno and Slocombe, 2012), with little preoccupation on the different ways in which the concept is framed and what this means for policy, regulation and its operationalization. One of the reasons for this gap is the minimal effort to critically assess the social license model through a public policy lens in the academic literature.

1.4 Problem Statement: The Competing Frames of the Social License Model

The principal problem of this thesis is twofold. First, in an effort to understand the role of social license in the pathway to biotechnology adoption and commercialization, we ask whether social license facilitates agbiotech adoption or rejection? The second problem is to understand the concept’s value addition and practical utility and to determine its usefulness in being promoted as an acceptable self-governance model in the agbiotech space. In effect, is the social license model a valuable addition to Canada’s agbiotech regulatory system? Is it needed? Can social license be objectively assessed or codified beyond individual experiences? How does it complement or compete with other existing governance models? Is it a stable or transitioning governing tool or an unstable pathway to chaos? Where does social license draw a boundary with
regulatory compliance? What is the next best option to address the issues that the concept purports to resolve? How does social license affect public policy?

As previously noted, the social license model originated in the mining sector in less developed countries as a corporate strategy to prevent social risk (Boutilier and Thomson, 2011). A second reason for the emergence of social license was to minimize the possibility that a change in government would negatively impact project success (Cooney, 2017). What is clear from the trajectory of the social license discourse in its over two decades of existence is that there has been a conceptual drift from the model’s original intent as a socio-political risk mitigation tool, especially in states with weak or volatile governments, to a veto and gatekeeping role that sometimes stifles innovation, development and economic growth. This observation is analytically significant because the different and constantly evolving frames of the model have different implications for public policy and institutional legitimacy.

The framing of an issue has a direct influence on individual choices. As Kahneman and Tversky (1984) explain in their famous psychological model of decision making or judgement amidst risk or uncertainty, describing an issue in multiple ways results in different preferences either by unintentional impact or deliberate manipulation. The adoption of a new technology or innovation is a paradigmatic example of decision-making under risk and uncertainty. Among other factors, technological adoption decisions, whether of new technologies or innovative ideas, are often driven by how they are framed and individual perceptions of their risks and opportunities. These decision outcomes can be explained by Kahneman and Tversky’s idea that people are reluctant to take risks under conditions of gain but are risk seeking when gains or benefits are anticipated or when under fear of loss.

The social license model is a classic example to illustrate framing effects. The model is desirable when framed as a tool that promotes community engagement, improved stakeholder relations and democratic participation in project and product development. However, social license becomes questionable when framed as a local veto that becomes a justification for rejecting already approved biotechnologies. It then stifles innovation and disrupts the rule of law (where protests are involved), with possible costly implications for institutional legitimacy and democracy. Analyzing the social license model according to the various competing frames
demonstrates the polarized nature of the concept’s discourse, which is akin to the polarized nature of the agbiotech debate.

The initial framing of social license as a socio-political risk management tool when the concept was first brought to prominence was triggered by the idea of needing some form of recognition beyond a legal license in developing countries. The aim was to acquire sufficient public support for mining projects so that industries would remain viable. The initial use of the term, therefore, was primarily in relation to the challenges faced by mining companies relative to building relationships with their host and neighbouring communities (Cooney, 2017). Cooney describes social license as ‘an ongoing positive relationship with local communities and their allies’ or ‘a term that had a nice verbal parallelism with ‘government permit’ but was more nebulous’ (ibid., p. 199). His explanation indicates that the effects of mining projects at the time were principally local, although the concept has now been expanded to include environmental and climate change impacts, ethical considerations as well as legitimacy and fairness in regulatory processes in developed countries (Colton et al., 2016). Supporters of social license as a proactive risk management tool depict the model as beneficial for corporate reputational management, promoting greater community consultation, avoiding project delays or product boycott, and enhancing competitiveness and access to markets (Black, 2013; Franks et al., 2013; Prno and Slocombe, 2014; Joyce, 2008; Morrison, 2014).

A second framing of the social license model depicts a concept that has metamorphosed from the initial socio-political risk management tool to a model that is now described as a campaign strategy employed by environmental non-governmental organizations (eNGOs) to ‘contest corporate activity’, mainly in relation to environmental sustainability (Murphy-Gregory, 2018, p. 320). Linking the concept with environmental activism, the author asserts that social license constitutes what she refers to as a governance by persuasion model, ‘that aims to convince governments to employ the coercive powers of the state to constrain corporate activity’ (ibid., p. 325). Social license according to this author, seeks to promote tougher regulatory oversight for corporations by creating opportunities for eNGOs to influence government reviews and revisions on environmental regulations. With the state as a primary target, social license becomes a strategic method of publicizing environmental concerns about corporate activity, with the aim of seeking enhanced community consultation and eventual regulatory change. This
framing of social license legitimates eNGOs as governance participants, but critics opine that it is an ‘ideational tool’ which involves manipulation of ‘narrative construction and language’ by eNGOs to suit their interests (Murphy-Gregory, 2018, p.327). Others argue that strengthened regulatory control of corporate action is detrimental to business as they are already subject to rigorous regulations and reviews. Excessive regulation can result in the inability of businesses to function (Colton et al., 2016).

A third framing of social license characterizes the model as a product or project opponent with a local veto power. This frame, a radical departure from the model’s original purpose as a socio-political risk management tool, equates social license with a local veto or gatekeeping capacity, and a strategy that could ultimately encourage mob rule through peaceful or violent protests, in case of disagreement between stakeholders. Implicit in the veto power frame of social license, is the ability of unelected minority groups to make decisions on behalf of the broader society. This frame empowers product or project opponents and constitutes a threat to the law because a smaller group is allowed to legitimately veto an officially approved project or product that has fulfilled all the demands of regulation and the rule of law (Crowley, 2014). A local veto can also encourage dissatisfied groups to mobilize protests against new projects or products.

Veto players are local actors who can exert a formal veto in decision-making or policy processes. These individual or collective actors can either facilitate or delay change by making the status quo unchangeable because without their agreement change is impossible (Tsebelis, 1995). What this means for agbiotech is that veto players can be regular suppressors of innovation and new biotechnologies. When Toffler (1980) applies the veto player framework to social acceptance of technological innovation, he refers to anti-technology activists as techno-rebels, desiring to be gatekeepers who decide if new technologies meet social and environmental requirements. He argues that these anti-technology activists will not disappear with time but will prolong acceptance efforts for some technologies. He also posits that technologies which do not attract the wrath of activists will experience rapid adoption and acceptance by society. Toffler (1980) also notes that agbiotech which is high on the agenda of activists will experience a tougher and longer acceptance battle. The veto power frame of the social license model is another radical departure from the model’s original intent because the concept was never designed to be a veto on development or innovation.
The fourth and last frame which this research examines from a public policy lens, depicts social license as a model that undermines democratic institutions, regulatory systems and the rule of law (Malpass, 2013; Crowley, 2014; Harrison, 2016). Regulatory bodies can be said to have a ‘social license’ because they operate with laws backed by a democratic government or passed by a parliament, which also earned a ‘social license’ from being elected through clearly established and accepted procedures (Malpass, 2013). However, the same cannot be said of social license granting bodies because no one knows with any certainty who they are and how they earned a ‘social license’ to represent society or grant a social license. In other words, unlike democratic institutions, no one can clearly establish the legitimacy of purported social license granting bodies.

Regulatory institutions have the responsibility of decision-making in difficult and controversial matters and their operations are premised on democratic rules. According to Crowley (2014) and Harrison (2016), social license represents an attack on the rule of law due to the absence of a clearly defined process for its acquisition, and an assault on democracy because it seeks to subdue authorized political and regulatory institutions by failing to recognize their legitimacy. Disregarding legally founded constitutional and democratic authority for an amorphous, undemocratic model of decision-making and allowing civil society to make difficult decisions on behalf of the broader society is problematic. It is equally troubling when civil society is given the responsibility of assessing corporate legitimacy and performance. Malpass (2013) argues that the community cannot be made superior to democratic laws and regulations.

One of the major risks of adopting this fourth frame of the social license model, is the injection of uncertainty or unpredictability within the regulatory system, as a corporation which has fulfilled all lawful compliance conditions and acquired all required statutory permits, might still have its business activities halted for failing to earn a social license. The legitimate regulatory process, with all its regulations and institutions, is at risk of losing its credibility and authority if arbitrary choices become the basis of decision-making in controversial situations. There is also the risk of overregulation with the adding of another fuzzy requirement on an already complex and cumbersome regulatory framework (Chassin and Belzile, 2017).

The different frames of social license show that over the years, the model has shifted from its original path and is now taking a trajectory that was not planned by its designers. As the
social license terrain shifts, the formerly industry-controlled concept has now moved into the hands of environmentalists and veto players. The activists and opposition groups have captured the social license rhetoric and reinterpreted the concept to suit their own interests and objectives. Social license, in its current form, has become a veto and a justification for stopping agbiotech products that they oppose, thereby working against the system that created it.

From a public policy perspective, adopting the social license model could be a costly venture for government and regulators because, as explained above, it injects instability into the system and increases the regulatory burden for industry. With the model’s continually expanding meanings and evolution over time, there remains uncertainty as to what meaning the model might adopt in future and what effects this would have on public policy.

1.5 Research Question and Hypothesis

To understand the responsibility, need and value of social license in the agbiotech adoption pathway and agri-food governance as a whole, this study examines two principal research questions.

First, what has social license as a self-governance model accomplished relative to agbiotech adoption and commercialization that is different from other already existing public and private governance structures in the agri-food sector?

Second, as a model piloted in the mining sector, what are some of the challenges of social license within the agbiotech space?

While question one looks at the achievements that make social license more advantageous than other existing governance models, such as corporate social responsibility (CSR) and voluntary certification schemes, question two explores what mutations, if any, occur as the model migrates from mining to the agri-food space. A range of models have been developed and tested in agriculture in Canada and abroad, including CSR, sustainable development, free prior informed consent, triple bottom line, and corporate citizenship. These models are designed to ensure that business activities are responsible and sustainable. The models now include social license. Determining the practical utility of the model and its unique advantage over others, is one of the major goals of this research.
The problems that social license purports to tackle: enhanced stakeholder management, improved democratic participation of local and host communities in resource and innovation governance or improved environmental governance, are already being addressed and could potentially be resolved by other governance models or policy instruments such as government regulations and other democratic engagement strategies in the agbiotech space. For this reason, clearly identifying the model’s usefulness in solving the challenging issues in agbiotech is of utmost importance, if the model is to be effectively promoted in this sector. Some of the major challenges in the agbiotech space include risk and uncertainty with new products, ethical complexities, questions around health and environmental safety, intellectual property rights and corporate monopoly over seed markets (Hartley et al., 2016).

Drawing from the social license scholarship, this research hypothesizes that adopting and promoting the social license model in the agri-food space would be more costly than beneficial for public policy because of the concept’s transient and unstable nature and its major implications for institutional and regulatory legitimacy and credibility. Promoting an unclarified and ill-defined model of social license with veto power, might be more of a hurdle than a solution in the adoption pathway for new agbiotech innovations. Erecting new obstacles that could potentially threaten regulation or stifle innovation and economic development has significant risks for technological expansion, as the social license model ‘is neither clear nor useful in resolving disputes’ (Chassin and Belzile, 2017, p. 4).

1.6 Research Strategy

To further evaluate the role of the social license model in agbiotech adoption, this research will explore three significant cases of successful and unsuccessful biotechnology adoption. The three cases were chosen because of their comparative value and analytical significance to the goals of this research. They also provide evidence to support the theoretical framework employed in this research. The first case involves Canada’s striking success in the global marketing of canola. Canada’s canola industry is an excellent example of the economic, nutritional, and environmental benefits that can accrue from a biotechnology revolution and innovation acceptance. Canada is the world’s largest producer of canola and constitutes over 65 per cent of the global trade. According to the Canola Council of Canada, canola is "Canada's
greatest agricultural success story” and the “world's only made in Canada” crop.³ The introduction of transgenic canola in 1995 brought about a rapid revolutionization of the industry and a success story that has established Canada as a biotechnology powerhouse and a world leader in canola innovation (ibid.).

In spite of the numerous controversies surrounding transgenic crops, Canada’s GM canola has recorded many undeniable benefits. The safe and nutritious canola oil which is used by families in more than 50 nations around the world, is known to contain the lowest amount of saturated fat when compared to other kinds of cooking oil. Apart from its enhanced nutritional qualities, technological innovations on the crop have made for easier growth, reduced pesticides use, higher yields and profits for farmers, greater resilience to herbicides and pests, reduced greenhouse gas emissions and new market opportunities particularly for specialty varieties (Canola Biotech Report, 2016).

The second case study represents an example of market failure, where slow consumer acceptance hindered the successful commercialization of GM potato products. Monsanto’s NewLeaf GM potato variety that offered plant protection from Colorado potato beetle in the 1990s was initially adopted by potato farmers because of its pesticide reduction capabilities. Notwithstanding this initial acceptance by farmers, rising consumer resistance triggered by pressure from anti-GMO activists towards the end of the decade inhibited the continued use of the GM potato in the frozen fry sector. The resistance fueled by anti-GM organizations’ concerns over GM potatoes also affected quick service restaurants which ultimately decided against adoption. The anti-GM campaign affected all stakeholders in the potato sector and supply chain, causing a reversal in initial adoption decisions (Guenthner, 2002). Unlike the canola story, Ellis (2001) states that in spite of the potential benefits of GM potatoes to farmers, processors, consumers and the environment, concerns over the transgenic crop surpassed the desire for adoption solely due to activists’ anti-GM rhetoric.

The Genetic Use Restriction Technologies (GURT) controversy is another ideal case study for analyzing the role of social license in agbiotech adoption. GURTs are experimental forms of genetic engineering technology that provide a way of either restricting the use or the

³ https://www.canolacouncil.org/about-canola/
expression of a trait in a plant variety, by turning a genetic switch on or off (Lombardo, 2014). They were developed by multinational seed and agrochemical industries and the United States government to prevent farmers from saving and re-planting harvested seeds (ETC, 2007).

GURTs raised questions about safety, regulation, uncertainty in science-based risk assessments, ethics, commercialization, as well as socio-economic and environmental concerns. The high-profile nature of the case attracted the attention and interests of international bodies like the Food and Agricultural Organization (FAO), social movements, citizens, farmers, churches, politicians, scientists, journalists, and regulators. Widespread condemnation and opposition to GURTs came from NGOs, civil society organizations and national governments from both developed and less developed countries.

Due to the public resentment over GURTs, major biotechnology companies announced they will not develop or commercialize the technology. Even though GURTs were never commercialized, their introduction incited great controversy and protests across the globe. They have been described as one of the most controversial and most opposed genetic engineering biotechnologies (Lombardo, 2014).

These three cases provide the framework for a comparative analysis of why biotechnological adoption was successful in one case but failed in others. They are also fundamental in assessing some of the assumptions that have shaped the conversation around social license and its real-world operation in this space. Canada is involved in all three cases either as primary developer of a crop, a crop user or as part of the decision-making process of the technology. These case studies which form the first empirical part of this research, illustrate how social license actually works in the biotechnological adoption pathway. To meet the goal of this research, the comparative case analysis will use the main theoretical framework of the study to analyze the cases and demonstrate how the interplay between social license and other governance factors in the regulatory process affects adoption decisions.

As previously noted, one of the purposes of this research is to explore how sectoral differences affect the social license model as it migrates from mining to the agri-food sector. Unlike mining which deals with host communicates within a specific geographic location, agbiotech involves a wider and more complex range of actors with no geographical boundaries. There are many other contextual and sectoral differences between both sectors which will be
explored later in this research, to determine the challenges they pose to the applicability of the social license model. The context-specific and product-specific nature of social license necessitates a study of the effects of this sectoral migration in order to critically assess the model.

Transformative change is usually challenging for institutional and regulatory structures because the pressures from this change sometimes require institutional or regulatory adaptation or a complete overhaul of the system (Kerr, 2016). As a force of change, the introduction of a new biotechnology in agriculture is usually accompanied by conflict, challenges, and uncertainty. Wartburg and Liew (1999) qualify technological change as a paradigm shift because new technologies demand new knowledge, new skills and new ways of thinking, which is not the case when a new mining project is introduced in a community. According to Hall’s (1993) policy change framework, a paradigm shift entails a ‘third order’ change where policymaking takes on a radically different shape with a departure from past policies, a significant influence from new ideas and wider societal conflicts and debates. The change brought by the advent of new technologies is both technical and affects many aspects of society. For instance, the introduction of sterile GM seeds can affect the distribution of resources between poor farmers and multinational seed monopolies. Adopting these seeds means a radical change for farmers, especially those in developing countries who may be forced to abandon their conventional seed saving practices to adopt a new and more costly practice of using and buying sterile seeds annually.

Unlike mining activities, the emergence of a new biotechnology puts society in a position where decisions are to be made against the backdrop of rapid changes, usually with uncertainty on the future consequences of current decisions. Decision makers generally rely on the existing and often incomplete knowledge about the technology. Although they may extrapolate from previous experiences with other technologies, they are inextricably caught in a dilemma of wanting to maximize the benefits and opportunities of new technologies and avoiding the potential risks and costs of their adoption (Juanillo, 2001).

Turning to other sectors to borrow models that could help resolve challenges from the advent of new agbiotech products as is the case with social license, evokes Rose’s (1991) concept of lesson drawing which ‘addresses the question: under what circumstances and to what extent can a program that is effective in one place transfer to another?’ (p. 3). Given the sectoral
differences between mining and the agri-food sector, social license, therefore, elicits questions of compatibility and fit. Does a successful implementation in the mining sector automatically make the social license model a good fit in the agri-food sector?

1.7 Dissertation Organization

This research is divided into ten chapters. Chapter two unpacks the social license model by providing an in-depth review of its academic and corporate scholarship. Chapter three explores the principal agbiotech governing actors: the state, the market, and civil authorities and their interactions within the governing framework. This third chapter also explores how the social license model differs from other governance regimes, both public and private.

Chapter four introduces the main theoretical framework for this research. It theoretically unpacks the governance of agbiotech using Ostrom’s Institutional Analysis and Development (IAD) Framework and unveils the complex nature and levels of interactions between various actors in the agbiotech governance space.

While chapter five outlines the methodological approaches used to inform this study and provides a rationale and justification for these approaches, Chapter six, the first empirical chapter in this research, explores the agbiotech landscape, Canada’s regulatory system and the three specific cases relative to social license operations in the agri-food sector. Chapter seven discusses the challenges faced by social license in the agri-food sector as a borrowed concept from mining. To determine the model’s compatibility and fit, this chapter explores how contextual and sectoral differences between mining and agbiotech affect the applicability of the social license model.

Chapter eight, the second empirical chapter in this study, presents and analyses the data from research interviews and offers unique insights into the perceptions and conceptualizations of social license in Canada’s agri-food space. It also discusses the emerging themes from the research data. Chapter nine, a continuation of chapter 8, concludes the field data analysis and discusses the challenges, opportunities and limitations of the social license model. It also discusses the way forward for social license and its role in governing. Chapter 10 concludes this study with an in-depth discussion on the research findings, policy implications and avenues for future research.
Chapter 2: The Social License Model

2.0 Introduction

This chapter unpacks the social license model. Its principal objective is to provide an overview of the corporate and academic scholarship on the core enquiry of this research i.e., social license. The literature covers the three variants of the social license model, its history, definitions and key concepts, goals and limitations.

The chapter then goes on to interrogate social license in order to determine what value it adds as a governance model. Questioning the validity of social license as a new governance model is of absolute necessity to determine its value addition and practical utility in the adoption of agbiotech products and innovation. While advocates of the model promote the construct as an undeniable requirement for business success and a corporate strategy for meeting societal demands on corporate performance and managing risks, a few others have questioned the model’s claims and value proposition (Owen and Kemp, 2013; Harrison, 2016; Newman, 2014; Parsons and Moffat, 2014). The chapter concludes by identifying gaps in the social license literature.

2.1 History of Social License

The social license model emerged from the mining sector during the 1990s as a metaphor for the capacity of communities to halt mining projects (Boutilier et al., 2012). Several incidents of chemical spills, failures from tailings dam and disagreements with local communities brought about a notable shift in societal perceptions on mining impacts. These experiences triggered direct actions from host communities against local mining operations (Thomson and Boutilier, 2012; Moffat et al., 2016).

Jim Cooney first used the term social license to operate in March 1997 as a metaphor to highlight the fact that the social acceptance of mining projects (social license) is equally as important as its legal license procurement. Social license, according to Cooney, was intended to run parallel to state regulation in developing countries where the concept originated (Cooney, 2017). Mining companies in these countries were specifically concerned about their host
communities’ increasing connection with international NGOs, which were helping them gain quick international support for their objections to mines in their localities. They were equally concerned about the likelihood that political changes could potentially affect business viability. The principal logic behind social license was that apart from compliance with the government’s mandatory regulatory demands, mining corporations also needed to guard against political instability and adverse public demands that could potentially decrease business profits or compel project delays via interruption of business activities. A corporate socio-political risk management strategy, therefore, entailed compliance with the demands of government permits for mining operations, alongside sustaining good relations with the government and building a positive reputation with the general public (Cooney, 2017).

There are several examples of successful social license operations in the mining sector. Nelsen (2007) offers a case study of companies and projects identified as being good role models for the social license to operate in mining. Some of these companies and their respective projects include Placer Dome Inc’s (later acquired by Barrick Gold) Musselwhite Mine, Porgera Mine and Misima Mine; BHP Billiton’s Ekati and Tintaya Mines, Falconbridge Ltd’s Raglan Mine, Rio Tinto’s Diavik Diamond Monnes Inc and Syncrude Canada Ltd’s oil sands. According to Nelsen (2007), the successful social license characteristics demonstrated by all of these projects include timely and comprehensive stakeholder engagements, acquiring community support prior to commencement of projects, collaborative negotiation processes, understanding community customs, values and culture and establishing business partnerships and capacity building with Indigenous Peoples.

2.2 Variants of the Social License Model

The three most referenced conceptual models relative to social license are the pyramid model (Boutilier and Thomson, 2011), the three-strand model (Gunningham et al., 2003; 2004) and the triangle model (Wüstenhagen et al., 2007). As Colton et al. (2016) explain, although the origin and perspective of each social license model is different, they are all hinged on the concepts of trust and legitimacy.
The first model that this study examines is the social license pyramid model by Thomson and Boutilier (2011). The theoretical construct of the multi-level social license pyramid model identifies four key levels of outcomes, namely with licenses withheld/withdrawn, accepted, approved and when the community psychologically identifies with the development.

![Social License Continuum]

Fig. 2-1. The Social License Continuum. Source: Thomson and Boutilier, 2011.

Thomson and Boutilier (2011) posit that as mining activities gain legitimacy followed by credibility with local and affected stakeholders, this results in acceptance and approval of the mining operation. As the relationship between the parties gradually develops into full trust, the local community is expected to start identifying with and supporting the mining corporation’s interests. This marks the peak of the relationship. It is the trust factor that makes the distinction between projects that have gained acceptance, and those that have been approved and adopted by stakeholders, with a sense of co-identification and co-ownership expected to generate collaboration and shared benefits. At the base of the pyramid model, or worse-case scenario, social license is withdrawn or withheld. Despite this conceptualization, the authors are yet to empirically confirm these hypothesized relationships (Boutilier and Thomson, 2011).

The second model this study explores is the three-strand model. According to Gehman et al. (2017), while the pyramid model portrays social license as a concept requiring an explanation, the three-strand model, for its part, uses the term as a component of a broader framework to explain the motivation of firms to ‘go beyond compliance’ (Gunningham et al. 2004, p. 307)
with current environmental laws and to gradually improve their environmental practices. After an in-depth study on the environmental performances of fourteen pulp mills in four different countries, the authors concluded that some industries needed a multi-strand license to operate: legal, social and economic licenses. According to Gunningham et al. (2004), these three licenses – the regulatory, social and economic - are inter-dependent, and each are necessary to gain a social license.

The literature provides explanations for what each of these licenses represents. According to Gehman et al. (2017), the legal license comprises regulatory permits and statutory responsibilities, including the requirements of regulators and legislators, while the social license comprises the demands of all local, national and international stakeholders, both from local communities and the general public. The economic license has to do with the profitability needs of managers, investors, and lenders. As the authors explain, environmental activists, for instance, might directly influence social license through discrediting or negative publicity, or they might indirectly influence the economic and legal license through product boycotts or lawsuits (ibid.).

Fig 2-2: The Three Strand Model. Source: Morrison, 2014.
The third variant of the social license model, the triangle model, primarily focuses on the concept of acceptance. Aside from the pyramid model that portrays social license as an outcome that needs to be analyzed, and the three-strand model that employs social license as one explanatory tool for corporate performance that goes beyond regulatory demands, the triangle model depicts social license as the result of a triple acceptance process (Gehman et al. 2017). The triangle model’s threefold set of acceptance processes required for a social license include socio-political, community, and market acceptance, where acceptance is portrayed as building confidence, trust and closeness (Wüstenhagen et al. 2007). The authors use socio-political acceptance in reference to general or broad-based acceptance of technologies or policies by the general public, stakeholders and policymakers, while community acceptance entails acceptance by local stakeholders, local residents and community authorities. Finally, market acceptance is used in relation to large-scale adoption of an innovation by consumers, producers and investors (Gehman et al., 2017).

![Triangle Model Diagram](image-url)

Fig. 2-3. The Triangle Model. Source: Wüstenhagen, Wolsink and Bürer 2007.
2.3 Social License Definitions and Key Concepts

As noted in the previous chapter, a universal definition of social license remains challenging. However, various definitions and descriptive characteristics have been promulgated to capture the essence and meaning of social license. What is most significant about social license is that the concept has different meanings and interpretations to different people and different sectors do not necessarily agree with the various meanings and definitions.

Some authors, like Bankes (2015), explore social license to operate by offering a conceptual breakdown of the various elements of the model. When Bankes begins this conceptualization exercise, he starts off with the word social which he says indicates that the license in question does not come from the ‘government or a regulator, but from society or some subset of society, or some community or subset of that community’ (p. 1). The term license denotes ‘consent’ or ‘permission’ from some structure or institution whose approval is apparently needed, while ‘to operate’ means the concept involves a project’s entire lifecycle and not just its beginning (Bankes, 2015; p. 1).

Other authors say social license is society’s prescriptions for how businesses should function. Gunningham et al. (2004) use the concept of social license in reference to efforts to meet societal expectations on industrial performance and restraint from activities defined by society as unacceptable. They define social license ‘as the demands on and expectations for a business enterprise that emerge from neighborhoods, environmental groups, community members, and other elements of the surrounding civil society’ (p. 308). For these authors, social license is represented by stakeholders’ and broader civil society’s expectations and demands for how firms should operate or carry out their activities. This definition represents a shift from the original intent of social license and indicates that the concept is now controlled by the third sector.

Social license is also about access to information on food production, building trust, and ensuring continuous acceptance and approval of corporate activities. For CropLife (2017), social license is bolstered by the need for greater access to information and the demand for more knowledge about the process and method of food production by consumers. CropLife argues that acceptance and support can be as important as, or more important than a regulator’s approval. They posit that farmer and industry reliance on public trust is what gives them social license or
the right to operate. If public trust leads to social license, then the concept becomes an outcome and not a process or model. Within the trust framework, the Canadian Federation of Agriculture (CFA, 2015) defines social license as ‘the ongoing level of acceptance, approval and trust of consumers regarding how food is produced’ (p. 3).

For others, social license justifies business activity. Morrison (2014) says the term implies a justification of corporate action in the eyes of the local community and notes that a key requirement to earn a social license is the presence of acceptable positive outcomes for all concerned stakeholders.

In place of a definition, some authors have adopted a more descriptive approach to conceptualize the social license model. For example, Prno and Slocombe (2014) describe social license as dynamic and context driven. Other authors describe social license as intangible and unwritten (Franks et al., 2013), ‘difficult if not impossible to measure’ (Moffat and Zhang, 2014: p. 62) and ‘amorphous and lacking boundaries’ (Bice, 2014, p. 75). Roy (2018) describes social license as ‘dynamic’ and ‘intangible’ because it is entrenched in the ‘beliefs, opinions, and perceptions’ (p. 24) of the concerned local population and its relevant stakeholders regarding a particular project. Parsons et al. (2014) agree that the term is often viewed as an intangible construct connected to project acceptance and approval and corporate reputation. However, there is at least one instance where social license becomes tangible. When mining companies establish mutually beneficial Impact Benefit Agreements (IBAs) with host communities, social license then ceases to be an intangible construct.

A few authors link social license with corporate social responsibility (CSR). Prno and Slocombe (2012) incorporate CSR within the social license space by noting that although social license also involves the concept of CSR, they are slightly different in that non-governmental organizations (NGOs) and host communities are more active in analyzing a company’s social license, rather than the corporation itself as is the case with CSR.

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1 The social license-CSR connection is discussed in greater detail in Chapter 3.
2.4 Why Social License?

Apart from Cooney’s (2017) explanation of his first use of the term social license, there are diverse reasons for the emergence of social license in the literature. This section presents a brief overview of some of these reasons. According to the scholarship on the concept, social license emerged as:

- A corporate tool to avoid costly disputes with host communities regarding the effects of business operations on these societies and their members (Colton et al., 2016).
- A response to demands for stronger community and stakeholder engagement in the decision-making process of development projects which affect them (Prno and Slocombe, 2012).
- A means of avoiding disapproval and interruption of business activities. It is triggered by the fear of losing access to mineral or natural resources (Owen, 2016).
- A proof of lack of confidence that corporations would act appropriately if left unchecked and increasing expectation from consumers that companies should compensate society by addressing social and environmental concerns (New Zealand’s Sustainable Business Council, 2015).

2.5 Social License Goals

Because social license means something different to each actor, the concept is used in different ways. Project or product opposers use social license to control, defeat or adversely affect a specific project/product, while supporters use social license as a tool to demonstrate project support or approval. Kelly et al. (2017) note that social license can be more appealing if it serves the government, community and corporate interests. However, these different actors have different motivations and interests, which could either be driven by individual benefits such as profits or personal utility or by what is most appropriate for the group in the case of a community (March and Olsen, 1995).

From a corporate lens, social license is expected to help boost an industry’s credibility and legitimacy. According to Moffat and Zhang (2014), proponents of social license have embraced the concept because it has helped the extractive industry gain legitimacy for the
environmental and social impacts of their activities. It also assists in determining, measuring and managing the risks associated with a specific project. Industries use social license as proof of their legitimacy, especially when disapprovals can generate conflicts that are damaging to business interests (Demuijnck and Fasterling, 2016), and to achieve or maintain corporate reputation and other benefits such as minimizing delays in projects (Boutilier, 2014).

Social license, according to its advocates, is also meant to address the rising demand for greater participation in decision-making processes, as well as safe and responsible mining operations. Meesters and Behagel (2017) agree, opining that social license has been mostly used as a strategy for enhancing greater community engagement and stakeholder participation. Nevertheless, what is clear in the social license scholarship is that the model has not designed clear blueprints for sustainable community development or for how dialogue on development strategies can be properly attained. The social license model falls short of meeting this demand because it focuses on more immediate corporate decisions and actions, without any long-term sustainable plans or development pathways for host communities.

Along the lines of sustainability, authors like Owen and Kemp (2012), who link social license to social sustainability, corporate citizenship and CSR, say social license is intended to help corporations proactively incorporate environmental and community development concerns into their economic operations. This environmental sustainability logic for the emergence of social license is highly contested because as explained in the section on the history of the social license, industry’s focus was on business and financial sustainability and not environmental sustainability. The social license design was originally intended to proactively curb any form of protest or opposition to corporate activities that could ultimately affect profits. Addressing environmental sustainability issues is of secondary importance.

The social license scholarship also links the model to environmental activism in countries with many extractive industries. Murphy-Gregory (2018) argues that environmental non-governmental organizations (eNGOs) employ the term as a campaign strategy to challenge corporate activity and the environmental sustainability of existing or prospective commercial projects. Drawing on two Australian case studies in the fishing industry, she asserts that eNGOs use social license as a tactic to incite governmental review of corporate operations and to intensify regulatory oversight. She then goes on to say that based on empirical evidence, social
license which is often aimed at both the state and corporations, is a form of “governance through persuasion” and “a contemporary expression of environmental advocacy seeking regulatory change” (Murphy-Gregory, 2018, p. 320).

Civil society can also use social license to forward their agenda and objectives. Although NGOs have globally recognized values, their interests could sometimes be politically manipulated by other political agencies, including governments. As a result, their motivation towards a model like social license could be driven solely by their quest for support-building regarding their cause, or they may use social license as an opportunity to frame a public debate (Owen, 2016). Murphy-Gregory (2018) says eNGOs employ social license as a strategy to advocate tougher regulations on corporate actors.

Some opponents of the social license model assess the concept in terms of its effects on democracy and the rule of law. Harrison (2016) refers to social license as a rudimentary idea that employs the language of law but dismisses the authority of lawful processes to obtain a government license. He argues that the extensive endorsement of the concept has now given it the right to veto a government-approved project. This weakens the rule of law and signifies a rejection of the government’s regulatory process. Malpass (2013) and Crowley (2014) also argue that the model undermines democracy and the rule of law.

The different goals and incentives for social license as observed from the various actors in the literature speak to the polarized nature of the discourse on the model. While advocates of social license promote the model as a tool for avoiding or reducing opposition and other commercial risks, or a trust-building and corporate reputational management strategy, opponents say the model’s veto power is a threat to democracy, democratic institutions and the rule of law.
Table 2-1: Overview of Social License Goals via the Lens of Different Actors

<table>
<thead>
<tr>
<th>Social License</th>
<th>Firms</th>
<th>Civil Sector</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actors</strong></td>
<td>Corporations, corporate stakeholders.</td>
<td>Civil Society Organizations (CSOs), NGOs, eNGOs, host communities, interest groups, public.</td>
<td>Authors and other independent commentators on social license.</td>
</tr>
<tr>
<td><strong>Goals</strong></td>
<td>• Ensures project/product legitimacy.</td>
<td>• Challenges project/product legitimacy.</td>
<td>• Can be a tool (used by proponents to justify position) or weapon (used by opponents to impede adoption).</td>
</tr>
<tr>
<td></td>
<td>• Avoids opposition and boycotts.</td>
<td>• Compensation for negative impacts on quality of life.</td>
<td>• Supports or builds the causes of NGOs and CSOs.</td>
</tr>
<tr>
<td></td>
<td>• Risk and reputation management tool.</td>
<td>• Challenges sustainability of corporate activities.</td>
<td>• Opportunity for CSOs and NGOs to frame public debate.</td>
</tr>
<tr>
<td></td>
<td>• Response to concerns on impact of quality of life.</td>
<td>• Tool to push for more regulatory oversight.</td>
<td>• Advocacy tool for tougher regulations on corporations.</td>
</tr>
<tr>
<td></td>
<td>• Proof of approval.</td>
<td>• Accountability tool.</td>
<td>• Tool to escape regulations.</td>
</tr>
<tr>
<td></td>
<td>• Fear of losing access to resources.</td>
<td>• Grants access to information, full participation and engagement in project/product decision-making.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ensures business viability.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These differing goals, objectives and perspectives can be interpreted as different frames of problem definition which show the expectations of social license from different actors, as well as the problem the model is intended to resolve according to their varying conceptualizations. From an economics perspective some actors see social license as a self-interest optimization tool that secures profits and business reputation, while most social actors frame social license according to their values and beliefs of how the world should operate. What this means for the
agri-food sector is that each of these perspectives will present a governance challenge for social license because there is no consensus on the expectations of the model and the solutions it is intended to provide in this space. This is of analytical importance because it has implications for the role of social license in facilitating or impeding agbiotech uptake.

**2.6 Social License Model: Challenges and Limitations**

The social license model is not without hurdles and criticisms. One of its major challenges is in its applicability and operationalization. There is evidence in the literature on the difficulty in applying social license beyond its rhetoric (Bice, 2014).

The model has been criticized for the tendency by its advocates to lay claims to a social license without adequate consultations with stakeholders and the inability to determine the criteria for successfully acquiring a license. The model lacks a structural or procedural form and objective criteria. For instance, it fails to show how dissenting voices are balanced or how marginalized voices are included in the conversation. As a flawed governance instrument, the social license model also fails to show the strategies through which expectations between industry and communities or stakeholders are reconciled. Bice et al. (2017, p. 48) describe the model as ‘theoretically and conceptually underdeveloped’, due to the industry’s inability to respond to questions on the acquisition process and stakeholder inclusion.

Other limitations or challenges to the social license model include the lack of a coherent, generally accepted definition and diverse interpretations of the term. The varying interpretation of social license is evident both in the data for this research and throughout the social license literature. For example, Black (2013) notes that some companies equate the generation of new jobs in a community to establishing a social license. This variance in the concept’s understanding and application is further exacerbated by its non-legal nature and lack of definitional clarity. Because of its fuzziness, social license becomes whatever the user wants it to mean and is often used to satisfy the user’s goals and objectives.

Earning a social license remains foremost in the debate around the model and there is no established procedure for this. The uncertainty in the acquisition of a social license partly depends on the variations in understanding of the concept among government, industry and
community actors or other stakeholders (Curran, 2017), and the unquestioned widespread adoption and use of the model in other sectors.

The absence of a strategy to measure social license is another major limitation of the model. While Moffat and Zhang (2014) underscore the difficulty and near impossibility of measuring a social license, Thomas and Boutilier (2019) argue that in spite of being a solely mental and mostly intangible phenomenon, social license can be measured. Boutilier (2017) proposes a set of agree/disagree survey statements as a starting point for moving the concept from a metaphor to a measurable concept (See table 2.1 below). Even so, it is unclear how many affirmative responses are necessary for license to be granted. There is yet to be empirical evidence that this method successfully measures social license.
### Table 2.2 - Boutilier’s Survey Questions for Measuring Social License in Mining

<table>
<thead>
<tr>
<th>Q.</th>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>DK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q.1</td>
<td>Our community/organization believes that mining would be a positive direction for the future.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.2</td>
<td>As of now, the proposed project has met its commitments to our community/organization.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.3</td>
<td>We believe that project management will take the initiative to inform us about things that could affect our community/organization.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.4</td>
<td>We are satisfied with the relationship we have with the proposed project.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.5</td>
<td>Our community/organization and the management of the proposed project have a similar vision for the future of this region/state/country.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.6</td>
<td>Our community/organization believes that a mine would bring more benefits than problems for us.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.7</td>
<td>Our community/organization wants mining in this region.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.8</td>
<td>The management of the proposed project is concerned about the interests of our community/organization.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.9</td>
<td>We in our community/organization know that we can believe what the management of the proposed project says.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.10</td>
<td>The management of the proposed project respects our way of life/doing things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.11</td>
<td>Our community/organization sees mineral exploration as a valuable part of the regional economy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.12</td>
<td>Our community/organization needs the collaboration of the proposed project in order to reach our most important goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.13</td>
<td>We believe that the management of the proposed project will treat everyone fairly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.14</td>
<td>The proposed project listens to our community/organization.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
<tr>
<td>Q.15</td>
<td>Our community/organization and the management of the proposed project have a mutually beneficial working relationship.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>DK</td>
</tr>
</tbody>
</table>

2 The five-points scale is labelled as follows: 1 = strongly disagree, 2 = disagree, 3 = equally agree and disagree, ambivalent, 4 = agree, 5 = strongly agree.

3 The term mining can be changed to the nature of the project. Source: Boutilier (2017; p.13-14).
2.7 Interrogating Social License – Good or Bad Model?

After exploring some foundational elements and key components of social license from the existing scholarship, it is essential to investigate the model’s appropriateness as a self-governance model. This exercise is important for this study because it is a vital determinant of whether or not the concept should be promoted as an effective response to social concerns about industrial activity.

The greatest appeal of the social license model is its ability to bring social and community issues into conventional corporate discourse, especially where such issues had been previously overlooked or undermined. It shifts the center of attention from solely business to some form of corporate accountability to the local community and other stakeholders. In this context, the social license model appears to have some utility when predominantly viewed from a social development perspective. Despite this social dimension vis-à-vis corporate activities depicted by the concept, the model fails to present a concrete pathway for industry involvement with community development agendas. The model invokes the social and relational dimensions of corporations with their host communities but offers no distinct methods of engaging and maintaining stakeholder or community relations. The content of the model is ill-defined by the corporate sector, with no clear elaboration of how it intends to fulfill its governance mandate (Owen and Kemp, 2012).

The word ‘license’ in the social license model implies a governance and decision-making role in that it suggests the fulfilment of certain standardized procedures for earning a license from an authorized or duly recognized entity. However, this is misleading because there is no existing formal process for acquiring a social license. This leaves the model both structurally and procedurally deficient.

As a governance model, social license fails to articulate clear-cut stakeholder engagement strategies and processes that ensure equal or fair representation of all affected parties or to show how people will be brought together for discussions on how to handle their common problems and resolve any differences. There is no defined structure for enhancing collaborative decision-making and no observable rules of engagement for the various actors in the governance process (ibid.).
As a governance model that encourages collaborative decision-making, the social license construct fails to clearly identify who is responsible for making decisions on behalf of the community or who approves a project to enable its commencement. There are no established ways to determine the acceptable number of stakeholders or members of the general public required for approval to be legitimate, how the voices of the minority are incorporated in the approval process, how lack of consensus is managed at community or local level and how the community selects its participants for the deliberative process. The model is unclear about how community support is measured, or how to determine the required level of community support to assert social license (Prno and Slocombe, 2012). It also fails to clearly define what social responsibility means for industry or the indicators of this performance, as well as the metrics for measuring these.

There are two instances where social license can be described as a negative governance model. First, when protests are used as a defining characteristic of its absence, and second, when it is used to conceal the gap between societal expectations and corporate response to social demands. Owen and Kemp (2012) argue that social license can represent a “crude form of ‘negative governance’” (p. 31) if the concept is employed by the corporate sector only to cover up the gap between corporate activity and community expectations. This representation of the model usually generates protests and resistance from the community to corporate approaches. Social license then becomes a negative governance instrument where its absence is more visible than its presence. Situations where protests and resistance are the major accountability strategies are both problematic and unacceptable in traditional and emerging governance models (Overduin and Moore, 2017). As a negative governance model, it is easier to recognize the absence of social license, usually manifested through demonstrated opposition, than the presence of factors for earning a license, because no one knows with certainty what these factors are. Depending on protests and overt opposition as indicative of the absence of social license is deceptive because public acceptance of a project or product could be relatively silent, especially when project or product supporters are absent from public debates. Moreover, overall public acceptance could still be strong despite protests which could be orchestrated by a minority group (Owen and Kemp, 2012).
The social license model can also be described as controversial and undemocratic. Implicit in the model is the idea that local communities have power over certain government decisions or state institutions and corporations. The question of power is invoked when local communities or stakeholders are granted the right to veto projects or products that have received a government license, under the guise of an absence of a social license. A democratically elected government possesses legitimate authority with the right to make decisions on behalf of the people it represents. It is therefore very concerning when an unelected minority receives the right to veto statutory permits under the social license framework.

Social license as a governance model is likely to be unworkable because it is more rhetorical than methodological. As a solely normative and descriptive concept, van de Biezenbos (2018) argues that social license is functionally meaningless and ‘one of the weakest tools available to address local and community concerns … since the term no longer applies only to community assent’ (p. 168). The model is essentially flawed in its efforts to resolve the wide range of differing concerns raised by numerous stakeholders. Van de Biezenbos (2018) also argues that shifting the acceptance or approval criterion from the host community to the wider society represents an impossible task for the model, as no single concept can successfully accomplish approval at every societal level.

Some authors are more skeptical about using the term. Gehman et al. (2017), after conducting an extensive literature review on social license, argue that the term needs to be further analyzed and used with care. They propose other terms such as acceptance or public confidence.

There is scarce empirical evidence on the effectiveness and usefulness of social license as a governance model in both the academic and corporate literature. Promoting and adopting this model is therefore risky because more empirical research is needed to unpack how the concept should be understood and effectively applied in its governance function. Some authors caution against the widespread uncritical use of the model by industry without testing its utility and applicability (Gehman et al., 2017; Owen and Kemp, 2012).
2.8 Gaps in the Social License Scholarship

There are some significant gaps in the social license scholarship in relation to the agbiotech sector. First, there is the noticeable lack of research on the role of the social license model in the agri-food sector despite the use of the term in this domain.

Second, the literature fails to situate social license within the public policy framework. At what stage of the policy process should discussions on social license occur and who should be involved in these discussions? There is little or no scholarship that explains where social license intersects with or how it impacts policy or the regulatory architecture for the sectors where the model’s application has been studied. There is also scant literature on the interaction between social license and other similar self-governance models such as CSR and third-party voluntary certification.

Also from a policy perspective, there is scant literature on the role of governments in the social license process. Discussions on the lines of accountability, patterns of interaction and engagement methods between various actors involved in the social license acquisition process and oversight are conspicuously absent from the literature.

2.9 Conclusion

The literature review highlights many key points on the concept of social license. The term is understood and interpreted in different ways by various authors: an ongoing process of acceptance and approval from host communities, a corporate accountability mechanism, a community-led operation, and a product of relations between industry and stakeholders.

Its nature as non-permanent and mostly intangible and unwritten has been described as both a weakness and an appeal, as different actors can now use the concept to suit their various goals and objectives. Consequently, while the mine owners see social license and community engagement activities as a means of minimizing business risks, their opponents consider social license as way of gaining access to information, meaningful participation and more involvement in the decision-making process.

Nevertheless, social license is not without its own shortcomings. Its criticisms are largely based on the concept’s ambiguities and lack of definitional clarity. The discussions in this
chapter also show that the social license model has some worth as a normative concept but is unfeasible as a governance tool. The model fails to provide operational strategies for stakeholder engagement, whether in terms of balancing dissenting voices, inclusion of marginalized voices in conversations or illustrating the model’s governance principles and how they should work practically. Consequently, the value addition and practical utility of the model remains questionable.

This chapter briefly introduced the connection between social license and other private self-governing schemes such as CSR and voluntary certification. The next chapter will provide an in-depth discussion of these governing systems and agbiotech governance.
Chapter 3: Agbiotech Governance and Governing Regimes

3.0 Introduction

Apart from interrogating the conceptual and practical applicability of the social license model, one of the major objectives of this study is to perform a critical evaluation of the value it adds, given the ongoing debates and controversies surrounding the concept. One principal research question in this dissertation is: what has the social license model accomplished relative to agbiotech innovation that is different from other already existing governance structures in the agri-food sector? Put differently, what makes the model unique or superior to other voluntary self-governing regimes? This chapter seeks to provide a response to these questions. The aim is not to question the legitimacy or value of any of the private self-regulatory models as governing approaches, but to compare these regimes with social license in order to determine its unique contribution to the agbiotech governance space.

A major goal of this chapter is to identify the governing actors with dominant roles in agbiotech governance, where they converge, overlap or diverge. It also aims at providing a comparison between the social license model and other existing public and private governance or regulatory schemes and examines the existing jurisdictional confusion between some of these structures.

3.1 Agbiotech Governance and Governing Systems

The heated disputes between supporters and opponents of agbiotech have attracted much political attention. Hartley et al. (2016) posit that the deep controversial and polarized nature of the debate around agbiotech foods and products necessitates serious considerations and changes to its governing system. The limitations of most existing state governance approaches have led to demands for the inclusion of a range of actors in a more thorough deliberation on the risks, social and ethical concerns identified with the introduction of new agricultural biotechnologies.

Governance approaches can be studied from various angles. Phillips (2007) identifies three different perspectives for governing complex changes from the governance scholarship: a political science perspective with focus on regulating the economy and society, an economics
perspective which examines the role of market institutions, and a sociological perspective which looks at governance by diverse actors.

There is a wide array of governance definitions from diverse authors. Rosenau (1992) differentiates between government and governance by stating that while government entails legal and formal authority to execute power, governance involves performance of activities by citizens and organizations with or without formal authority, for the achievement of common goals. For Jordan et al. (2003), governance involves cooperation between state and non-state actors. According to Graham et al. (2003), governance is demonstrated by interactions and processes to assign mechanisms for decision-making, citizen and stakeholder engagement, execution of power and assigning of responsibilities.

Amongst the numerous uses of the term governance is Prno and Slocombe’s (2012) attribution of the concept to changes in conventional governing functions, where the state no longer has the sole authority in the governing mechanism. Basing their understanding on Rhodes’ (1997) explanation of the term, the authors describe two kinds of governance shifts: vertical and horizontal. While vertical shifts involve either an upward movement of political power to supranational levels of government or a downward movement to local communities, horizontal shifts entail the movement of political power from government to non-state actors.

The power shift from a central government to other non-state actors is the distinguishing characteristic between governance and government. Stoker (1998) differentiates between the two concepts by noting that government refers to official state institutions and their exclusive control of legal coercive power, while governance is a wider concept that incorporates both government and non-government actors, albeit not using coercive power. Prno and Slocombe (2012) suggest that the power shift from state to non-state actors is closely connected to the social license model in that the model offers a platform to amplify the voices of communities and other stakeholders affected by corporate activities, making them more significant in decision-making and political processes (in their case related to mining development). Despite this assertion, it was established in chapter 2 of this research that social license, being a more rhetorical than practical model, offers no clear-cut strategies for corporate engagement with host communities.

From the array of definitions on governance, this research adopts Rhodes’s (1996) definition of governance as ‘a new process of governing’ which involves a new system of ‘self-
organizing networks’ or ‘governing without government’ (p. 652). According to Rhodes, ‘networks are the analytical heart of governance’ and the governing process ‘involves complex sets of organizations drawn from the public and private sectors’ (Rhodes 1992, p. 2).

Understanding the concept of governance is core to this study. Phillips (2007) posits that the concept of governance offers a variety of ways to examine how we govern and that governing structures are specifically challenged by technological revolutions such as biotechnological innovation. He identifies three domains of governing from the literature: the state, markets and civil society, and notes that all three are part of governing systems. Phillips (2007) then suggests that each of these governing agencies operates in a different domain - political, economic and social – and use different governing mechanisms of command and control, exchange, and voluntary association.

The shift towards an increased role of private non-state actors and markets in governing agbiotech represents a change in the sector’s governance structure (Vatn, 2015a). Vatn uses the term governance structures when he talks about the actors and institutional structures that define and facilitate their interactions. Regarding the actors, he makes the distinction between economic actors with property or rights use, political actors with rights to resources and strategies for transferring these rights, and civil society actors who bring legitimacy to the political process and establish avenues for discussion between owners, decision-makers and the wider society. The role of the state remains very distinct within any governing system, as they define commodity and property rights and play an essential role in the markets set up and regulation (Vatn, 2015a).

For analytical purposes in this study, the term civil authority refers to a variety of actors, including NGOs, consumers and their associations, the general public and special interest groups. The state is used in reference to all levels of government (municipal, provincial and national), while the term markets refer to corporate actors or industry, which in our case can include some but probably not all farming enterprises.

Using a governance lens to analyze the emergence of social license in mining, Prno and Slocombe (2012) make the case that the origin and evolution of the concept has been triggered by emergence of sustainable development principles in governance systems which involve power sharing arrangements between state and non-state actors. Citing the emergence of local
communities as governance actors, the authors note the diverse and complex nature of the mining sector’s governance system which according to them, involves ‘multiple state, market and civil society actors and institutions operating in wide-ranging configurations’ (p. 354).

3.2 The Triad of Actors in Agbiotech Governance

While the government plays a major role in regulating technological change and addressing its ethical concerns, its major dependence on democratically approved regulation to govern agbiotech might be challenging, especially in the face of globalizing economies (Newholm, 2000). Newholm suggests that governments can lose consumer confidence when they ardently protect industry. Similarly, government’s sole reliance on expert evaluation of agricultural and food production, to the exclusion of consumer views or participation in the decision-making process, is now seen by many as inadequate. Giddens (1998) argues that expert committees fail to consider larger perspectives because they are limited by their narrower sphere of competence. Although both expert committee assessments and government regulations are essential, they inadequately accommodate citizen and consumer ethical views that are often represented by voluntary and civil society organizations. This ability of civil society organizations to represent consumer and public interests makes them significant actors within the governing framework. Nevertheless, these organizations are usually not democratic representations of the general public and are not democratically representative.

Globally, communities are demanding higher local benefits from projects, greater participation in decision-making and more transparent responsible business operations from the corporate sector. There is, therefore, need for a broader governing structure to meet the demands of all concerned stakeholders (Newholm, 2000). The shift from governing by central authority to governance by multiple actors has happened in the regulation of agbiotech, where non-state and non-corporate actors are increasingly becoming included in decision-making processes.

Picciotto (1995) further expounds on the government-market-and-civil society governance configuration by illustrating where all three actors converge within an institutional setting, using a project-focused lens. When Picciotto (1995) borrows Hirschman’s description of projects as ‘privileged particles of development’ (p. 2), he underscores the judicious designation of responsibilities to the public, private and voluntary sectors as a key factor in the configuration
of institutional arrangements at the project level. He notes that constraints in government capacity, alongside financial limitations, have caused the institutional design of projects to move from the typical public sector dominance to focus on securing private resources for project development. Concomitantly, voluntary organizations have drawn considerable project development funding due to their articulation of social and environmental concerns.

Picciotto (1995) asserts that while government regulation and control can go a long way to ensure an efficient allocation of resources for markets and consumer satisfaction for clients, the services of private voluntary organizations are often essential for market operations to be truly effective. The author makes the case that civil society organizations are crucial in addressing the shortcomings of government and market actors, through persuasion and motivation and by preventing the state from certain actions or pointing out market excesses. Picciotto (1995) also posits that civil society organizations provide favorable environments for participation and cooperation and employ debates and advocacy as channels for attaining their goals and objectives. However, he notes that not all civil society organizations work for the common good of the disadvantaged or dissatisfied public. An adequate balance between all three actors is crucial because effective governance necessitates a positive exchange and networking between the state, the market, and the civil society. A proper balance emerges when the various actors are able to restrain power excesses from any one actor, while effective governance entails interdependent supportive operation of all three governing actors.

From an institutional economics perspective, Hirschman (1970) notes the potential dysfunction and failures that emerge in human relationships and systems, whether social, political or economic. He uses his exit, voice and loyalty framework to characterize possible responses to a decline in the provision of goods and services or the failure by individual, political or economic actors to meet expectations. Although Hirschman (1970) applies his exit, voice and loyalty framework to firms producing commercial goods, he recognizes its applicability to diverse organizations including voluntary associations, trade unions, political parties or other organizations involved in the provision of non-commercial services.

Hirschman argues that there are two major responses to discontent or dissatisfaction with one’s firm, country or organization, when there is noticeable deterioration in the provision of goods and services. The first is the exit option, where consumers in a market setting express
dissatisfaction by boycotting unwanted products or engage with a competitor, resulting in revenue loss. In other circumstances, members might quit an organization as a way of showing their discontent with the existing state of affairs. The second option is voice, which Hirschman (1970) describes as a ‘recuperative mechanism’ (p. 30) that involves speaking out and attempting to remedy deficiencies. When the voice option is activated, a firm’s clients or an organization’s members can either engage in protests or express their discontentment directly to the appropriate authorities. Voice offers an opportunity for a revision of the causes of dissatisfaction and can be used in place of the exit option.

Hirschman writes that voice, whether individual or collective, mobilizes opinions to promote change instead of exit. Situating voice within the political spectrum, the author notes that the voice strategy can also be referred to as ‘interest articulation’ (p. 30). Where exit is the preferred option, voice is silenced.

Hirschman notes that the concept of loyalty diminishes the likelihood of exit because we form a special attachment to some organization. Loyalty can, in some contexts, dismiss the exit option and activate voice, which is crucial for organizational stability and renewal.

Hirschman’s exit, voice and loyalty framework has been used by some authors to explore responses to disputes over agbiotech and food production. According to Newholm (2000), consumers can respond to discontentment with unethical food products via the ‘exit’ option through changes in buying patterns, although this does not tell the producer why they consider the product unacceptable. Voice comes into play when consumers express their views to producers and retailers in different ways and loyalty is evident when consumers identify with a particular brand or create a lifestyle of consuming particular foods or products. Bartkowski and Baum (2019) have applied the framework to genome-edited food, noting that while labeling of food products could warrant exit of consumers who reject such foods from markets, public deliberation as an expression of voice is critical for promoting participation and the consideration of public views and concerns in the socio-political discussion of genome-edited food and their potential introduction to the market.

Hirschman’s exit, voice and loyalty framework could also be applied to the social license model in the agbiotech space, in correlation with the ‘pyramid model’ of social license (discussed in chapter 2). Exit occurs at the lowest level of the four distinct stages of the model,
where the social license is withheld or withdrawn in a worst-case scenario. At this point, stakeholders who are unsatisfied with a new technology or product may boycott purchase and call for a ban, as was the case with GURTs. Where participation is engaged and voice activated, there is a chance that the broader and more open consideration of the views and opinions of all stakeholders could result in the approval and acceptance of the novel technology or product. Loyalty in this instance speaks to the model’s fourth stage of psychological identification, where there is a steady use of the technology or product as a part of the consumer’s lifestyle and proof of shared interests.

Governing structures are not without challenges. Phillips (2007) notes that they are specifically challenged by technological revolutions such as agbiotech. In a governing system with a variety of actors, finding the right tool for effective governing is usually difficult because of the diverse interdependent actors with different knowledge systems, goals, skills, incentives, and worldviews (Salamon, 2002a). Governance of agbiotech innovation is complicated by the varied opinions and goals of the competing actors and stakeholders in this space (Buiatti et al, 2013). The differences in opinions and the widespread societal fears concerning uncertainties, risks, and negative unintended consequences associated with the use of GMOs that have created controversy, make the approval and adoption of biotechnological innovations challenging. There is evidence that stakeholder treatment during decision-making processes, the nature of distribution of benefits among stakeholders and the role of governance in rules-setting are vital to developing trust and social acceptability (Zhang and Moffat, 2015).

3.3 Bridging the Triad of Actors in Agbiotech Governance

Each of the triad of actors: state, market and civil authorities, represents a different component of society and has distinct incentives for their actions (Gray et al., 2006). As previously explained, the state, representative of all national citizens, sets the rules that govern transactions and exchanges between individuals in the market, maintains power and works in the best interest of the entire society. Markets govern the production, marketing, commercialization and transaction of goods and services. However, market transactions are not usually as efficient as expected. Sometimes, new product development and commercialization produce a number of market failures such as monopolies, incomplete information between producers and consumers
and health or environmental challenges (Gray et al., 2006). For instance, despite the solutions agbiotech provides to the agri-food sector, it creates concern about other socio-economic and environmental impacts (discussed in chapter 4). These negative biotechnological fallouts represent negative externalities which have created increasing demands for more socially responsible behavior from industry. While the solution to these externalities could come from the state or market, self-regulatory schemes initiated by the civil sector can emerge as strategies to remedy negative externalities, especially in instances where the voice of society needs be highly activated. This is one of the key frames of the social license model which emerged because of the negative environmental impacts of corporate activities on mining communities. These negative externalities from mining operations triggered the rejection of corporate activities within host communities. Nysten-Haarala et al. (2015) say advocates of self-regulatory schemes designed to correct externalities argue that they are essential complements to regulation. However, these schemes are prone to free riding where the actions of other corporate actors who fail to meet the environmental and sustainability demands can result in reputational harm and distrust for all members across a particular industry (Olson, 1965).

The governance lens of social license frames the model as a form of governance operating at the intersection between government regulations and private markets (Prno and Slocombe, 2012; Vince and Haward, 2017). This conceptualization of the model suggests that social license is meant to address both government and market failures in ways that are similar to other self-governing regimes like CSR and voluntary certification standards. The question then is this: is the social license response to market failures or negative externalities in the agri-food system the most effective one? Phillips (2007) argues that because new technologies are susceptible to government and market failures and free riding, pure prototypes of the state, market and participatory sector may be unable to effectively govern these technologies.

Governance, therefore, can be achieved through public or private entities. As already explained, apart from state regulations, there are several private self-regulatory governance regimes employed by industry and civil authorities to foster trust and promote social acceptance of projects and products. The next section of this chapter will explore the similarities and differences between social license and some public and private self-regulatory regimes, in order
to determine the unique attributes and achievements of the model relative to other existing models.

3.4 Social License and Regulation

Social license cannot surpass regulation. Regulation was earlier defined in this research as the “rules of behaviour backed up by the sanctions of the state” (Doern et al., 1999, p.1). Regulation grants legal approval for corporate action or product commercialization; social license has no legal authority to grant such approval or permission. A project can commence without a social license once regulatory approval has been obtained from the state, but a project with a social license and no regulatory approval is not allowed to begin its operations. Social license is an ideational and rhetorical tool which unlike regulation, dwells in the realm of community values and beliefs (Leith et al., 2014).

There are many significant differences between a social license and a legal or statutory license. One is codified, the other is not. The legal license follows a structured regulatory framework; the social license does not. Although the social license model is said to be a parallel to a legal license in its ability to allow or stop a project (Cooney, 2017), it is not established in any regulation or conventional rule of law. There is no clarity to its meaning, no established granting authority or agency, no established procedures or process for securing a license and no formal document for when such a license is obtained.

The legal license is mandatory while social license is voluntary (Forrester et al., 2015; Bice, 2014). Regulation, unlike social license, is compulsory and usually proceeds from the state (Braithwaite and Drahos, 2000). Certain activities or professions require a license issued by a government agency or licensing board. As government-regulated agencies, licensing boards set the minimal standards and requirements for practice in specific professions. In Canada, for instance, the state does not license medical doctors, but the Provincial and Territorial Medical Regulatory Authorities assume this responsibility as agents of government.

According to Forrester et al. (2015), social license could be considered as ‘another form of regulation’ (p. 428) because its requirement for firms to abstain from or assuage objectionable issues faced by communities makes it analogous to public laws and regulation in that it promotes
acceptable business conduct. Considering social license as a form of regulation is incorrect because the model has no legislative standing, no clear definition, and no established procedure for earning a license. Instead, social license has been described by some opponents of the model as an attack on the rule of law (Harrison, 2016; Crowley, 2014).

Other authors do not equate social license with statutory regulations, rather, they say it is employed by eNGOs as a means of tightening regulatory oversight for the corporate sector (Gregory-Murphy, 2018). While associating the model with environmental activism, the author notes that social license campaigns target industries and not regulators and its proponents employ new communication mechanisms and strategic media associations to boost their influence and impact and to increase public support. She also opines that eNGOs use these campaigns as an increasingly effective tactic to compel government to adopt tougher regulations or strengthen regulatory oversight of corporate activities, particularly those considered harmful to the environment. When Gregory-Murphy (2018) makes a distinction between a social and legal license, she asserts that a social license, in essence, seeks to harmonize government’s licensing and control of corporate operations with societal expectations and demands. For their part, Prno and Slocombe (2012) argue that government can decrease the importance of social license by boosting existing regulations and engaging other strategies in order to boost public confidence and facilitate public acceptance.

Social license is not a legislative requirement and has no legal status. It is not backed by any law or regulation and remains unverified as a regulatory approach or governance model but could be examined as some sort of self-regulation due to its ability to promote or constrain certain actions. Newman (2014) opines that the term license gives it a ‘more legal-sounding legitimacy than it has’ (p. 5) and grants a small group of people the ability to subvert democracy and the rule of law. Crowley (2014) describes the social license as “either meaningless or a polite term for mob rule”. However, project and product opponents promote the model as an extra-legal norm that is earned in addition to government authorization issued by conventional regulatory bodies created for this purpose (Harrison, 2016). Extra-legal denotes an origin out of the law. While social license is significantly different from the legal meaning of a license, the

term derives its power from the results it can bring to bear directly or indirectly on corporate activity via potentially halting or changing project development or product commercialization.

As Cooney (2017) explains, the concept of social license was developed to address specific challenges in the developing world, where acquiring a government permit did not protect mining companies against future political instability which could potentially affect business viability, and adverse reactions from disgruntled local communities which were quickly gaining international support for their objections to mines in their localities. Social license in the developing countries context, therefore, offered value to both local communities, consumers and industry.

Within a developed country context, social license has been expanded to include environmental and climate change impacts, ethical considerations, as well as legitimacy and fairness in regulatory processes (Colton et al., 2016). As discussed in Chapter 2, the term has been expanded to be a nebulous concept with different narratives promoted by project supporters and opponents. For instance, in advanced economies like Canada, with responsible, representative and accountable governments, the social license narrative is quite different. Social license has seen a major departure from its original intent and has become a prescriptive norm for corporations (Hitch & Barakos, 2021). Within the context of developed economies, industry uses the term in reference to social responsibility or social responsiveness that should allow project development, while project opponents use the term in reference to granting permission or veto power to halt development projects. This conceptual divide changes both the value and need for social license, especially when it overrides the decisions of legislators who are duly elected representatives of the people.

Social license is premised on norms and values (Dare et al., 2014). These values and norms are related to personal beliefs of what is acceptable and important or expectations of right and wrong behavior. Trebeck (2008) refers to these norms and values as civil regulation with the ability to constrain the behavior of state and economic actors to a certain extent. For Colton et al. (2016) social license is not ‘a legal duty or obligation of the government or company to the public or other interested groups’ (p. 23); instead, it is aimed at project stakeholders or the public and their decision to accept a project in their neighbourhood.
For his part, Bankes (2015) describes social license as a soft norm because although it is not law or a legal license, it is represented more as a rule than a principle, making it seemingly tougher and more demanding. The social license model only mirrors a legal license. As posited by Hall et al. (2015) social license ‘mirrors the language of the legal licenses’ (p. 304) in its definition, a possible reason for its appeal to the corporate sector. However, a major distinction between both licenses is that one is authorized and delivered by the government and the other by society, despite a lack of clarity on how society is defined in this case. The legal license’s stipulations of acceptable behavior for business operations remain unchanging, while the social license can be affected by the dynamic patterns of acceptance and approval by stakeholders as their beliefs, preferences and norms change over time.

Another school of thought holds that complementary forms of regulation are needed in addition to state regulation, although the state regulation remains ultimate. Here, statutory legislation parallels customary ones. Haarala et al. (2015) argue that the state is hardly the only source of regulation in most countries. Social norms, social license and other forms of self-regulation may perform a substitutionary role in bridging social gaps or complement official regulation with more advanced rules that could subsequently influence the law by triggering regulatory adjustments. While asserting that self-regulation promotes the implementation of sustainable practices, Haarala et al. (2015) conclude that both forms of regulation (public regulation and private self-regulation), are mutually supportive in helping to prevent environmental and other failures. Meesters and Behagel (2017) agree with this assertion and take it further by offering three ways in which a social license complements a legal license in mining. It legitimizes mining activities in the eyes of the public, reduces economic risks such as project delays or work stoppage and increases corporate reputational benefits.

Another distinguishing factor between a social license and a legal license, is the fact that social license is more implicit than explicit. The use of the term license suggests that corporations must meet certain formal demands prior to their operation, yet these demands are not formally documented. Harrison (2016) posits that social license uses law language but regularly dismisses the legitimacy of conventional legal processes and authority. He argues that the extensive endorsement of the concept, even by corporate actors, has given it the right to veto a government-approved project and weakens the rule of law. Harrison (2016) further writes that
social license signifies a rejection of the government’s regulatory process and adds a supplementary requirement whose acquisition process is unstructured and without a legal standing.

Authors like Curran (2017) say social license and regulation could complement each other. Curran writes that most companies recognize the difference between their social and legal obligations, acknowledging that statutory licenses or approvals are helpful in partially securing a social license. Social license if properly defined and structured could help capture some social dimensions that may be absent in the government regulatory framework. According to Curran (2017), the difference between a social and statutory license is clear. The statutory license, through formal regulatory compliance, provides and confirms legitimacy while acceptance and approval from the local community and other stakeholders establishes the legitimacy confirmed by regulatory agencies. The legal license contains clear cut, mandatory and usually measurable requirements, while the social license is often unclear with no mandatory conditions, leaving its meaning, interpretation and application open to various actors. Wilburn and Wilburn (2011) note that corporate actors acknowledge that social license is not as tangible as a regulatory license and is an optional concept that tries to imitate other legal tools. For Morrison (2014), social license does not diminish existing legislation in any way; it is only a supplementary step.

3.5 Social License and Corporate Social Responsibility (CSR)

This section explores the relationship between social license and corporate social responsibility (CSR) using a demand pull (social license) and the supply push (CSR) explanation.

The demand-pull strategy of social license speaks to the use of the concept by industry to indicate social responsiveness or their efforts to meet community and stakeholder demands or to claim that these demands have been met, while the supply push CSR strategy indicates that industry recognizes a problematic or demanding situation resulting from its activities and proposes solutions to resolve these challenges through its CSR initiatives. This distinction has implications for understanding the validity of the two constructs in this research and for determining what one model has achieved over the other.
Just like a new product development process where novel products are created due to market demand, the assumption here is that corporate pull towards social license is a response to incessant demands from stakeholders for the incorporation of social issues into core business strategy. These social issues include increasing societal demands for benefits sharing, greater involvement in decision-making regarding project or product development and calls for responsible corporate behavior vis-à-vis the environmental and health impacts of their activities. Meanwhile, the corporate push for CSR has been to protect business investments by investing in non-commercial concerns such as philanthropy, environmental and community development initiatives and volunteer efforts (Hall et al., 2014). While the pull strategy responds to a demand, draws a client or another party towards a product or service and establishes an on-going relationship over time, the push strategy, usually a voluntary initiative from the initiator, pushes a product, service or strategy at the clients or target audience.

Distrust and opposition from stakeholders and the public are key reasons for the corporate move towards the social license concept. As explained in chapter 2, the social license model is industry’s response to the distrust expressed by its stakeholders and the resistance from opponents of corporate activities and other pressure groups which threatens profitability (Owen and Kemp, 2012). Public trust exists when society believes that corporate activities align with societal expectations and stakeholder and community values (Wilburn and Wilburn, 2011).

Another reason for the pull towards social license is the need to establish organizational legitimacy. Some authors have also linked the concept of CSR to corporate legitimacy as is the case with the related concept of social license. For example, Parsons et al. (2014) maintain that there is usually an underlying assertion that a firm’s decision to engage in socially acceptable behavior, or go beyond compliance in corporate performance, is largely a strategy to demonstrate organizational legitimacy. When Claasen and Roloff (2012) link CSR to legitimacy, they assert that CSR commitments protect a firm’s legal license and grant it legitimacy from the viewpoint of society. However, Boutilier (2011) argues that legitimacy is the least requirement for community acceptance and the most basic level of social license. In the context of the hierarchy displayed in figure 2.1, organizations must gain credibility and trust to earn higher levels of social license.
Understanding how social license differs from CSR is of utmost importance in this research because both are models of private self-regulation in the corporate sector and reflect the idea that industrial responsibility extends beyond shareholder relations and the law. From the push-pull lens, companies develop private rules for environmentally friendly production as part of their CSR strategy, in recognition of the environmental harm their operations cause and the need to make corporate commitments to mitigate these hazards. CSR, which is voluntary and emerged from within the corporate sector in the 1980s, has environmental responsibility as a central principle as seen in its focus on the triple bottom line (Vatn, 2015). Kelly et al. (2017) posit that social license as a dominant narrative is also an indicator of a sector’s CSR credentials, but Bice et al. (2017) distinguishes between the two models by explaining that the focus of social license is on building relationships with stakeholders and goes beyond philanthropic spending and community investments.

Definitions of CSR abound. Like social license, CSR is still greatly contested in terms of its definition, scope, and application. This study adopts Hopwood et al.’s (2012) definition of CSR as “a voluntary approach that a business enterprise takes to meet or exceed stakeholder expectations by integrating social, ethical, and environmental concerns together with the usual measures of revenue, profit, and legal obligation” (p. 83). It is generally understood to refer to the ability of corporations to identify and react to social responsibilities to communities affected or impacted by corporate activities (Galbreath, 2009).

There is no consensus on the relationship between CSR and social license in the literature, as shown by the divergent views of many authors. While Wilburn and Wilburn (2011) describe social license as depending on recognized CSR principles such as the concept of accountability to stakeholders for corporate performance across a range of sustainability dimensions (environmental, legal, philanthropic, ethical and social), other authors like Kemp et al. (2010) say industry’s use of the social license model is in response to its CSR obligations. For Hall et al. (2014), social license ‘has largely been developed out of the literature on CSR’ (p. 301), while Syn (2014) and Hall and Jeanneret (2015) say social license has a foundation in CSR and is a deeper extension or product of CSR tenets. Bice (2014) conceptualizes social license as operationalizing or accomplishing CSR principles and practices. Some interview participants
differ with these views and consider social license as being premised on the social dimension of the sustainability framework, with equal importance as the economic and environmental pillars.

Social license has not been a complete departure from current CSR and sustainability notions, rather, it focuses more strongly on local stakeholder relation. What is clear in the analysis of the relationship between social license and CSR is that there is conceptual overlap, jurisdictional confusion and perpetual difficulty in setting a boundary between the two private self-regulation models in the literature. Nevertheless, there are some subtle distinctions between the two models.

By providing an opportunity for goal sharing between corporations and community stakeholders vis-à-vis the handling of local development projects, social license becomes an extension of CSR (Hall et al., 2015; Nina and Jeanneret, 2014). The push for CSR initiatives stems from the need for industry to compensate for corporate irresponsibility and provide protection from losing a social license (Cullen-Knox et al, 2017). However, with CSR, corporations have the power to choose what activities to undertake in order to acquire and maintain a social license, whereas, with social license, the power belongs to the local community which offers approval or rejection of corporate activities (ibid.). This change in approach between CSR and social license regarding the choice of corporate activity is the pivotal difference between the two concepts. CSR adopts a top-down approach with concerns pinpointed by the corporation, while social license is bottom-up with concerns identified by the communities and stakeholders (Lacey, 2014).

Both CSR and social license are risk management tools that seek to build and maintain corporate reputation. However, Edwards et al. (2018) highlight the fact that although CSR is usually about corporate reputation management, the perceived socially acceptable behavior is more about ‘being seen to do the right thing on paper’ (p. 3). Social license goes beyond CSR activities observed in management reports to identify a need to carry out appropriate action in local communities where corporate projects take place. As a critical risk management tool for many firms, social license is aimed at protecting corporate finance and reputation by proactively identifying and controlling potential sources of conflict instead of just responding when they arise (Curran, 2017). Owen and Kemp (2012) say social license is a practical calculation of anticipated risks which are minimized through community engagements strategies. For its part,
CSR develops initiatives that give back to communities in recognition of possible undesirable effects of corporate activities on the environment and the community. Social license is thus proactive while CSR is reactive.

Though very similar, the target audience for CSR and social license is slightly different. CSR mostly targets shareholders and clients even though local communities and workers could equally be targets, while social license places more importance on relationship building with local communities (Edwards et al., 2018). For Hall et al. (2015), the social license model’s focus on relation-building between corporations and community stakeholders is its key distinguishing factor from CSR. Filer and Gabriel (2018) make the distinction between CSR and social license by referring to the triangular relationship between three key actors in the social license model: the local community actors and related external stakeholders who may grant or withhold a license, corporate actors who may or may not earn a license and a wider public that sometimes judges its credibility. This triangular relationship is not evident with CSR.

Another fundamental difference between the two concepts is that CSR could be accomplished through corporate accountability reports, but social license demands local in-person consultations leading to trust building. The major focus of CSR is the interface between business and society, while social license is predominantly about social acceptance or approval of corporate activities (Cullen-Knox et al., 2016).

In terms of a conceptual overlap, Johansen and Nielsen (2011) write that CSR can help to earn a social license by displaying certain features such as stakeholder engagement, ethical behavior, legitimacy, redressing damage from corporate activity and proactive accountability. Both concepts are also closely linked to sustainable development principles from which they emerge, with CSR focusing on the economic, legal, ethical and philanthropic attributes according to Carroll (1991). But as Morrison (2014) states, social license is not equivalent to philanthropic acts or community investments. Cullen-Knox et al. (2017) sum it up by stating that social license was ‘initially framed’ by CSR (p. 70).

3.6 Social License and Private Voluntary (Certification) Standards

Private voluntary self-regulation, usually described as ‘non-state market driven governance systems’ (Cashore, 2003: p. 503), have become principal private governing tools for
most industry sectors. Lister (2011) refers to them as a multi-centric form of governance, meaning ‘public and private policy authority coexist’ (p. 23). Many factors have influenced the rise of private self-regulation in the corporate world: environmental and other kinds of market failures, corporate social irresponsibility, distrust in industry and social injustice. Many corporate sectors have resorted to developing voluntary standards and certification programs to resolve some of these issues. Some of these certification programs are implemented via independent third-party audits and sometimes in close cooperation with NGOs.

Several reasons have been advanced for the emergence of private voluntary standards by diverse authors. For instance, Corneau (2019) says private voluntary standards promote responsible procurement because they supplement or uphold public regulations and enhance transparency. The need to diminish corporate reputational and commercial risks has also been a trigger for the emergence of private standards (JaVee and Henson, 2004). Its evolution has also been linked to regulatory developments, consumer concerns, and enhancing competitiveness. According to Hobbs (2010), consumer demands ‘have refocused agricultural and food markets from price-based to quality-based competition’ (p. 243), leading to a rise in private standards.

Standard setting, which is seen as a type of regulatory governance for sustainable production, is conceptualized in two ways in the literature. The first conceptualization of standards as actors in regulatory governance highlights their role in rulemaking and bringing industry under authority, while the second emphasizes joint problem-solving and collaboration (Fransen, 2018). The social license model falls within these conceptualizations.

Private standards are predominantly non-governmental tools. They can be established by firms (proprietary standards), autonomous standard-setting agencies and NGOs (third-party standards), and industry or alliance of corporate actors (voluntary consensus standards). They serve multiple purposes, including product differentiation through labelling, supply chain management and the protection of corporate reputation (Hobbs, 2010). Apart from providing labelling for food quality attributes, private standards also provide labels to indicate project or industry compliance to specified certification demands, inform and influence client behavior and enhance a firm’s competitiveness or market access (ibid.). Independent third-party audits are usually employed to verify and determine compliance with most standards via a certification process.
Certification schemes have basic distinctive characteristics. Auld (2010) identifies four basic features: they have logos or labels for differentiation; inspection and monitoring activities are used to verify accreditation standards; their clearly defined governance structures and procedures manage ‘rules for membership, decision-making, setting and revising standards, accrediting auditors, and addressing and resolving disputes’ (p. 4); and they possess social and environmental standards that offer product traceability throughout its life cycle.

Certification indicates that a company’s activities, products or services fulfill the demands of a specific standard. Certification schemes are either product-related, process-related, or site-related (Starke, 2016). Site and community level implementation of standards remains troublesome. In the case of mining, Buxton (2012) explains that significant challenges abound in implementing the rules and standards for socially and environmentally responsible mining at community and site level, despite the proliferation of standards in this sector. Prno and Slocombe (2012) agree with this assertion by writing that it is this fairly unregulated space of corporate and local community engagement that the social license model attempts to occupy, given the proximity of these host communities to mining operations.

Notwithstanding the diverse use of private voluntary standards, this portion of this research focuses primarily on food safety and quality standards which generally address issues related to food safety, occupational health and safety and the environment. Food standards usually respond to consumers’ and broader society’s concerns on safety and quality and ensure product differentiation within the food market.

The social license model and voluntary standards are both private regulatory initiatives and self-governing mechanisms. Both models of governance are assurance-providing schemes. While certification seeks to assure consumers that the food they are purchasing and consuming was produced in an environmentally and socially sustainable way (Gale and Haward, 2011), social license is intended to serve as industry’s proof that its activities meet community and stakeholder demands.

Although private standards and social license both seek to address social and environmental issues, there are some distinctions between the two models. One major difference is the focus of both models. Certification can be product, site or process-related while social license is usually site or product specific. With certification, communities are interviewed as part
of the certification process, but with the social license model, communities are key arbiters of social license and must be included in the decision-making process. However, Vince (2018) notes that the validity of a certification can be withdrawn if the community rejects the standard.

Certification offers a means for private enterprises to demonstrate to consumers that their products or processes meet defined standards pertaining to environmental, health or social issues. As a response strategy similar to social license Gulbrandsen (2004, p. 93) says certification is a ‘response to the activism and pressures exerted by environmental organizations and may be seen as a precautionary strategy to avoid conflicts with NGOs, bad publicity and consumer boycotts.’ This is quite similar to the motivational factors for the emergence of social license. As Dentoni et al. (2012a) explain, these private initiatives have generally excluded the engagement of stakeholders outside their supply chain. While standards and social license serve as corporate reputation management and conflict prevention tools, the major difference between the two governance models is that standards principally target customers within the food supply chain (Schepers, 2011) and are not primarily occupied with local level grievances (Cashore, 2004). Unlike the social license model, private standards offer no opportunities for the voices of affected local communities to be heard. Local support, therefore, might still not be a guarantee even after a certification has been successfully obtained.

Unlike the social license model, certification schemes have an established and well-structured process which is publicly available to anyone seeking this information. Many of these are also sanctioned and managed by the government (or their agent) and then recognized as requirements or evidence of fulfilment in regulatory systems (e.g., HACCP or ISO standards); many of them can be adjudicated in courts of law or trade tribunals. Certification requirements are embedded in a code of conduct and certifiers and auditors are trained on how to conduct audits. Companies know exactly where to apply if they want to be certified. This is not true for the social license model whose process remains unclear and undocumented (Vince, 2018).

Proponents of social license argue that it compensates for the weaknesses of certification schemes which usually aim at providing stakeholders and clients with additional methods of evaluating industry activities (Bice, 2014; Mather & Fanning, 2019). Mather and Fanning (2019) argue that social license can be used to address gaps and shortcomings in certification systems, such as building better relationships between industry, the community and other stakeholders and
promoting inclusion of host communities in decision-making. They also assert that although certification schemes are experiencing a rapid uptake by industry, they tend to be significantly lacking in the issues tackled by social license. Most standards are about product differentiation and enhancing markets. Social license could then be employed to address some of the deficiencies of certification systems. According to Bice (2014), many companies assume that earning and maintaining a social license can be facilitated by involvement in sustainable development initiatives and compliance with voluntary initiatives. Certification can facilitate earning a social license because, sometimes, projects or companies that are certified by an independent third-party organization have a higher chance of being accepted by the society than those which are uncertified (Auld et al. 2009). A third-party certification may help facilitate the earning of a social license, but this is easily lost if the community has doubts or labels both the industry and the certification scheme as illegitimate.

Table 3-1 below provides a summary of the various state and private self-governance models.
Table 3-1: Summary of the Various State and Private Self-Governance Models

<table>
<thead>
<tr>
<th>Standards</th>
<th>CSR</th>
<th>Social License</th>
<th>Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actors</strong></td>
<td>Firms, consumers and government.</td>
<td>Firms</td>
<td>Firms, civil society members, host communities, public.</td>
</tr>
<tr>
<td><strong>Processes</strong></td>
<td>Third party audit and assessment.</td>
<td>Corporate CSR policy / strategies.</td>
<td>Non-existent</td>
</tr>
<tr>
<td><strong>Enforcement</strong></td>
<td>Authorized certification bodies (voluntary).</td>
<td>Firm or stakeholder - regulated (voluntary).</td>
<td>Non-existent (voluntary).</td>
</tr>
</tbody>
</table>

3.7 Conclusion

The intersection between social license and other private governance and self-regulatory models raises important questions that are absent in the academic and corporate scholarship. What problem does the social license model actually solve? What has been the model’s greatest achievement thus far? The biggest success for social license has been its function as a rhetorical tool that invokes community and social concerns in mainstream corporate discourse and decision making. After over two decades of its existence, there is scant evidence of its effectiveness as a governance model or its ability to resolve many of the economic, ethical, environmental and
social challenges of the agbiotech sector. The conceptual overlap and jurisdictional confusion with other private self-regulatory governance models, indicates that many of the issues the social license model seeks to resolve could potentially be addressed or are being addressed in some way by other existing governance regimes.

4.0 Introduction

This chapter adapts Ostrom’s (2005) Institutional Analysis and Development (IAD) framework to theoretically unpack the governance of agbiotech foods, food products and innovation and evaluate the current design and operation of the social license model. In doing so, it lays out a framework for thinking about the social license model and the problem it intends to resolve. The IAD framework was chosen because of its diagnostic and analytical capabilities which are useful for comprehensively deconstructing the complex multidimensional layers of agbiotech governance. The aim is to provide a systematic approach that captures the institutional underpinning for agbiotech’s decision-making process, using core concepts from the framework. It explains this decision-making system by showing the interplay and interconnection between institutions, diverse actors and incentives that influence biotechnology decisions. The chapter discusses the analytical framework for this study and takes on the task of explaining the interplay between the various decision actors, the rules they draw on and how their interactions and the institutional prescriptions produce the outcomes that we see. The institutional analysis model is quite instrumental in capturing these dynamics of governing within the agbiotech sector.

This chapter presents two levels of analysis. After using the IAD as a framing device to determine where social license fits in the decision-making process of biotechnology applications and innovation, the chapter then assesses the current design of social license to determine if it is an appropriate tool to address the gaps in agri-food governance systems.

4.1 Institutional Analysis and Development – A Framework for Analysis

Ostrom’s (2005) IAD framework is a multi-tier conceptual map that offers a comprehensive approach to assess the interactions between individuals and institutions involved in decision systems, in this case agbiotech decision-making or governance configuration. It helps identify and explain relationships within decision systems by providing a set of variables which
can be used to analyze these relationships. Within the context of this study, the framework is useful for isolating the complex components of agbiotech’s regulatory structure (i.e., rules, actors and outcomes) and for interpreting the interplay between them according to the institutional rules and norms that structure their interactions. The IAD approach is also useful for decomposing complex agbiotech systems into subsystems whose interactions define and affect the overarching governance configuration.

Ostrom (2005) asserts that complex systems can be seen as consisting of subsystems which she refers to as holons that interact within an existing overarching system. Analysts can either analyze these subsystems as separate independent structures or focus on the system as an integrated whole. This study analyzes the agbiotech governance structure as a complex whole. The IAD framework facilitates systemic analysis by focusing on the governing actors who impact each subsystem and ultimately influence the overall system.

To situate this research within the frame of this explanation, this section of the study will examine how diverse agbiotech supply chain actors interact with other contextual factors within the sector’s regulatory framework to produce decisions that advance adoption or trigger rejection of biotechnology applications. Additionally, the framework helps address key policy questions by providing a useful understanding of the institutional arrangements that underlie agbiotech governance and by revealing the complex nature and levels of interactions between various actors.

Before applying Ostrom’s framework to animate the institutional analysis of agbiotech governance, it is important to define the word institution and to clarify the way it is used in this research. This study adopts North’s (1991) definition of institutions as ‘socially constructed constraints that structure political, economic and social interaction and consist of both informal constraints (such as sanctions, taboos, customs and codes of conduct) and formal rules (such as laws, constitutions, property rights etc.)’ (p. 97). The term is not used in relation to an organizational entity unless stated otherwise. Instead, institution is used here in reference to rules, norms and strategies adopted by individuals working in or with organizations. One of the principal functions of institutions is to create order and minimize uncertainty.

This analysis is done on the premise that the agbiotech regulatory architecture defines the scope of review of new biologically derived foods and innovations and the ways in which
relevant information is processed to determine a pathway for technological adoption and commercialization.

4.2 The Analysis

At its basic analytical level, the IAD can simply be described as being made up of three elements: exogenous variables; an action arena; and the interactions which produce outputs and outcomes. Ostrom’s definition of exogenous variables, which are characterized as contextual factors in this research, include biophysical or material conditions (e.g., the nature of biotechnology goods in terms of excludability and rivalry), attributes of community (e.g., stakeholder characteristics, values, beliefs, perceptions and interests) and rules-in-use (the overall legal and institutional norms and prescriptions that determine choices, such as science-based or socio-economic based regulatory frameworks). The action arena encompasses action situations with individuals, groups or organizations operating as collective actors. These are diverse agbiotech actors and stakeholders who define problems and other issues in various ways. The interactions between action situations and exogenous variables generate outputs and outcomes which can bring about transformations within subsystems or the entire governance structure. The evaluative criteria variable refers to the various analytical tools that can be employed to assess the action situations.

![Diagram of IAD framework]

Fig. 4-1 Elements of the IAD framework. Source Ostrom (2005, p. 15).
In this study, the framework will be used to explore the different regulatory architectures and rules governing biotechnological innovations. Using the IAD framework as an analytical tool will facilitate the identification of agbiotech regulatory gaps and enhance our understanding of what social license actually means for the agri-food sector.

This next section will focus on the key components of the IAD framework that speak to the agbiotech issues addressed in this research.

4.3 The Exogenous Variables

4.3.1 Biophysical and Material Conditions

Starting off this institutional analysis with an exploration of the material conditions component of the IAD framework introduces us to the economic concept of classifying goods and services in terms of their physical attributes of rivalry and excludability and whether voice will be required for their delivery (Picciotto, 1995).

Agbiotech operations involve numerous stakeholders along the supply and value chains and several authors have characterized these actors in different ways. Phillips (2009) explains that the institutional challenges relative to biotechnological governance necessitate the involvement of economic and non-economic actors from three different governing domains: government, markets and civil society or the third sector.¹ Boulding (1970) typifies these domains as the compulsory, contractual and familistic. In the same vein, Paquet (1997a) opines that a promising method to explore the complexity of governance is to consider a variety of economic, political and social factors.

When Paquet (2001) explains Boulding’s conceptual mapping of the governance terrain and the integration strategies of the various actors, he describes the compulsory as the coercive state-led domain characterized by rules and regulations, the contractual as the quid pro quo market exchange domain where supply and demand are principal rulers, and the familistic civil society domain as represented by voluntary operations, cooperation, reciprocity and solidarity.

¹ Civil society in this study is used interchangeably with civil authorities, third sector, participatory or voluntary sector and collective sector.
The defining characteristics and capabilities of the actors in each of these domains are fundamental determinants of what kind of goods they can best govern. According to Picciotto (1995), governments, markets and social organizations all have unique institutional features that make them more competent at producing specific types of goods and products. As Phillips (2007) explains, who leads the governance process in the case of a biotechnological product or innovation will depend on the dominance or balance of the physical attributes of the good and the starting conditions. Governments are more effective at producing public goods, where markets are hindered by low excludability and the social sector by low voice. Markets or the private sector tend to dominate with private goods where demand, supply and price mechanisms are prevalent. The social or collective sector, which aspires to be the people’s voice, is most effective at governing common pool goods, because the group usually has enough information to oversee a resource or product and secure its benefits. Club goods are mostly governed by natural monopolies. The governing authority that takes the leadership responsibility for a specific good is a principal determinant of where decisions are made and whose interests those decisions serve.

Private market goods with voluntary consumption by individuals are highly excludable (access to their use and benefit can be restricted), have few externalities (and hence low voice requirements) and are highly rivalrous (their consumption and use can be influenced by other consumers). Public goods have low excludability, low rivalry and limited voice (as in having the views of members of a specific sector heard by decision members), while common pool goods are characterized by low excludability and high voice (Phillips, 2003, 2007). Club goods are usually highly excludable, with low rivalry and low voice.

Given the above characterizations, it can be argued that in the case of agbiotech products and innovation, governments are more influential in handling issues related to basic research, regulation and enforcing public safety, while markets take the lead in production, marketing, and commercialization of agbiotech goods and innovation. Voice is activated when there are market

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2 The institutional attributes of these triad of actors and where they converge or diverge in the governance space are discussed in greater detail in Chapter 5.

3 https://socialsci.libretexts.org/Bookshelves/Sociology/International_Sociology/Book%3A_International_Relations_(McGlinchey)/15%3A_The_Environment/15.03%3A_The_Global_Environment_as_a_Global_Commons
failures in the form of negative externalities such as concerns about food and environmental safety and incomplete information between producers and consumers. The presence of these negative externalities then initiates the involvement of the participatory or social sector. The current framing of social license as aspiring to be the people’s voice and being governed by the participatory or collective sector suggests that social license is a common pool good. However, apart from the high voice characteristic, social license does not fit the non-excludable and high rivalry description of common pool goods. In addition, Ostrom (1990, p. 90) proposes a list of principles for governing common pool goods. Some of these include having clearly defined boundaries, ensuring that rules governing use of common goods fit local circumstances, participatory decision making, monitoring of the commons and easily accessible conflict resolution mechanisms. The current design of the social license model does not conform to any of these design principles and fails to define strategic mechanisms for meeting this configuration for common pool goods.

The model also fails to meet the non-excludable and non-rivalry characterization of public goods and the high excludability and high rivalry nature of private goods. Social license in its current form, therefore, is not a legitimate common pool activity because it fails to exhibit most of the defining characteristics of a common pool resource.

There is some evidence of social license as a club good, given the model’s high excludability (corporations, projects or products can be prevented from having a social license) and low rivalry (having a social license does not diminish availability of the concept to others). As a club good, civil society actors play the role of a natural monopoly by trying to act as gatekeepers to the social license club. Members who successfully achieve a social license and are admitted to the club do not deplete or consume the good – it is still available for anyone else the gatekeepers are prepared to admit. By contrast, users within a common pool resource setting, usually compete with each other for a scarce resource e.g., forests or water. Nevertheless, presenting social license as a club good still remains questionable because the model’s proponents acting as natural monopolies are not actually creating access to market or broad social acceptance as will be seen in the case study analyses in Chapter 6. The social license actors simply block the agbiotech regulatory and commercialization processes in many ways,
while occupying a space that might have been used by others within the agbiotech governance configuration.

Although the triad of agbiotech governors make up the foundation of all governing systems, they each have their own limitations. Governments fall short of meeting democratic demands in the biotechnology regulatory structure, while markets are characterized by imperfect information or information asymmetries. The civil sector also faces the challenges of effective public mobilization and adequate representation of diverse, competing voices (Phillips, 2009). Therefore, actual government-market-civil authority models may not be able to meet the challenges of new agricultural biotechnologies, a limitation which gives rise to the search and introduction of new governance models such as social license that seek to address some of these governance voids.

4.3.2 Community Attributes

According to Ostrom (2005), community attributes determine the structure of the action arena. In the case of agbiotech, controversy, divisive perceptions and polarized views are key structural characteristics of the sector. Those advocating for the application of biotechnology in agriculture cite increased economic, environmental and health benefits from its use. Proponents also note that plant production advantages could be enhanced by inhibiting unwanted trait expressions (Lombardo, 2014). Meanwhile, those opposed to agbiotech highlight the risks and uncertainty regarding new products, questions about health and environmental safety, ethical challenges, intellectual property concerns, long term fear of the unknown, consumers’ and farmers’ right to know, other socio-economic issues, regulations on commercial ownership and control, absence of citizen and stakeholder engagement, and the monopoly ownership rights over seeds (Einsiedel, 2009; Hartley, 2016).

There is a vast body of literature on the potential for agbiotech to address several challenges in agricultural production, productivity and food security (Zhang et al., 2016; James, 2013; Brookes and Barfoot, 2014; Todt, 2014; Schnurr and Smyth, 2016; Zilberman, 2018; and Lassoued et al., 2019). Some of these challenges include rising global demands for improved food quality, a decrease in agricultural productivity and arable land, increasing water scarcity and other environmental risks such as climate change. According to Juma and Gordon (2015),
agbiotech has the potential to develop versatile crops, raise yields on existing land, improve crop adaptations and decrease greenhouse gas emissions by encouraging reduced pesticides and herbicides use. Although not the only solution, agbiotech could have a significant role to play in combatting global food insecurity, malnutrition and other agricultural challenges (Newell-McGloughlin, 2014).

Despite its potential to boost agricultural production and productivity, agbiotech continues to be a contentious issue more than three decades after the initial appearance of biologically derived plants (Smyth et al., 2017). Many new biologically derived foods have been associated with intense conflicts, societal controversies and opposition, leading to public rejection. This rejection is often characterized by intense debates that lead to the non-adoption and non-commercialization of such technologies.

As explained above, the debate between proponents and opponents of agbiotech is highly polarized. This polarized nature of the agbiotech debate amplifies the conceptual divide between two major opposing camps. Hence, existing regulatory architectures grapple with the concerns of both sides, especially when the focus of regulation is on scientific risk assessment and human and environmental health (Smyth et al., 2017).

Based on the divisive debate about the benefits and risks of agbiotech, it then follows that there will be a variety of groups with different preferences and perceptions relative to biotechnology. Smyth et al. (2017) assert that advocates of biotechnology who see new opportunities with every biotechnological innovation will be vocal promoters of innovative change and risk-tolerant technology adopters. Meanwhile, biotechnology opponents who see new dangers and risks will be vocal defenders of the status quo and non-adopters of new technology. They will be resistant to change, risk averse and advocate prudence or precaution. A third group will be primarily concerned with the effects of the new agbiotech on their health, the environment or their resources. This group, who may want to maximize the benefits of biotechnology while minimizing the potential risks, might support biotechnological innovations in one field but not the other.

However, groups and communities are seldom homogenous (Ojha et al., 2016) and group members will have different preferences, some of them irreconcilable. An example of a group would be farmers who are major actors in the agri-food sector and biotechnology debate. A wide
body of scholarship shows the large heterogeneity of farmers’ preferences within agricultural systems which could ultimately affect biotechnology uptake. There are numerous determinants of farmers’ preferences, such as the type of goods produced in their farm and the methods of production. Socio-economic and other external considerations (such as farm ownership and legal status) and physical farm characteristics (such as size) are also important sources of heterogeneity (Hynes & Garvey 2009; Franco & Calatrava-Leyva 2010; Ducos, Dupraz, & Bonnieux 2009; Adams, Pressey, & Stoeckl 2014). Farm management techniques, farmers’ age, knowledge and attitudes, contribute to the heterogeneity of the farming community and could impact biotechnology preference (Defrancesco et al. 2008; Ruto & Garrod 2009). The same goes for consumers and other third sector members who have heterogeneous tastes and interests and strong divergent preferences.

Some of these real-life complex sectoral realities have been replaced by simplified assumptions for the analytical purposes of this research. The aim of this simplification is to offer an easier way of exploring a multi-layered and complex agbiotech governance arena.

**4.3.3 Rules in Use**

Ostrom (2005) notes that rules, defined as ‘shared understandings by participants about enforced prescriptions concerning what actions (or outcomes) are required, prohibited, or permitted’ (p. 18) are critical to institutional analysis. The rules in use within the agbiotech space reflect the deep divide and polarized views (or community attributes) that define the sector. Rules are the direct or indirect results of attempts to achieve order and predictability in human interactions.

To understand the agbiotech governance structure, it is essential to undertake an institutional analysis of the rules and norms that shape the decision-making process of biologically engineered foods. Agbiotech stakeholders employ the sectoral rules to explain and justify their actions and decisions.

There are two main contrasting frameworks for the regulation of agbiotech. The science-informed risk assessment framework (RAF) and the socially constructed socio-economic considerations (SECs) approach. Isaac (2002) and Smyth et al. (2017) refer to these two divergent regulatory architectures as the scientific rationality and social rationality regulatory
pathways. Regulation is a central issue in agbiotech governance because of the uncertainty and risks surrounding new biotechnologies and innovation, despite their promising potential benefits and opportunities. Before the discussion on the agbiotech regulatory pathways, it is important to briefly explore the concept of regulation and why we regulate.

This discussion on regulation begins with a clarification on the use of the term in this research. Regulation in its simplest form refers to the “rules of behaviour backed up by the sanctions of the state” (Hill et al., 1999, p. 1). Phrased differently, regulation has to do with government norms and rules supported by threat of negative consequences such as penalties in case of non-adherence. Regulation seeks to achieve behavioural change and cause a desired outcome. It is considered successful to the extent that it solves the problems that led to its adoption (Coglianese, 2012), and provides assurance about the safety of food, animal feed and the environment (Atkinson et al., 2013).

Atkinson et al. (2013) point to a few key frames for regulation in decision-making. Majone (1994) proposes a normative view of regulation which justifies regulatory use when there is a market failure such as monopolies, incomplete information or externalities. This view suggests that the sole aim of regulation is to serve the public interest. In contrast, Stigler (1971) asserts regulations reflect the interests of the regulated, in that regulations generate group benefits and privileges. This view of regulation suggests that every rule exists as a benefit to someone. Phillips (2012) expands this frame of regulation by including Posner’s (1974) view of a harmonized regulatory approach that could improve efficiencies. Phillips goes on to explain that the rent seeking view of regulation, closely mirrors the state of GM crops regulation ‘where regulation is still seeking safety in the public interest, however stakeholders are not homogenous in their view of what is in the best interest of the public. Stakeholders are a highly interconnected group and instead of a linear vertical structure for regulation, decision-making consists of an alphabet soup of regulatory agencies including Canadian, international and numerous domestic regulatory agencies of other countries’ (Phillips 2012, p. 20). It is then fair to argue that social license as a self-regulatory model is also being used by both proponents and opponents to extract benefits and privileges that will enhance their personal positions and preferences and not necessarily the interest of the public (based on the explanations in the previous chapters and the overall outcome of this research).
4.4 The Agbiotech Regulatory Architecture

4.4.1 Science-based Regulation versus Socio-Economic Regulation

The science-based or scientific rationality approach to regulation is premised upon the use of scientific evidence or sound science to assess the potential risks of new biotechnologies prior to their approval. The template that is widely adopted and used for this assessment is the Risk Assessment Framework (RAF) which was developed to handle the regulation of technological products, with the aim of credibly incorporating science into the development of public policy (Smyth et al., 2017).

According to the National Research Council (NRC, 1983), the RAF is made up of three fundamental components: risk assessment, risk management and risk communication. The risk assessment process includes the identification of hazards, evaluation of exposure, and characterization of potential risks according to credible scientific basis. Assessing risks also involves the use of approved analytical methods and statistical-inference procedures. The resulting data from the risk assessment process is then used to inform the risk-management process, whose principal objective is risk prevention and risk minimization. The risk data and information then become the foundations of the regulatory response (Smyth et al., 2017). According to the NRC (1983, p. 3), risk management is defined as ‘the process of weighing policy alternatives and selecting the most appropriate regulatory action, integrating the results of risk assessment with engineering data and with social, economic, and political concerns to reach a decision.’ The third component of the RAF, risk communication, involves the transmission of information between the risk-assessment and risk-management stages, and also between regulators, the corporate sector and the general public (Smyth et al., 2017).

The second major agbiotech regulatory structure, social rationality, includes broader socio-economic considerations (SECs) as a part of their regulatory architecture. The general sense is that this approach is intolerant of any adverse socio-economic impacts from commercialization of GM foods (Isaac, 2002; Falck-Zepeda, 2009). According to the social rationality perspective, technologies should not be approved for commercialization if they impose any economic or social costs on society or individuals. Smyth et al. (2017) note the challenging nature of this regulatory perspective, given that there are always winners and losers for every new technology.
Decision making is complicated because biotechnologically derived foods and products are internationally commercialized. The global nature of agbiotech necessitates that regulatory compliance goes beyond fulfilling national regulatory demands, to include other international regulatory and trade infrastructures. The divergence in national regulatory configurations as illustrated by the scientific rationality and social rationality divide complicates the international level, with numerous regulatory initiatives seeking to organize the regulating, development, trade and marketing of agbiotech foods and innovation.

As Smyth et al. (2017) explain, there are at least seven international institutions contending the coordination and governance of ‘food and environmental safety aspects of biotechnologically developed bioproducts, foods and crops’ (p. 102). The authors assert that these regulatory infrastructures are principally science-based, like the International Plant Protection Convention (IPPC) and the Codex Alimentarius Commission (Codex), or involved in trade facilitation, environmental safety and other socio-political factors through the Organization for Economic Cooperation and Development (OECD), World Trade Organization (WTO) and the Cartagena Protocol on Biosafety (CPB). For instance, while the CPB has a high preference for the inclusion of a wider set of SECs in the international regulation of agbiotech, the WTO refuses to allow non-science considerations for the assessment of risks (ibid.). These two competing international organizations, with two contrasting regulatory trajectories, aptly mirror the divergence between advocates and opponents of agbiotech and the polarized nature of the sector’s debate. The same regulatory fracture is observed between Europe and North America, where the differences in perspectives on agbiotech between these two continents, has led to the adoption of two divergent and fairly contrasting regulatory pathways. Isaac (2001) refers to the scientific rationality and social rationality perspectives as technological progress and technological precaution approaches.

Despite adherence to international regulatory bodies, national governments have some degrees of freedom in making certain decisions about their domestic regulatory structures, systems and procedures, depending on what they perceive as a responsible regulatory configuration, their distinct needs and capacities or based on international market demands. For instance, they can choose science or SEC based regulatory systems, decide to implement mandatory labelling of GM foods, and opt for a single central regulatory authority or a
coordinated framework with several agencies involved in the risk assessment and evaluation process (Falck-Zepeda, 2009). However, national regulatory models are more predisposed to mirror international organizations that closely reflect their domestic regulatory pathway. Misalignments between national and international regulatory systems can lead to political risks and loss of trading opportunities.

There is no international consensus on specific aspects of the science-based and social rationality focused regulatory trajectories. However, there are a few points of convergence and many major points of divergence between the two pathways. For instance, both regulatory trajectories acknowledge the increasingly global nature of science, but do not completely accept or use science in the same way. There is significant divergence in their beliefs on the effective role of science and technology in society (Smyth et al., 2017). From a science rationality lens technological advancement is linked with economic growth, with a tendency to support a regulatory regime that promotes technological progress, while ensuring food safety and environmental protection for society (Isaac & Kerr, 2007). Meanwhile, the social rationality school of thought sees science and technology as normative activities whose inherent characteristics alter social equilibrium and societal preferences. Regulation of science and technology activities should therefore require technological precaution, while the potential impacts from these technologies are proactively handled (Isaac & Kerr, 2007; Smyth et al., 2017).

Differences in the interpretation of the precautionary principle is another fundamental contrast between science and social rationality perspectives. Both sides agree that the precautionary principle requires regulators to exercise precaution in the face of scientific uncertainty, but their implementation of precaution is significantly different. For the scientific rationality perspective, the precautionary principle is a risk assessment tool (Isaac & Kerr, 2003). This approach delegates the task of risk assessment to scientists who make decisions on the basis of having received sufficient information or prescribe caution when inadequate information requires prudence in dealing with a new technology. The scientific rationality regulatory approach hangs on the principle that decisions must depend on scientific evidence generated through reproducible and repeatable sets of rules and standard operating procedures (Doern and Phillips, 2012). The reasoning behind the use of rigorous scientific methods to calculate the probability of harm in RAF is that this sort of calculation arguably produces optimal outcomes of
value-free risk conceptions. With the scientifically backed risk assessment approach, the exercise of precaution is based on sound science and risk assessors are the scientific experts who make decisions on new technologies (Smyth et al., 2017).

Nevertheless, the assumption of a value-free risk assessment process is increasingly challenged within deliberative democracies, where there are various perspectives on potential evidence bases for consideration in decision-making. Stakeholder groups which challenge the scientific rationality regulatory pathway usually cite uncertainty, future environmental risks and potential socio-economic issues associated with the development and commercialization of new biotechnologies.

For the social rationality approach, precaution is interpreted both as a risk assessment and risk management tool (Isaac, 2002). Beyond using the precautionary principle in the same way as the risk assessors in the science-based approach, the principle is also legally used by risk managers in the social rationality approach to respond to non-scientific views and concerns. As a risk management tool, the precautionary principle makes regulation more socially responsive to a wider range of social, economic and ethical considerations. Implicit in the inclusion of these socio-economic and ethical considerations is the possibility of regulators to use the process to preemptively pause a technology to avoid negatively impacting potential non-users or those who might not benefit from it. This then paves the way for prohibitive technology policies that restrict technological access or progress (Smyth et al., 2017). Another fundamental difference between the scientific rationality and social rationality approach to agbiotech regulation is that the ultimate decision on a new technology in the SEC framework comes from a political authority and not a scientific body, as is the case with the science-focused regulation (ibid.).

As shown above, one regulatory approach is based on accepted and tested analytical methods and scientific techniques with results that can be reproduced; the other is not. Rather, social rationality is based on norms and beliefs with no sound analytical framework for the analysis of risks.

While one regulatory approach promotes risk tolerance in the production, commercialization and adoption of new biotechnologies, the other supports risk aversion. The scientific rationality approach encourages an adoption strategy that supports and favours biotechnology development and commercialization, on the basis of having conducted expert-led
risk assessments. The results of the risk assessment process are then factored into the risk management procedure with advice on how any potential risks can be effectively handled. In contrast, the social rationality approach supports risk aversion in biotechnological development and commercialization by considering speculative risks, with no analytical or empirical system of evaluation in the risk management process. The uncertainty that typically characterizes new biotechnologies due to the absence of full knowledge about their consequences, becomes the basis for promoting anti-adoption and anti-commercialization decisions because it is impossible for new biotechnologies to offer a zero-risk guarantee. If ‘scientific uncertainty cannot be reduced to zero’, as Smyth et al., (2017 p. 135) note, then new biotechnologies that are disliked by regulators in the social rationality approach can always be hindered using the precautionary trigger. The question then is: what does all these mean for the social license model, the core inquiry of this research?

Based on these explanations, one could argue that the social license model, with its social mandate that demands business operations meet broader societal expectations or socio-economic and ethical considerations, clearly falls within the social rationality regulatory approach to governing agbiotech. This, therefore, puts social license at variance with the scientific rationality regulatory pathway, making compromise and concession between the two difficult. Smyth et al. (2017) argue that compromise or concession is usually hard to reach when competing parties argue from different frames of reference. The two contrasting approaches are typically applied as parallel regulations, employ different logics and policy instruments and have contrasting conceptions of technology and innovation. This situation is what Isaac (2002) describes as finding a balance between technological progress (scientific rationality) and technological precaution (social rationality).

At the core of the social license model is a conflict about integrating the scientific rationality and the social rationality perspectives on agbiotech regulation. Agbiotech in most nations is principally assessed through RAF, with focus on its implications for agricultural productivity and economic development. A predominant focus on the socio-economic impacts of agbiotech, in contrast, introduces a social rationality perspective into the regulatory process. Many seek integration between the divergent pathways. Despite criticisms of the non-participatory nature of science focused regulation, integration attempts between the polarized
pathways raise many unanswered questions: how should decision-making systems balance scientific and socio-economic inputs? What are the resulting costs and benefits of regulatory integration? What are the strategies for identifying socio-economic considerations and how should their assessments be carried out? Who will govern SECs - a government department or third party? What aspects of the social mandate should be included or excluded in decision-making? The more the issues, the greater the complexities they create (Smyth, 2012; Falck-Zepeda, 2012). If these issues are not clearly addressed, social license will remain a fluid rhetorical model that only adds complexity and impediments to an already complex regulatory process.

One of the most effective arguments against the inclusion of SECs in agbiotech regulation is their ability to be used as justification for non-adoption and non-commercialization of GM foods, as will be shown in the case studies in Chapter 6. The GM foods and technologies explored in these cases were either rejected or had their commercialization halted without any verified, empirical reasons for these decisions. Social rationality advocates argue that SECs are essential for protecting local communities and consumers from potential negative impacts of GM foods. However, the social rationality approach has no approved risk characterization or minimization strategy and no empirical system for quantifying the impacts of GM technologies on human health or biodiversity. Paarlberg (2008) argues that a wide and unspecified inclusion of SECs in agbiotech regulation will ultimately become a key restriction on technology development and transfer.

The competing approaches between the two regulatory trajectories indicate that finding a regulatory model that comprehensively integrates social license within a science-informed regulatory framework will be quite challenging. Social license offers no guidance on an implementation and evaluation process or where and how it fits in the regulatory pathway and policymaking process. Falck-Zepeda (2009) opines that SECs cause regulatory delays, additional compliance costs and generate more uncertainty in the decision-making process because they are inherently controversial. It is likely that countries which are highly supportive of innovation and agbiotech will be more unaccepting of the social license model, while those with sparse investments in biotechnology will be stronger advocates of social license.
4.5 Action Arenas

The action arena, another core unit of analysis in the IAD framework comprises all action situations where individuals, groups or organizations operate as collective actors within a social space. The two principal elements of the action arena are the action situation and the participants who are usually decision-making entities capable of choosing a course of action from a set of alternatives. Interactions within this social space are shaped by contextual factors, with actors exchanging goods and services, defining problems and other issues in different ways, and finding solutions to challenges (Ostrom, 2005).

The aim of this section is not to analyze the micro-behaviour of boundedly-rational actors using heuristics or other psychological theories (for discussion on heuristics, see Tversky & Kahneman, 1974), or to explore group decision-making dynamics like Lewin’s assertion of the effects of situational and dispositional determinants of behaviour as a ‘function of the person and the situation’ (for more discussion on group decision making, see Ross & Nisbett, 2011, p. 32). Rather, the section briefly presents an overview of public engagement initiatives which have been experimented with by some governments, in response to increasing demands for the inclusion of citizen voices in the decision-making process for new technologies. Concerns about public mistrust and concern about who is responsible for evaluating and managing the impacts of new biotechnologies speak to the need for democratic engagement in agbiotech decision-making.

The core objective of democratic engagement is to help move towards obtaining decision outcomes that are acceptable to all stakeholders. Incorporating this participatory component into the science-based decision-making system for regulating transformative technologies is particularly challenging (Smyth et al., 2017). The exclusion of non-scientific actors, especially members of the public, from these expert-based deliberations raises serious questions of legitimacy. Some authors posit that the move towards public participation is a response to an observed democratic deficit (Phillips, 2007), while others assert that it is a strategic response to the widespread controversies in the agri-food space (Medlock & Einsiedel, 2014).

There is a wide array of mechanisms and methods of public engagement including: focus groups, consensus conferences, citizen’s juries or panels, referenda, public opinion surveys; and
citizen’s advisory committees (Rowe and Frewer, 2000). Despite these public participation efforts, there is scant evidence of their effects in actually improving public acceptance or public policy (Phillips, 2009). Phillips (2012) aptly assesses nine different public engagement models against five objectives in the table below:

<table>
<thead>
<tr>
<th>Table 4.1: Assessing engagement as a contribution to democratic norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal participation</td>
</tr>
<tr>
<td>Referenda</td>
</tr>
<tr>
<td>Public hearings</td>
</tr>
<tr>
<td>Public opinion surveys</td>
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<tr>
<td>Negotiated rule making</td>
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<tr>
<td>Consensus conferences</td>
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<tr>
<td>Citizen’s jury/panel</td>
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<tr>
<td>Citizen’s advisory committee</td>
</tr>
<tr>
<td>Focus group</td>
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<tr>
<td>Expert advisory group</td>
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4 The idea of this section is not to explore each of these engagement methods. See Medlock & Einsiedel, 2014, for more discussion on these public engagement strategies.
4.6 Evaluative Criteria

The evaluative criteria portion of Ostrom’s IAD framework assesses the performance of the overall decision system by examining the institutional and actor patterns of interactions and their outcomes. Within the context of this research, this section will evaluate the effects of a broad inclusion of SECs in resolving the principal challenges of the agbiotech sector.

While SECs are useful for considering the impacts of new biotechnologies on the quality of life (social, ethical and economic concerns), they add another layer of complexity to the operating system, as previously mentioned. They can work to impede, rather than facilitate, agbiotech adoption and impose new compliance and implementation costs as well as delays to regulatory decision outcomes.

SECs do not address or offer any solutions to agbiotech’s principal challenges of uncertainty and risks. Therefore, if an agbiotech regulatory framework is overhauled to include SECs without any additional strategies to improve human health or environmental safety, it remains unhelpful to the agbiotech sector because the new regulatory system still fails to address the most fundamental challenges in the sector. One of the biggest challenges of effectively incorporating SECs into science-based agbiotech regulation is the absence of baseline data for socio-economic assessments. Vigorous frameworks or methodologies for framing, gathering and assessing socio-economic data for decision-making purposes are practically non-existent in the literature (Smyth et al, 2017).

4.7 Evaluating Social License Using Elements of the IAD Framework

This second level of analysis briefly uses the relevant elements of the IAD framework (contextual variables, rules in use and action arena) to assess the current design and operation of the social license model. Evaluating the social license model using the IAD framework suggests several design failures.

Misperceptions on the characteristics of the model have led to some people acting as if social license is a common pool resource when it is not. As a result, the model’s governance arrangements are poorly designed. Divisive perceptions and polarized views are key structural characteristics of the model, with industry using the concept in reference to their social
responsibility and civil actors using the term to mean their ability to hinder resource or product development. As previously discussed in Chapter 2, the rules for obtaining or reviewing a social license are practically non-existent. There are no rules to explain, justify or contest social license-related actions and decisions.

The action arenas for social license engagements and discussion participants are not identified in the model’s design. With regards to social license interactions as per the IAD framework, there are no clear-cut methods for engaging and maintaining stakeholder relations or any process to show how people will be brought together for discussions on how to handle concerns and resolve differences. There are also no defined structures for handling collaborative decision-making.

4.8 Conclusion

The theoretical framework used to unpack agbiotech governance in this chapter underscores one major point: social license is, in effect, an attempt at creating regulatory integration between scientific rationality and social rationality decision-making trajectories. The broad social mandate of the social license model firmly situates the concept within the social rationality category. Isaac (2002) describes these divergent pathways as technological progress and technological precaution. While the two regulatory pathways align on a few aspects, their divergence is quite wide, reflecting the polarized nature of the agbiotech debate. Consensus on how to reconcile the two regulatory architectures is absent at almost all levels.

National biotechnology policy regimes which have adopted the social rationality approach might lean towards more public engagement strategies relative to decision-making, while a scientific rationality model will be more inclined to pursue public education strategies and restricted inclusion in the consultation process (Smyth et al., 2017). What this means for social license is that a social rationality regime would be more likely to accept the social license model than a scientific rationality policy regime.

The IAD framework reveals several design failures in the operation of the social license model and exposes the misconception and treatment of social license as a common pool good when in essence it is not. This raises questions about the model’s effectiveness in resolving the challenges it purports to address and if it is the most appropriate tool to deal with these
challenges. Apart from the challenging nature and scope of social license considerations, SECs fail to provide any solutions to the major challenges of risk and uncertainty in the agbiotech sector and are more of an impediment than a facilitator of safe, efficient and equitable biotechnology adoption.
Chapter 5: Method and Methodology

5.0 Introduction

This methods chapter, the first empirical component of this research, addresses three main issues pertaining to the research design and objectives of this study. First, it unpacks what a case study is and justifies the use of a case study method and the qualitative study methodology. Second, it explains how the cases were picked and how they enhance the research objectives. Lastly, the chapter outlines the research design with an explanation of the data collection and analytical methods employed in the study.

5.1 Why a Case Study Approach?

The qualitative methodology and research strategy for this study was guided by the nature of the inquiry and the research questions which the study seeks to answer. As Cresswell (1998) explains, ‘the [qualitative] researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting’ (p.15). Based on this explanation, this research employs a qualitative methodology instead of a quantitative strategy, as the research questions that form the basis of this study make Creswell’s description most appropriate for this investigation.

Opting for a case study method as one of the strategies for data gathering and critical analysis in this study was principally informed by the nature of the subject of investigation, which in this case is to determine the role of the social license model in the agbiotech adoption and commercialization pathway, as well as the model’s added value as a self-governance regime. Yin (1994) defines case study research as ‘an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used’ (p. 13). In agreement with this assertion, Fischer (2003) notes that it is vital to undertake ‘a detailed examination of the circumstances at play in specific cases’ (p. 108). A case study, therefore, entails an in-depth and detailed examination of a phenomenon in a real-world setting. Case studies are most beneficial and useful for in-depth exploration of attention worthy issues, circumstances and events in a real-world context (Crowe et al., 2011).
Yin (2018) unpacks the case study method by providing the circumstances when its use is most applicable. He asserts that case studies are best employed when the study primarily answers the how and why questions and when the researcher wants to deal with contextual conditions which are pertinent to understanding the phenomenon or subject of inquiry. This dissection of the case study method is thoroughly applicable to this study, given that the research questions aim to provide empirical evidence on the social license model’s capacity to either facilitate or impede technology adoption and successful commercialization. The other evidence the study needs is the value addition of the concept as a self-governance model after over two decades of its existence and in comparison with other existing self-regulatory regimes.

There are two principal ways in which the case study method is employed in this research. First, the study uses three Canadian provinces as case studies to provide a holistic picture of the understanding of social license from a uniquely Canadian perspective. Secondly, the dissertation analyzes three different case studies of successful and unsuccessful biotechnology adoption and commercialization. The aim of the multiple case study approach is to show the interplay between social rationality and scientific rationality regimes in real-world situations and how their interactions produce the decision outcomes we see in relation to biotechnological development. This could not have been captured in interview sessions alone. Analyzing these cases of successful and unsuccessful agbiotech adoption and commercialization provides evidence to populate and assess the theoretical models of agbiotech governance explored in the previous chapter. It enhances our understanding of the core components of Ostrom’s IAD framework and amplifies the interconnectedness and interactions between the contextual factors, institutions, actors and action situations and their effects on technological adoption.

5.2 Case Selection

This subsection offers systematic criteria for the choice of cases in this study. As previously mentioned, this research examines three case studies on acceptance and rejection of agbiotech foods and innovation.
Canada was chosen for this study because the nation has established itself both nationally and internationally as a biotechnology powerhouse and a world leader in canola innovation. In spite of the numerous controversies surrounding transgenic crops, Canada’s GM canola has recorded many undeniable benefits. According to a Canola Council of Canada’s 2017 study, the crop makes an annual contribution of C$26.7 billion to the Canadian economy, creates over 250,000 jobs and generates approximately C$11.2 billion in wages. The safe and nutritious canola oil used by families in more than 50 nations around the world, is known to contain the lowest amount of saturated fat when compared to other kinds of cooking oil. Apart from its enhanced nutritional qualities, technological innovations on the crop have made for easier growth, reduced pesticides use, higher yields and profits for farmers, greater resilience to herbicides and pests, reduced greenhouse gas emissions and new market opportunities particularly for specialty varieties targeted towards specific commercial demands (Canola Biotech Report, 2016).

According to the Global Agricultural Information Annual Report (GAIN, 2018) there were approximately 12.2 million hectares of GE crops in Canada: canola, soybean, corn, sugar beets and some alfalfa. In Ontario, for instance, GE corn occupied 89 per cent of the total corn area, while GE soybean occupied 76 per cent. Manitoba, Saskatchewan and Alberta produced 35 per cent of Canada’s soybean exports in 2018. These three provinces also account for the majority of Canada’s canola production covering a total of 9.17 million hectares. These provinces were therefore chosen because of their wide range of agricultural practices and production.

The first case analyzes Canada’s striking success in the global marketing of GE canola. The canola case study is representative of the complexities caused by the divisive global regulatory architecture. An in-depth analysis of the case in chapter 6 shows how the agbiotech regulatory fracture actually leads to duplication of efforts and extra expenses in instances where countries have to fulfill extra compliance criteria to access specific international markets, despite having received domestic regulatory approval for their products.

The second case explores the commercial failure in the 1990s of Monsanto’s GM potato variety, NewLeaf, that offered plant protection from Colorado potato beetle. What is striking about this case is that the GM potato was initially adopted by potato farmers, but heightened consumer resistance hindered the continued use of this product in the frozen fry sector.
Case study number three examines the massive global failure of the Genetic Restriction Use Technologies (GURTs), a case that has been described as one of the most controversial and opposed GE biotechnologies in history (Lombardo, 2014). Although GURTs were not commercialized, the announcement of their patent incited great controversy and mass protests across the globe.

The comparative case study provides an analytical framework for examining and explaining diverse social license operations at different stages of the technology development, adoption and commercialization process. The three cases also have important differences between them. Beyond technological success and failures, they address social license operations at different levels - national and international. The multiple case approach also provides an opportunity to observe social license applications from different angles, a strategy that strengthens and increases the validity of the findings of this study.

Each of the cases was selected because they are representative samples of the operationalization of social license in the agri-food sector. Beyond this representativeness, the cases also provide an opportunity for a comprehensive study of social license as a real-life phenomenon within the biotechnological context in which it happens. The cases also describe the operations of social license considerations and explore how the events and interactions among diverse actors produce biotechnological success or failure.

All three cases fit with the IAD framework and offer an opportunity to interrogate agbiotech governance. The two cases of unsuccessful agbiotech adoption and commercialization share important similarities that are of strong analytical significance to this study. Both cases are classic examples of the role of social license or socio-economic considerations in accentuating biotechnology rejection or commercialization stoppage and stifling innovation and economic development. Both cases also substantiate earlier assertions in this study that elevating social license to a concept with veto power can be problematic, as it challenges democratic institutions and threatens the rule of law. Social rationality claims caused the sale of NewLeaf potatoes to be halted even after statutory approval, while similar socio-economic and ethical claims sparked global protests in the GURTs case. These outcomes amplify the insights from the literature analysis and conform to the research hypothesis. Consequently, the chosen cases provide an
essential connection between the initial research thoughts and final conclusions, appropriately answer the research questions and help meet the research objectives.

A further justification of the case selection is the comparative value of the cases and the transferability of the findings to other situations involving the operations of the social license model in the agbiotech sector. Two of the cases directly involve Canada and concerns around GM foods, while the GURTs debacle is a high-profile case that generated worldwide protests. This directly links to what Stake (1995, p. 3) refers to as ‘instrumental case studies’, where cases are studied with the aim of having a broader understanding of a phenomenon not limited to the case study. Beyond their specific circumstances, all three cases provide in-depth explorations and appreciation of scientific rationality and social rationality complexities in a real-world context and increase the validity of the data results.

5.3 Research Design

Within the broader case study methodology, this research also employs process tracing and discourse analysis for its analytical methods. The main purpose of process tracing is to identify causal links and relationships. Beach (2016) asserts that ‘process tracing involves tracing causal mechanisms that link causes (X) with their effects (i.e., outcomes) (Y)’ (p. 463). For Campbell (2002), researchers can use process tracing to illustrate ‘how specific actors carried certain ideas into the policy-making fray and used them effectively’ (p. 29). Process tracing is used in this research to understand how the inclusion of socio-economic considerations in agbiotech decision-making affect technology adoption whether positively (acceptance) or negatively (rejection). Expressed differently, it is used to determine whether and how the social license model influences decisions on agbiotech adoption and commercialization.

In this study, process tracing is used alongside discourse analysis. Hajer (1995, p. 60) defines discourse as “a specific ensemble of ideas, concepts and categorizations that is produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities.” In a later piece, the author defines discourse analysis as a technique to analyze what language does, the politics of meaning, and how it affects perceptions, cognitions and the distribution of power. Discourse analysis is distinct because of its regularities
in the use of language. Further to this, discourse analysis also suggests that certain language structures influence politics (Hajer, 2013). According to Hewitt (2009), discourse is synonymous with discussion or dialogue. The essence of discourse analysis is whatever constitutes the story of a discussion or dialogue. The analysis depicts patterns of language use and the creation of narratives with the aim of gaining new insights. For Harwood (1988) discourse analysis examines how the “placement of people in different social positions with accompanying divergences of interest, leads them to have different and sometimes conflicting perspectives, articulated in different vocabularies (“discourses”) (p. 99).

In this research, discourse analysis is employed to analyze the social license scholarship, documents and interview transcripts in order to understand the various conceptualizations of the model by agri-food stakeholders and other authors, as well as the implications of these varying conceptualizations. As established in Chapter 1, the varying conceptualizations and applications of the model have different implications for public policy, democratic legitimacy and the rule of law. This shows that the ways in which social license is conceptualized, defined and used in public discourses across the agbiotech supply chain and the entire agri-food sector, produce outcomes which are vastly divergent from the initial purpose which the model was intended to serve.

5.4 Data Gathering and Analysis

The critical assessment of the social license model in this study is based on three principal data sources: review of relevant literature (discussed in Chapter 2); analysis of cases of successful and unsuccessful biotechnology adoption; and semi-structured interviews with key stakeholders in the agbiotech supply chain in Canada to provide a real-world context for the study. The data triangulation between these diverse sources is based on the recommendation of Denzin and Lincoln (1994) who propose this strategy as a sound approach to case study research. Triangulation simply refers to the use of multiple methods of data collection for the same topic or use of multiple approaches for data analysis of the same topic. The aim of triangulation is to enhance the research results.
This research received its approval from the Research Ethics Board at the University of Saskatchewan in November 2019. Following Hajer’s (2006) discourse-oriented research direction, the research started off with a ‘desk reading’ (p. 73) or exploration of relevant articles and documents to determine how the social license model emerged and its subsequent evolution over the last two decades. There were a few informal discussions with some actors in the agbiotech space aimed at understanding some of the different perspectives on the model. These informal exchanges were followed by an in-depth document analysis to pinpoint story lines, narratives, conceptual understandings, and implementation of the social license model as a governance tool. Semi-structured interviews were then conducted with key actors across the agbiotech supply chain in Canada, to determine variations in conceptualizations, understanding and practical applicability of the model within this sector. The interviews were targeted on Canada and three provinces: Saskatchewan, Ontario, and Alberta. Manitoba was initially included, but there was no response to the more than 70 research participation invitations sent to the various agbiotech stakeholders in the province.

5.4.1 Interview Process

Between March 2020 and February 2021, a total of 27 interviews were conducted with key agbiotech supply chain stakeholders across three Canadian provinces (Appendix A). These stakeholders include public servants, executives from multi-national firms, food processing and seed manufacturing companies, executives of farmer organizations, research organization professionals, civil society organizations executives and farmers and members of the general public. Ten interviews were conducted in Saskatchewan, twelve in Ontario and five in Alberta.

The interviews were scheduled according to the participants’ availability and were recorded. All relevant aspects of each audio recording were later transcribed into word documents for further analysis. While transcribing, interviewees were emailed for clarifications for some issues raised in the discussion (as needed). Using NVivo qualitative software, the transcribed interviews were manually coded according to the emerging themes from the collected data.

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1 Appendix A contains the interview questions.
data. Coding the data entailed a rigorous process of identifying major themes across the data. These themes were entered as nodes on NVivo. Sub-themes were subsequently developed for the key themes as needed. These were entered as child nodes under the appropriate parent nodes.

5.4.2 Data Analysis

The data analysis was structured around thematic analysis, which as an analytical method, entails searching through data sets to identify, analyze and report common themes and repeated patterns (Braun and Clarke, 2012). Braun and Clarke (2016) assert that thematic analysis is a suitable and powerful method to employ when there is a need to understand experiences, thoughts or behaviours from a data set or when the data needs to be explored for a shared or common meaning (Braun and Clarke 2012).

First, the study wanted to gain insights into the way social license is conceptualized, interpreted and operationalized in Canada’s agri-food sector. Second, it sought to understand what agri-food sector stakeholders thought about social license and other existing voluntary self-governance regimes, in terms of whether they compete or complement each other. Third, the interviews sought to unpack what stakeholders thought about the future and sustainability of the social license model. The empirical and thematic analyses of the information gathered from the discourse and document analysis, as well as interviews, were used to critically assess the social license model and in determining if the model is actually solving the problem it was intended to resolve.

5.5 Conclusion

The comparative case study approach offers some valuable strengths to this research. It enabled the study to be conducted in a real-world setting and provided a unique opportunity for demonstrable institutional and governance analysis of agbiotech. The study was able to provide a critical and holistic evaluation of the social license model by analyzing perceptions, conceptualizations, actors, institutions and action situations and the interplay of these factors.

Some may question the analytic generalizability of case-study methods in qualitative research. While this question may be valid, Yin (1994) argues that the value of generalizability in case studies is the fact that ‘a previously developed theory is used as a template with which to
compare the empirical results of the case study. If two or more cases are shown to support the same theory, replication may be claimed” (p. 32).
Chapter 6: Agbiotech Landscape and Comparative Case Analyses

6.0 Introduction

This chapter introduces the first empirical part of this research. It presents and analyses three cases with different scenarios that enhance our understanding of the dynamics between science-based and socio-economic based regulations in a real-world context. By exploring these cases, this chapter considers the role of social license in facilitating or impeding agbiotech adoption and commercialization and the extent to which the concept of social license can be applied in practice.

There are two orders of analysis in this chapter. The first explores what happened in each case study and the second assesses whether the social license operations were duly constructed as a common pool resource with the appropriate attributes to effectively address concerns or achieve market acceptance.

The chapter begins with a discussion on Canada’s agbiotech landscape and then adapts the IAD framework to show the interplay between scientific rationality and social rationality or SECs and their effect on biotechnology adoption and commercialization. It illustrates that SECs which are largely propagated by civil society actors, most often hinder adoption decisions and sometimes promote biotechnology rejection even after regulatory approval has been earned. While there is no one-size-fits-all model for securing acceptance, the chapter also amplifies the assertion from the previous chapters that the social license model fails to resolve biotechnology’s most pressing challenges of risks and uncertainty.

This chapter also discusses Ostrom’s (1998) collective action theory which explains the challenges faced by collective actors with conflicting interests, working together to achieve a common objective.

6.1 The Complexities of Agbiotech

The agbiotech space is a complicated one. Biotechnology has proven itself as one sector characterized by complex, contentious and endless debates (Bovenkerk, 2012). As noted in chapter one, the Convention on Biological Diversity (CBD) defines biotechnology as “any technological application that uses biological systems, living organisms, or derivatives thereof, to
make or modify products for specific use” (Secretariat of the Convention on Biological Diversity 2005, p. 89). For Bovenkerk (2012), biotechnology is a ‘technology that uses living organisms in order to create or change plants, animals, or microorganisms for specific purposes, such as medical research or agricultural production’ (p.1). As previously noted, the use of biotechnology in the domain of agriculture has brought significant benefits, however, the challenges in this sector are multifaceted. Agbiotech remains hugely controversial, raising questions about health and environmental safety as well as ethical concerns. For Gallois et al. (2017), technological developments, whether vaccines, drugs, GM foods or recycled water, come under very close surveillance with every single innovation because of the uncertainties associated with their use.

Modern agbiotech has also been the focus of intense debate due to its potentially profound effect on the livelihoods of diverse stakeholders such as farmers in developing economies, biotechnology companies, employees and consumers around the globe. This debate is further exacerbated by different dimensions of contentions which make it intractable (Bovenkerk, 2012). Different levels of disagreement in this field involve contrasts in values, beliefs and world views. Although the debate usually assumes a narrow focus on the risks and benefits of biotechnology, the arguments by both proponents and opponents apply to a broader spectrum of ideas or concerns which cannot be neglected. These concerns are either economic, social, environmental, ethical, or regulatory. Consensus on agbiotech arguments have generally been hampered by scientific uncertainty, particularly when dealing with risks involving novel technologies.

Before delving into case studies on the complexities of agbiotech adoption and commercialization, it is important to have an understanding of the way agbiotech is regulated. This next section provides a brief overview of how agbiotech is regulated in Canada.

**6.2 Canada’s Agbiotech Regulatory System**

The principal objective of regulation is to ensure safety and protection of the society, community and environment from any harm. From a biotechnology perspective, legislation may be established to stifle or promote innovation as it restrains certain technological operations through licensing or promotes marketing via intellectual property rights (Lassoued et al., 2018).
Regulatory strategies to control and manage the safety of genetically engineered processes and products especially in agriculture have been quite contentious and factious. These disagreements have led to divergent approaches in regulating safety in various jurisdictions, despite the international science communities’ consensus on underlying principles of risk assessment and risk management (McHughen, 2016). According to Smyth et al. (2017), the key focus of any governance and regulatory structure for biotechnology is the reduction of risks. This is particularly so for all transformative technologies which bring with them some level of uncertainty because of their novelty and the incomplete knowledge on the effects of their application and use. The risk-reduction focus of regulation has necessitated the creation of a risk analysis framework, which is a standardized format developed by regulators to handle risks associated with new technologies.

The risk analysis framework (RAF) comprises risk assessments and risk management with risk assessment being the main scientific component that identifies the types of risks connected with a specific product or activity and a calculation of the probability of an unwanted event or threat. Risk management is principally conducted by regulators whose task is to determine the appropriate risk reduction strategies, based on the scientific data received from the risk assessment process. The two components have very distinct roles and responsibilities: while risk assessment is a purely scientific undertaking executed by competent scientists, risk management is a risk reduction exercise carried out by scientifically trained regulators (McHughen, 2016).

There are other explanations on the risk analysis framework in the agbiotech literature. Smyth et al. (2017), for instance, note that the US National Research Council’s (1983) report to the US federal government, which is also referred to as the ‘Redbook’ on the RAF (NRC 1983, p. 3), defines risk assessment as “… the use of the factual base to define the health effects of exposure of individuals or populations to hazardous materials and situations”, while risk management is defined as “the process of weighing policy alternatives and selecting the most appropriate regulatory action, integrating the results of risk assessment with engineering data and with social, economic, and political concerns to reach a decision” (NRC 1983, p. 3).

There are two major regulatory approaches to regulating biotechnology: the process-based and product-based regulation. Various jurisdictions adopt different regulatory pathways:
the European Union uses the process-based approach, while the US and Canada have adopted the product-based regulatory system. As Marchant and Stevens (2015) explain, regulatory requirements for the product-based approach are determined by the final product, ideally without any consideration of the production process. Meanwhile, regulatory requirements for the process-based approach focus on the product’s production process. One central premise of the process-based approach is that products derived from a regulated process are essentially different or more hazardous than other related products obtained through other methods. For instance, the basic assumption for GMOs in a process-based approach is that products derived from genetic engineering tend to be more hazardous than similar products obtained through other methods. Marchant and Stevens (2015) argue that this assumption is contrary to the National Research Council’s (NRC, 2004) conclusion (based on a scientific consensus) that GMO classified products do not pose any threats different from conventional foods or foods obtained from other processes. According to Bartkowski and Baum (2019), the product-based approach usually prioritizes scientific risk and the predominant safety benchmark for products developed, whether through traditional breeding methods, genetic engineering or genome editing, on whether they generate effect on a variety of issues including human health and the environment other than found in preexisting commercial products. From a regulatory stance, products are considered equal when there is a lack of evidence of any differences between crops, regardless of their breeding technique. In contrast, the process-based system specifically focuses on the key differences in the underlying processes of the two approaches. Canada has adopted a product-based approach to biotechnology regulation, meaning the Canadian regulatory system is greatly focused on detecting and regulating novel traits, and many new biotechnological approaches and other genomic techniques are not formally within the purview of most regulation (Migone and Howlett, 2010).

As Phillips et al. (2006) explain, two agencies, Health Canada and the Canadian Food Inspection Agency (CFIA), oversee Canada’s formal risk assessment process to evaluate the food, feed and environmental safety of all plants with novel trait (PNTs). Food safety and human health-related issues regarding novel traits are addressed by Health Canada, which assesses their molecular classification to determine any differences in nutrition or composition and to identify any potential toxic effects. Similarly, CFIA reviews the safety of every new crop as feed, as well
as issues related to its environmental impacts. The Feeds Section of the CFIA evaluates the molecular characterization of the novel trait and assesses the results of feeding trials in selected animals to determine any nutritional or toxic reactions. The field trial results and findings from other studies are used by the Plant Production Branch of CFIA to determine the environmental safety of the novel traits. CFIA also carries out regular inspection and monitoring to ensure that registered products continually satisfy quality and safety requirements after approval.

Apart from the Health Canada and CFIA assessments, all novel plant categories must comply with the stipulations of the Seed Act, which demands the assessment of their ability to produce the desired or intended results. There is also the Plant Biosafety Office (PBO), another arm of CFIA, which coordinates the final assessment and announces the decision on releasing PNTs into the environment. In summary, Health Canada institutes “science-based regulations, guidelines and public health policies” for foods with novel traits, while CFIA ensures the protection of ‘Canada's food supply and the health of plants and animals’ (www.inspection.gc.ca).

After briefly examining Canada’s regulatory system, this research now uses three distinct case studies to explore agbiotech’s regulatory dynamics and the effects of the social license model on technology adoption and commercialization.

### 6.3 Case Analyses

The case analyses aim to provide an understanding of the operations of social license or SECs in a real-world setting, in order to determine its influence on biotechnology decision outcomes.

All three cases in this chapter are analyzed using the core components of the institutional Analysis and Development (IAD) framework because of its diagnostic and analytical capabilities and its principal theoretical reference in this research. The cases illustrate different scenarios of real-world social license challenges in the regulation of agbiotech. The aim is to understand the complex institutional arrangements in each case and to analyze how the contextual factors and patterns of interactions among stakeholders produced the final outcome for each biotechnology application. The analysis also explores the working rules, regulations and norms used in making decisions in each context.
As Ostrom explains, the working rules which explain and justify stakeholder actions within an action situation should be combined with other elements of the framework, namely the biophysical variables and community attributes for a holistic analysis. The case analyses in this research follows this prescription. The action situations in each case speak to the rules and regulations that structure the relationship and interactions among the various stakeholders.

As noted in Chapter 4, there are several international initiatives involved in the regulation of biologically derived food and crops. This has led to wide differences in import-approval and commercialization policies for transgenic and GM foods and their by-products worldwide (Smyth et al., 2017). The chapter also examines the operational dynamics that underlie the regulatory divide between the scientific rationality and social rationality approaches in the international regulation of agbiotech.

As explained in Chapter 2, social license was uniquely used to describe the challenges of mining companies regarding the building of relationships with local communities where their mines were located. As Cooney (2017) explains, this was at a time when many developing countries began accepting foreign investments in mining for first time since the 1960s. Local community concerns about reducing potential risks from mining activities or maximizing potential benefits in their best interests were often disregarded by national governments. All issues raised by these remote communities were rarely considered in government permits and regulations. National governments in most developing countries at the time were principally focused on overall national interests and not the concerns of specific communities in the granting of permits to mining companies (ibid.) Within this developing country context, social license generated some value for mining companies and the affected communities as the two worked together in the absence of the state to moderate the relationship, given their lack of consideration for the concerns of affected communities and their environment.

With the broadening of the concept as it moved from the developing to the developed world, social license in Canada now includes environmental and climate change impacts, legitimacy and fairness in regulatory processes, as well as other socio-economic and ethical considerations (Colton et al., 2016). In the mining context in developing countries, social license represented a collective action solution to a governance problem, but the application of the
concept within a Canadian setting produced three different outcomes as the cases show: successful, truncated and blocked launches of GM foods and tools.

The social license application in each case study is treated separately in this analysis because there were different agencies involved, with different representatives of the collective action problem and completely different outcomes for each case.

6.4 The Canola Case Study

Case Outline

The canola case study tells the story of Canadian GM canola. There are three principal markets for Canada’s canola: the EU, US and China. The US and EU rank as Canada’s first and second trading partners respectively. However, for the purposes of this analysis, the sole focus will be on the EU biodiesel market for two principal reasons. First and foremost, it tells the story of the successful commercialization of Canadian canola after a previous ban by the EU. Second, it is a classic illustration of the dynamics of operations between the science rationality and social rationality regulatory architectures (discussed in Chapter 4) at the international level. While the US, Canada and China willingly develop and adopt GM and transgenic crops, the EU has expressed its reluctance to accept GM crop varieties for cultivation and undifferentiated food imports. In order to adapt to the conditions of a divergent market, Canada has to respect and fulfil all market conditions imposed by the EU’s regulatory structure.

The Case

A major focus in this case is on the re-approval of Canada’s canola by the EU after a six-year de facto moratorium (1998-2004). The case involved a mix of national and international actors from various sectors and the agbiotech supply and value chain.

Genetically engineered canola was first introduced in Canada in 1996 (Canola Council of Canada, 2016)\(^1\). As a multi-purpose crop, canola can be used as cooking oil, ingredient for processed foods, biofuel production, animal feed, and is currently being explored by Canadian

companies for use in plant-based protein for human consumption.\(^2\) Canola oil ranks high among the healthiest culinary oils and contains the least amount of saturated fats of common cooking oils (ibid.). It is the second largest oilseed crop after soybeans.

Downey\(^3\) explains that the canola story started in 1942 with the use of rapeseed oil to ensure that the trains and ships used in World War Two were adequately lubricated. The commercial production of rapeseed oil in Canada started in 1943 and quickly expanded in the subsequent years. The canola market was greatly threatened by the end of the war, until a market was found in Japan where rapeseed oil was used for traditional deep frying. Canada exported 90 per cent of its rapeseed oil, but some companies started domestic commercialization in the early 1950s. Rapeseed oil was shown to have nutritional problems when lab animals fed with the oil developed enlarged adrenal glands and demonstrated poor performance under stress, as a result of the fatty acid composition of rapeseed. To rectify this nutritional challenge (high eicosenoic and erucic fatty acid contents), Canadian researchers used conventional plant breeding methods to eradicate the undesirable components of rapeseed and developed new low erucic acid and low glucosinolate cultivars called canola (ibid.). Further research on the canola plant led to the development of cultivars that are tolerant to particular herbicides or groups of herbicides via mutagenesis and gene transfer.

Brewin and Malla (2014) describe the modification of rapeseed into canola and the subsequent biotechnological transformation of open-pollinated canola into herbicide tolerant and hybrid canola as an agronomic revolution. The modification of rapeseed to canola led to major increases in quantity, quality and produce revenues. According to the Canola Council of Canada, herbicide-tolerant (HT) canola enables farmers to dramatically reduce the amounts of herbicides for weed control without damage to the canola seedlings. Between 1996 and 2013, the use of herbicides declined by 17.9 per cent. The overall reduction in herbicide usage was 15.8 million kilograms (Brookes & Barfoot, 2015). ‘Herbicide tolerance is now a trait in most of Canada’s

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\(^2\) https://www.canolacouncil.org/about-canola/industry/

\(^3\) https://www.saskcanola.com/about/story.php
canola crop [and]… a key tool in the supply of hybrid canola seed.’ (Brewin and Malla, 2014, p. 634).

Trade is crucial to Canada’s canola success because over 90 per cent of the cultivar is exported as seed, oil or meal (cafta.org). According to the Canola Council of Canada, the EU’s biofuel market represents a remarkable opportunity for the sale of Canadian canola. However, Canada’s trade relation with the EU has not been smooth because food safety concern is a major challenge when selling to the EU market. As Harb (2001) explains, EU regulatory failures in handling the mad cow disease and the foot-and-mouth disease created fear and public distrust in the regulatory systems. To correct any possible lapses in its food safety control system, the EU has adopted a precautionary approach for its regulation of biotechnology.

In 1995, Canada’s revenue from exports of GM canola to the EU was C$425 million. These exports were terminated in 1997 due to the EU’s regulatory structure that demanded segregation of GE canola and natural canola (Boyens, 2001). In 1998, the EU rejected the experimental and commercial growth of all plants with novel traits and all imports of GM foods and food products. This marked the effective start of a de facto moratorium that lasted until 2004. There were no new authorizations for GM foods or plants during this period. In 2003, the EU introduced strict labelling and traceability controls for all GMO food and feed. In that same year, Canada, Argentina and the US, challenged the EU’s moratorium on GM foods and food products at the World Trade Organization (WTO), arguing that the embargo has no scientific backing and is illegal. Canada also asserted that the EU moratorium on the approval of biologically derived products restricted the import of food and other agricultural products from Canada and the US (Lieberman and Gray, 2006).

In 2004, the European Commission (EC), the executive branch of the EU, approved the import of Syngenta’s insect resistant corn, ending the ban on GM foods and products. Two years later, WTO’s Dispute Settlement Body (DSB) ruled on the illegality of the EU moratorium under trade rules. In 2007, Canada and the EC informed the DSB about their mutual agreement to implement the ruling and recommendations within twelve months. In July 2009, both parties notified the DSB of their agreement to start a bilateral dialogue on a mutually beneficial

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4 https://cafta.org/trade-is-my-future/
agbiotech market access. That same year, the EC approved Canada’s canola seed for the first time since 1997, paving the way for the resumption of trade between Canada and the EU. According to the Canadian Grain Commission, 95,000 tonnes of canola oilseeds were exported to Portugal during the first half of the 2009-2010 shipping season\(^5\). The Canola Council of Canada valued the EU’s consumption of Canada’s Canola in 2019 at C$1.3 billion.\(^6\)

The EU is the world’s leading biodiesel consumer and all Canadian canola exports go to its biodiesel market and not the food markets. The seeds are primarily used for diesel production in some European countries. As a renewable fuel, canola is perfect for biofuel production because it a low-carbon and sustainable resource. It is blended into diesel fuel for use in vehicles, long-haul trucks and industrial equipment. The Canola Council of Canada notes that ‘canola-based biofuel reduces lifecycle GHG emissions by up to 90 per cent, compared to traditional diesel.’\(^7\)

As part of its market access insurance strategy, Canada reduces export risks by maintaining ‘advanced international low-level presence policies for approved biotech crops’ (ibid.). Canada also commits to preventing biotechnology-related trade barriers via the Canada-EU Trade Agreement (CETA) and the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP). CETA reduces tariffs and improves market access for goods and services for businesses in both the EU and Canada.

Despite Canada’s internationally recognized science-based rules for the approval of biologically derived products, Canadian canola still has to fulfil the EU’s rigorous sustainability demand of securing annual sustainability certification in order to access the EU biodiesel market. The voluntary certification scheme is proof that Canadian canola is produced in compliance with the EU sustainability criteria and is a mandatory condition for market access or acceptance. The EU’s sustainability criteria are aimed at ensuring carbon savings and protecting biodiversity. Several schemes also consider additional sustainability aspects such as soil, water, air protection and social criteria.

\(^5\)https://www.producer.com/markets/eu-taking-canadian-canola-again/

\(^6\)https://www.canolacouncil.org/markets-stats/top-markets/

\(^7\)https://www.canolacouncil.org/biofuels/#footnote_1_3259
The certification process consists of an external auditor and verification of the entire production chain from the feedstock growers to the biofuel producer or trader. Although the certification schemes are privately-owned, they are recognized by the EU when they meet the commission’s stipulated recognition criteria. Certification is valid for one year and renewed annually. A small, random sample of supply chain actors are assessed annually as part of the certification process. Each actor in the assessment process must meet all criteria and a certificate of sustainability must accompany all canola destined for EU markets. Canada’s canola sector uses the International Sustainability and Carbon Certification (ISCC) and the Biomass Biofuel, Sustainability Voluntary Scheme (2BSvs) for its EU certification.

The Analysis

The actors in the canola case involved a mix of government, economic and non-economic international actors such as the European Union, the World Trade Organization’s (WTO) Dispute Settling Body (DSB), third party quality certification bodies, Canada and other important canola producers like the US and China and eNGOs (e.g., Greenpeace). Two divergent regulatory pathways were in operation for the commercialization of Canada’s GM canola: Canada’s science-based system and the EU’s precautionary approach which highly supports the inclusion of SECs in agbiotech decision-making. Although Canadian canola secured domestic approval via its science based regulatory framework, it was unable to secure initial market access in the EU primarily because of its precautionary approach which Canada considers as a trade barrier. The EU banned imports from Canada soon after Canadian farmers started growing genetically modified canola in the 1990s.

According to Harb (2001), several EU member countries decided to stop regulatory approvals of new biologically derived varieties of agricultural products despite the EU Commission’s approval. When the EU Commission proposed an unblocking strategy and revised EU regulations for approval of GM varieties which had been adopted by the EU Parliament in 2000, the member states that had previously blocked GMO approvals pushed for additional modifications on the GM labelling and traceability systems. They also demanded specific documents for GM grains and oilseeds shipments to the EU. Anti-GMO sentiments were further
consolidated by groups like Greenpeace which had gained more credibility on ecological issues than most European governments. Harb (2001) also recorded the testimony of one witness who asserted that the trade challenge between both parties was more political than technical, with 80 per cent of the EU’s decision based on perception and just 20 per cent on science. The author then concludes that the ‘failure to recognize Canada’s standards is as much a political problem as a scientific one.’ (Harb, 2001, p. 46).

The decision to ban biotechnology products in the EC was interpreted differently on either side of the debate. For the EU, the decision was an attempt to rectify deficiencies in their food safety control systems, regain consumer confidence after a series of food safety crises and maintain public health. For Canada, the EC’s ban on the approval of biotechnology products limited the importation of agricultural and food products.

Implicit in the use of standards to overcome international market resistance to GM products and generate social license is the notion that social license as an outcome or end result can be achieved through other self-regulatory systems. As was illustrated in the canola case study, the inability to reconcile two contrasting regulatory frameworks, led to a prior non-adoption decision and eventual ban of GM canola in European markets. Even the WTO ruling did not grant Canada an automatic market access into the EU. Canada still had to comply with the EU’s sustainability criteria for access to its market. Complying with the regulatory demands of a contrasting international regulatory architecture means extra-expenditures and longer regulatory approval wait times because the certification criterion must be achieved before market access is granted.

The canola story clearly illustrates how the certification standard overcame market resistance and generated social license. The divergent international biotechnology regulatory architectures for Canada and the EU create huge obstacles for social license or agbiotech acceptance. The absence of a standardized international framework that can be used across major platforms to meet market demands and fulfilment of sustainability criteria, makes securing international approval more of a duplication of efforts, especially when prior approval had been nationally secured.

Social license or market acceptance in the canola case was predominantly driven by local farmers and local farm organizations, with no third-party organizations or international groups
playing a major role. The farmers’ commitment to ensure a social license or acceptance of their canola in the EU market is demonstrated by their willingness to engage in the certification of their canola produce. Similar to social license initiatives in the developing world’s mining sector, everyone involved in the major discussions on market acceptance or social license had personal investments in the canola industry, with vested interests in successful commercialization. The result were conditions for EU market access which were generally agreed on by all parties after several consultations.

Another advantage in the canola case is the fact that unlike potatoes, nobody eats canola as a whole food. It is largely consumed as cooking oil and has several non-food uses.

### 6.5 The NewLeaf Potato Case Study

#### Case Outline

The second case analysis explores Monsanto’s transgenic potato which was genetically engineered to resist the Colorado potato beetle and potato leafroll virus (Thornton, 2003). In 1998, Monsanto received regulatory approval for the commercialization of its transgenic potato variety called NewLeaf in North America. The GM potato variety was hugely successful in addressing potato pests and diseases challenge at the time and was largely adopted by farmers, processors, food chains and consumers in the region. A year later, anti GM activists raised questions about the environmental and nutritional safety of the transgenic potato. As the activists-led campaigns and market uncertainty around NewLeaf potato intensified, global food chains and processors banned GM varieties and potato growers ceased all production of the transgenic crop. Monsanto eventually withdrew from the potato business after the NewLeaf variety failure.

#### The Case

From 1998 through 2001, Monsanto’s GM potatoes were sold in the United States and Canada under the brand name NewLeaf. The transgenic potato contained a toxin-producing gene that repels the Colorado potato beetle bug and was marketed to farmers as a great variety with
pesticide reduction capability. The NewLeaf potato varieties gained popularity with growers and consumers because of their ability to eliminate intensive pesticide use via a technology that was present in the potato seed (Thornton, 2003). The potato leafroll virus and Colorado potato beetles are major pests in both Canada and the US. According to the US Department of Agriculture (USDA), more than half of the insecticides applied on potato annually is aimed at controlling these two pests (Lawson et al., 2001). According to the Canadian Food Inspection Agency (CFIA), the Colorado potato beetle is the most harmful insect pest of potato in Canada and, so far, there are no conventional potato varieties that are resistant to the beetles. Unchecked attacks from the Colorado potato beetle can lead to approximate yield reductions of up to 85 per cent. To date, the pest is primarily controlled by use of insecticides with variable effectiveness depending on other factors such as insect sensitivity and environmental elements. Other strategies such as crop rotation, trap plots and vacuum suction have been less effective. The potato leaf roll virus, for its part, results in a yield loss of about 75 per cent (www.inspection.gc.ca).

Potato production is both costly and risky. A major part of the production cost is due to high pesticide use from the potato’s vulnerability to attack from insects, disease and pests. As a result, over 80 per cent of potato farms require frequent herbicides, insecticides, and fungicides treatments (Weise et al., 1998). It is for this reason that a biotechnology approach that offered genetic resistance and reduced pesticide use was readily accepted by both consumers and producers. Thornton (2003) opines that the NewLeaf potato had the fastest adoption rate for any new transgenic variety in the history of the US potato industry. The potato successfully secured regulatory approval in both the US and Canada, but eventually became a commercial failure.

The principal objective of NewLeaf potato varieties was to resolve potato pests problems in a way that would significantly reduce or completely rule out the need for pesticides (Kaniewski and Thomas, 2004). NewLeaf potato thus provided several benefits to farmers: higher yields and superior crop quality with no damage from pests and significant reduction in the use of pesticides. Kaniewski and Thomas (2004) also write that the demand for NewLeaf potato surpassed its supply.

NewLeaf potato secured approval from Canadian and US regulatory bodies in 1998 and 1999. The approval which was obtained after consultations and mandatory reviews by the US Food and Drug Administration (USFDA), the Canadian Food Inspection Agency, Health
Canada, the Animal Plant Health Inspection Service (APHIS) of the USDA and the US Environmental Protection Agency, made commercialization of the crop possible in North America. Genetically modified varieties were approved for food export to Japan, Mexico, Australia, Bulgaria, Romania, and Russia (Kaniewski & Thomas, 2004).

Approximately 60 per cent of the potatoes produced in North America is processed for restaurants and food service outlets whose services are expected to align with consumer preferences and demands. Trouble erupted for the GM potato when activists-led campaigns against NewLeaf potato emerged in 1999. Soon after, fast food giant McDonald decided to ban transgenic crops from its food chain. McDonald’s decision and the concerns raised by European export markets, caused potato processors to suspend all contracts with GM potato growers. Most processors ordered their farmers to halt production of the transgenic potato. Consequently, Monsanto withdrew its transgenic potato from the market in 2001 (Lawson et al., 2001).

The heated activists-led public debates on the risks and benefits of biotechnology also triggered attempts by the potato industry to segregate transgenic crops, in order to meet the needs of non-GM consumers. However, the segregation attempt failed because the required testing procedures and segregation methods were still underdeveloped at the time (Lawson et al, 2001). The cost of compliance to demands for segregation and differentiation between GM and non-GM products stemming from divergent opinions on biotechnology, was a major issue in the commercial failure of NewLeaf. The compliance protocols only compounded an already expensive regulatory process which was required to initially bring the crop to the market.

NewLeaf potato witnessed a rapid decline in production acreage as environmental activists engaged in public debates and as processors and other food outlets shied away from using the transgenic potatoes. Thornton (2003) notes that by 1999, NewLeaf potato had been planted on about 55,000 acres of farmland in North America, but the acreage dropped by roughly 50 per cent two years later. The potato made up less than 4 per cent of the total potato production in the US.

In 2001, Monsanto decided to close the potato division in order to focus on other opportunities for their biotechnology efforts. Due to the role of activists in the commercial failure of NewLeaf potato, Kaniewski and Thomas (2004) found it ironic that the same
environmental activists who cited pesticide reduction as a principal objective of their campaign, became the suppressors of the scientific solution intended to produce the required result.

**The Analysis**

The NewLeaf potato case is an excellent illustration of the effects of socio-economic considerations (SECs) championed by the civil society, on biotechnology commercialization and its role in impeding an innovation that could resolve pressing agricultural challenges. The GM crop had already been adopted by growers, processors, food services and consumers before environmental activists’ campaigns and public debates began to trigger changes and new demands in consumer preferences.

According to the transgenic potato story, the successful activist-led campaign against NewLeaf started in 1999. The principal actors in the case, were the agbiotech and supply chain actors such as McDonalds, McCain Foods, USDA, CFIA, NGOs, and potato consumers in North America. As is usually the case with most biotechnology products, public debates focused on the risks and benefits of biotechnology on human health and the environment (Thornton, 2003).

The potato processing sector was subjected to more pressure because more than half of the potatoes grown in North America is processed for use in restaurants and food service stores (ibid.). Thornton (2003) notes that as attempts to segregate transgenic potatoes from non-transgenic ones failed due to structural weaknesses, processors realized that NewLeaf potatoes required new adjustments to their business practices. Moreover, there was rapid acreage decline in potato production as uncertainty increased in the GM potato market.

McDonald’s decision to ban GM foods from its food chain in 1999 was followed by a similar decision from another global food producer McCain Foods. McCain’s decision was also based on the market uncertainty regarding transgenic potatoes (Island et al., 2004). This uncertainty was triggered by activists-led campaigns and public debates in the media on the risks and benefits of transgenic crops (Thornton, 2003) in the action arenas. As Paarlberg (2014) explains, activists-led campaigns against GMOs have been conducted for more than two decades. The author opines that these campaigns, largely piloted by NGOs have been exceptionally successful in barring the planting and commercialization of GMO food crops. Most of the GMO
crops are predominantly used as animal feed or for other industrial purposes. Paarlberg (2014) also explains that these anti-GMO NGOs portray private corporations as somehow compelling consumers to accept GMO foods. Critics of NewLeaf potatoes raised questions about the crop’s environmental and nutritional safety.\(^8\)

Unlike the canola case, social license concerns in the NewLeaf potato case were principally led by anti-GM activists who had no major investments in the potato industry. The voices of potato farmers and consumers who appreciated the transgenic potatoes were largely drowned out by activists. No one from the community was part of the anti-GM campaign. As Halterman et al. (2016) explain, the transgenic potatoes commercialized in the 1990s were quite technologically successful and beneficial to producers, consumers, and the environment. The sole reason for their withdrawal from the market was due to anti-GMO pressure regarding potential but unsubstantiated impacts on human health and the environment. The authors note that in spite of the anti-GM campaigns, the North American fresh market continued accepting transgenic potatoes, but potato producers were reluctant to continue growing biotech potatoes when potato processing markets were already shutting down. The transgenic potatoes were finally withdrawn from the market in 2001. The social license model in this case was an unduly constructed collective because there was no adequate representation of the community in the activists’ campaigns against GM foods as the literature indicates.

Monsanto received regulatory approval for NewLeaf potato in the US in 1995, after completing all regulatory demands for the transgenic crop. Canadian authorization was granted in 1999 when the CFIA determined the GM varieties posed no health or environmental risks. Both countries have a high preference for a science-based regulatory system. In spite of the approvals and successful adoption of the GM potato varieties by potato growers and fast-food outlets in both countries, the commercialization process was a complete failure due to anti-GM campaigns. The NewLeaf potato case is peculiar because it shows that regulatory approval and adoption of agbiotech products is not enough to guarantee successful commercialization.

\(^8\)https://www.wsj.com/articles/SB956875837624092771
The case shows that social license can be a deterrent to innovation and development as it can cause firms to abandon their research for potential solutions to the challenges facing their sector.

The NewLeaf potato case also confirms previous assertions on the increase in compliance and implementation costs from the adoption of SECs. Fulfilling social license demands entails extra costs for firms in terms of developing new institutions such as product segregation and differentiation protocols to meet new consumer and stakeholder demands, as well as the costs of compliance to the requirements of these new institutions.

Scope is a principal determinant of social license success or failure. The wide stakeholder group in the agbiotech supply chain makes social license even more complicated as it becomes increasingly difficult to meet the expectations of everyone. In places where NewLeaf potato was grown, the transgenic crop was very popular with the local citizens as it reduced the pesticide runoff. However, the inability to contain the social license process to the local area trumped it. As an example, NewLeaf potatoes produced healthy potato crops with significantly reduced insecticide and pesticide application in the US Pacific Northwest. The biologically engineered crop was highly beneficial to farmers, processors and consumers. Kaniewski & Thomas (2004) note that demand for NewLeaf potatoes outpaced supply shortly after they were introduced.

In Prince Edward Island (PEI), the largest potato-producing province in Canada, farmers used the NewLeaf potato in the 1996 growing season (Island et al., 2004). Island et al. (2004) explain that the GM potato was adopted to repel the pests and viruses that plagued potato production in the region. The use of GM potato was shown to have both cost and environmental benefits. The potatoes were less expensive to grow and their genetic makeup necessitated the use of fewer pesticides.

**6.6 The GURTs Case Study**

*Case Outline*

In 1998, the US Patent and Trademark Office issued the patent named ‘Control of Plant Gene Expression’ (later called ‘Genetic Use Restriction Technology (GURT)) to Delta & Pine Land Corporation, a cotton seed industry, and the U.S. Department of Agriculture’s Agricultural
Research Service. According to the research agreement between both parties, Delta & Pine Land Corporation had the exclusive licensing rights to the technology. GURTs received widespread condemnation from around the world immediately after their introduction. Major biotechnology companies withdrew from developing or commercializing GURTs due to widespread public resentment and resistance.

GURTs are a good example of a case whose opposition started before the technology was ready for commercialization. The announcement of the technology’s patent triggered an extremely intense global debate because of its potential to produce sterile seeds which could not be replanted in subsequent seasons. The GURTs case shows the vast array of socio-economic and ethical concerns that can be linked to a single biotechnology, with opposition arising from diverse actors worldwide.

The Case

In March 1999, the US Department of Agriculture and Delta and Pine Land Company, received a set of patents entitled ‘Control of Plant Gene Expression’ to protect a technology. These Genetic Use Restriction Technologies are frequently referred to as GURTs. The principal goal of GURTs was to regulate the reproduction of certain plant varieties or traits using genetic switch techniques. There are two principal classes of GURTs: Variety GURTs (V-GURTs) and Trait-specific GURTs (T-GURTs). V-GURTs control seed reproduction by ensuring that plants produce sterile seeds which cannot be planted in the next growing season, while T-GURTs control the expression of specific plant traits by switching on or off the genes responsible for such expressions. GURTs involved the genetic modification of seeds such that they produce a seed which in turn produces sterile seeds (Lombardo, 2014).

As soon as the patent for GURTs was announced, the Action Group on Erosion, Technology and Concentration (ETC group), formerly RAFI (Rural Advancement Foundation International), launched a campaign against V-GURTs and its production of sterile seeds. The ETC Group coined the term ‘Terminator Technology’ in specific reference to V-GURTs sterile seeds, describing them as a threat to global food security. The group also referred to the technology as immoral because it violates a farmer’s rights to save harvested seeds for planting in the next season. Commercializing terminator seeds would mean forcing farmers to purchase
seeds from firms every year (ibid.). However, Niiler (1999) argues that the technology was principally developed for use on self-pollinating plants such as tobacco, cotton, rice, wheat and soybeans and not for open pollinator plants. Lombardo (2014) describes GURTs as the most controversial and opposed biotechnology and explains that they were developed by multinational seed companies to secure their investments in improved crop or seed varieties.

GURTs faced widespread condemnation across the globe soon after their introduction. Unprecedented opposition to GURTs came from NGOs, civil society organizations, farmers, churches, environmentalists, agricultural scientists, Indigenous Peoples, international organizations and national governments from both developed and developing countries. Many nations across the globe also denounced the use of Terminator seeds in their respective countries. The widespread condemnation of GURTs specifically targeted the Terminator seeds and not T-GURTs.

GURTs supporters assert that the technology could solve the problem of unwanted contamination of conventional seeds by GMOs, by hindering the undesired spread of pollen in the environment. In doing so, GURTs could increase biosafety. GURTs could also potentially avert the loss of seed quality caused by pre-harvest germination (Commission de l’Ethique, 2009). Meanwhile, opponents of GURTs cited a violation of the farmers’ rights to save seeds and a compelling dependence on multinational companies for annual purchase of seeds.

In many ways T-GURTs is like hybrid systems. According to canolacouncil.org, ‘second generation seed (F2) from certified hybrid seed will not have consistent characteristics throughout the seedlot. Herbicide tolerance, disease resistance, maturity and oil quality traits, among others, will be more variable and less predictable in the F2 seed. The proportion of the plants exhibiting these inferior traits in the F2 population is large enough to also result in significant yield reduction on average’. What this means is that for crops such as canola or other hybrid crops, there is a one hundred per cent dependence on certified or patented seeds. However, approximately 70-80 per cent of the acres for stable crops such as wheat, barley, oats, flax and peas are seeded to farm saved seeds.10

9 https://www.canolacouncil.org/canola-encyclopedia/plant-establishment/seed-quality/
10 ssga.pdf (cropweek.com)
Opponents of GURTs also raised concerns about the effects of the technology on biodiversity, world food security and traditional methods of farming. Ethical concerns about GURTs came from churches and other ecumenical representatives who warned that the technology would increase economic injustice. They argued that applying the technology to produce sterile seeds turns life, which is a gift from God into a commodity (oikoumene.org).11

Due to the widespread public resentment over GURTs, major biotechnology companies announced their withdrawal from further developing or commercializing the Terminator Technology. In 1999 Zeneca, which later became Syngenta Agrochemical, announced it would not develop any technology that prevents farmers from growing second generation seeds. That same year, Monsanto also announced that they will not commercialize any gene protection technologies that make seed sterile (Collins, 2000).

Beyond the US, GURTs were also regulated at the international level by the Convention on Biological Diversity (CBD), a global framework for actions on conservation and sustainable use of biodiversity. The Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), the intergovernmental scientific advisory body of the CBD, assessed GURTs when they were first introduced in 1999. In its assessment report, SBSTTA recommended that ‘in the current absence of reliable data on genetic use restriction technologies without which there is an inadequate basis on which to assess their potential risks, and in accordance with the precautionary approach, products incorporating such technologies should not be approved by Parties for field testing until appropriate scientific data can justify such testing, and for commercial use until appropriate, authorized and strictly controlled scientific assessments with regard to, inter alia, their ecological and socio-economic impacts and any adverse effects for biological diversity, food security and human health have been carried out in a transparent manner and the conditions for their safe and beneficial use validated’ (CBD Decision V/5, COP5, 2000; pg. 88).

At the Fifth Conference of the Parties (COP5) in Nairobi in June 2002, the CBD adopted an international de facto moratorium to prevent field-testing and commercial use of GURTs, citing concerns about inadequate research on the unintended spread of genes from GM to non-

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GM plants among other issues. It is important to note that the CBD has two sub-agreements, the Cartagena Protocol on Biosafety (CPB) and the Nagoya Protocol. The CPB which came into effect in 2003, specifically governs international trade in biotechnology products (Smyth et al., 2017), while the Nagoya Protocol governs access to and benefit-sharing of genetic resources. CPB has a strong preference for the precautionary approach regarding decisions on biotechnology. Some countries that produce large amounts of GM crops such as the US have not ratified the CPB. Canada is a signatory to the CBD but has not ratified and is not a party to CPB (Smyth et al., 2017). Smyth et al. argue that ‘if [the CPB] were to become a model for international trade architecture in the future, many of the gains in trade liberalization made in the more than half century … would be in jeopardy’ (p. 94). Countries which are not signatories to the CBD are not bound by its provisions.

In February 2005, the Canadian government led an unsuccessful attempt to lift the moratorium at a CBD meeting in Bangkok, Thailand. In March 2006, the CBD upheld its moratorium on GURTs during the eighth Ordinary Meeting of the Conference of the Parties (COP8) held in Curitiba, Brazil (CBD, 2006). Several GURTs have been patented over the years, but none has been put into commercial use because of strong global opposition and the moratorium.

**The Analysis**

Like the NewLeaf potato case, the GURTs controversy also shows how the wide scope of agbiotech operations hinder social license as well as the ability of extensive socio-economic and ethical demands to stop biotechnological innovation in its tracks. The global contestations over GURTs undeniably led to the technology’s non-adoption, non-commercialization and ban.

For the GURTs case, the patterns of interactions among the diverse stakeholder groups including civil society organizations, farmers, scientists, environmental activist groups and national governments advocating a ban on GURTs was quite peculiar. It shows how strategic alliances were formed to introduce concerns about GURTs in public policy discussions. The action spaces which were both local and global included official or invited social spaces.

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12 https://www.cbd.int/abs/
unofficial networking and coalition building and protests (both quiet and violent). Some of the official spaces were created by either international or state actors for citizen engagement in discussions, while citizens and activists created the unofficial networking arenas through popular action, lobbying and networking. According to banterminator.org\textsuperscript{13}, some official arenas for participation in the GURTs discussion included national assemblies and international plenaries at the UN and the CBD’s Conference of the Parties deliberations. As an example, a UN plenary heard an address from Argentina, the G77 and China, reiterating their concern that GURTs could have far-reaching negative impacts on farmers, Indigenous Peoples and local communities with regard to their traditional knowledge, innovation and conventional practices. The banterminator.org also talks about the International Indigenous Forum on Biodiversity where Indigenous Peoples in their opening statement on Terminator seeds, asserted that GURTs are dangerous technologies that threaten biodiversity, indigenous knowledge systems, smallholder farmers and global food security. They also stated that any introduction of GURTs in their territories would pose a direct threat to their welfare and food sovereignty and will constitute a violation of their human right of self-determination (banterminator.org). Most of the interactions from GURTs opponents in the official and invited spaces demonstrated a great sense of a coordinated campaign, with the speakers taking a strong stance against GURTs, building their statements on each other and forming a resounding and united voice against the technology (ETC Group, 2007).

Another successful strategy against GURTs was the building of opposition alliances and coalitions such as the Ban Terminator Campaign. The campaign was a global coalition of over 500 organizations that sought to ‘promote government bans on Terminator Technology at the national and international levels and support the efforts of civil society, farmers, Indigenous Peoples and social movements to campaign against it.’\textsuperscript{14}

In Spain, a Spanish environmental federation, Ecologistas, launched a campaign against the Terminator Technology as the government of Spain hosted a major UN meeting in Granada. Ecologistas held a street exhibition on agriculture, GMOs and Terminator Technology and asked

\textsuperscript{13} Banterminator.org can be accessed through the Wayback Machine, a web digital archive.

\textsuperscript{14} https://www.etcggroup.org/content/support-campaign-ban-terminator
people to sign their petition to ban Terminator. At the opening of the meeting, Spain’s minister of environment called for the establishment of the conditions required to prevent the negative effects of Terminator Technology on the environment and society (ibid.). The World Council of Churches also asked churches and other ecumenical partners to take measures against Terminator Technology.\(^\text{15}\)

According to Mittal & Rosset (2001), angry farmers in Karnataka India, launched a ‘Cremate Monsanto’ campaign with the burning of Monsanto’s fields. The fields were primary targets because of the Terminator field trials which the farmers said would pollute other neighbouring cultivars. The campaign also pushed for the departure of other biotechnology companies from India.

Just like the NewLeaf potato case, the opposition to GURTs was largely championed by anti-GM groups before other actors stepped in. The activists had no investments in the agricultural sector or biotechnology. They simply led highly active voice campaigns and recruited other actors to join the campaign through the ‘ban terminator coalition’. Nevertheless, future potential development and use of GURTs has not been completely ruled out.

The patent for GURTs was granted in the US to the USDA and Delta and Pine Land. The USDA works alongside two other federal agencies to regulate GMOs and monitor their impacts on human health and the environment. The US, like Canada, has a strong preference for the science-based risk assessment protocols for the regulation of biotechnology as previously stated. However, despite the successful patent application in the US, the CBD, in 2000, issued a de facto moratorium on field-testing and commercial sale of terminator seeds. The moratorium was re-affirmed in March 2006. There have been no field trials, commercial applications, or applications for the environmental release of plants with GURT traits in Canada to date.

The GURTs case shows that regulatory approval is not enough to secure technology adoption and commercialization. Despite domestic approval, the Terminator seeds still received a ban from the CBD whose high preference for the precautionary approach puts it at variance with the US’s scientific rationality approach. Like the canola story, the inability of both

\(^{15}\) https://www.oikoumene.org/news/take-action-to-stop-terminator-seeds-demands-wcc-general-secretary
divergent regulatory pathways to find common ground in product approval led to the rejection of GURTs.

All three cases show the influential role of voice in the social license configuration. However, the canola and GURTs cases raise questions on whether the right voice was used. In the canola case, for instance, the voices of stakeholders with vested interests in successful commercialization and investments in agriculture and biotechnology were dominant. In the NewLeaf potato case, the voices of the farmers and consumers who appreciated the transgenic crops and anticipated to get benefits from them were noticeably absent. This makes the role of anti-GM social license advocates questionable, as it is not clear whose interests they are defending in the social license configuration. The application of the social license model in the two cases that stalled introduction of the technologies illustrate the importance of having the right voices in the debate. The groups advocating for normative judgements on the technologies were clearly not from the community or consumers and had no stake in the technological success or failure.

As previously stated in this study (Chapter 2), civil society actors can also use high voice activation to forward their own agenda and objectives. Although NGOs have globally recognized values, their interests are subject to political manipulation. As a result, their motivation towards a model like social license could be driven solely by their quest for support-building regarding their cause or they may use social license as an opportunity to frame a public debate (Owen, 2016).

6.7 Case Similarities

All three cases show that regulatory compliance and approval are not enough to secure acceptance and adoption of new biotechnologies. Domestic regulatory approval in all three cases did not guarantee national or international market access, acceptance or successful commercialization. For the GURT cases and NewLeaf potato cases, the introduction of the broad social mandate of SECs by anti-GM activists led to a rejection of both biotechnologies. Compromise became difficult for both sides of the biotechnology divide once the extensive socio-economic demands were introduced.
The cases also show that the global nature of agbiotech requires that beyond fulfilling national regulatory demands, regulatory compliance must also consider existing international regulations and trade infrastructures. Sometimes, international regulations are in direct contrast to some national regulatory structures as was the case with the US and the CPB in the canola and GURT cases. The canola case involved Canada, the CPB and the WTO. In contrast to the CPB, the WTO prohibits non-science considerations in its risk assessments (Smyth et al., 2017). The same regulatory divide is seen between North America and the EU. The challenge of this regulatory fracture between different continents, international organizations and national governments regarding the social license model is that it raises questions on the concept’s effectiveness in the agbiotech space and the value of promoting it as a standalone model, if social license can also be achieved via other existing structures like the voluntary certification standard.

Social license demands can become major disincentives to development and innovation when companies abandon their biotechnological solutions to focus on other issues as was the case with GURT and NewLeaf potato. In all three cases, SECs became a justification for the non-adoption and non-commercialization of agbiotech. The ban on GM canola imports and the approval of new GM varieties at the EU was based on the need to protect local communities and consumers from the potential effects of GMOs on human health and the environment. In the GURT and NewLeaf cases, the restrictions to technological development were justified by SECs, whose advocates usually support non-adoption because of the potential social and economic costs of new agbiotech on society. SECs can also make the regulatory system unworkable or cause major disruptions in the system as seen in the NewLeaf potato and GURT cases.

Another principal factor which is evident in all three cases is the connection between the levels of contestation and the decision outcome for each biotechnology. Of all three cases, GURT was the most highly contested as demonstrated by the actions of its opponents in the domestic and international invited social spaces, as well as the global networking, coalition building and protests against the technology. For the transgenic potato, the contested spaces involved domestic activists-led campaigns and public media debates in both the US and Canada. In both cases, the outcome was the non-adoption and non-commercialization of NewLeaf Potato and GURT. In the canola case where the contestation on GM canola was handled by WTO’s
DSB, the outcome was a successful regaining of access to the EU’s biofuel market. This shows that the highly contested spaces where the voices and actions of GM opponents were highly activated, had poorer outcomes for biotechnology than the space where the contestation was less vocal.

Table 6.1 Summative Case Analysis

<table>
<thead>
<tr>
<th>Case</th>
<th>Rules-in-use</th>
<th>Action Arenas</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canola case</td>
<td>- Risk-based regulation (Canada, US).</td>
<td>- European Union</td>
<td>- Regained market access after a previous de facto ban on GM canola.</td>
</tr>
<tr>
<td></td>
<td>- SECs based regulation / Precautionary Principle (EU).</td>
<td>- World Trade Organization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Third party certification standard</td>
<td>- Dispute Settling Body</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Public media debates</td>
<td></td>
</tr>
<tr>
<td>GURT's case</td>
<td>- Risk-based regulation (US).</td>
<td>- Invited spaces e.g., UN plenary meetings, Conference of the Parties.</td>
<td>- Non-adoption and non-commercialization of GURT's.</td>
</tr>
<tr>
<td></td>
<td>- SECs based regulation / Precautionary Principle (CPB).</td>
<td>- International, networking and coalition building.</td>
<td>- De facto moratorium from CPB.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Protests.</td>
<td></td>
</tr>
</tbody>
</table>
6.8 The Collective Action Problem

One of the principal aims of using the applicable core units of Ostrom’s IAD framework in the case analyses is to show how the various stakeholders in each case work together as collective actors, define problems, chose a course of action within the confines of existing rules and how their interactions ultimately led to biotechnology approval or rejection. The interactions between these diverse stakeholders evoke another core idea of Ostrom, the collective action problem, where group members with different characteristics and preferences in ‘interdependent situations face choices in which the maximization of short-term self-interest yields outcomes leaving all participants worse off than feasible alternatives’ (Ostrom, 1998, p.1). Ostrom cites many reasons for individual behaviour in social dilemmas, some of which include structural variables like group size, participants’ dependence on benefits, group heterogeneity, communication levels and availability of information to group participants. Ostrom (1998) asserts that at the core of collective action failure is the free-rider problem (discussed in Chapter 3). Collective action failures or social dilemmas occur when group members who would have been better off cooperating fail to do so due to divergent interests that discourage common action between individuals. According to Paarlberg (2014) non-profit seeking NGOs, who usually enjoy greater trust than private corporations that market GMOs, represent divergent interests. They usually defend social justice, the rural poor, the environment or promote alternative methods of farm production. Others raise issues on ethics and intellectual property challenges. The extensive and conflicting nature of these varying interests makes cooperation and joint action among collective actors extremely challenging.

Apart from free riding, collective action situations also face organizational and coordination challenges as has been demonstrated in the social license design using the IAD framework in this study and the application of the model in the cases of unsuccessful technology adoption and commercialization. The design flaws and structural misconceptions of the model as a common pool resource when its application proves it is not, makes the effectiveness of the model in the agri-food sector highly questionable. Coordination is also difficult in the face of conflicting and divergent interests among group members. The social license model fails to show how dissenting voices are incorporated in its design and operations.
6.9 Conclusion

These case studies clearly illustrate the extra efforts needed to secure international market access and compliance in the face of contrasting agbiotech regulatory architectures. They show the workings of the social license model encapsulated within SECs or the social rationality regulation focus. The cases also amplify the role of social license as a barrier to biotechnology development, production, adoption and commercialization due to its design flaws and application methods where the wrong voice is highly activated. It is problematic when social license is allowed to override regulation and cause withdrawal of approved technological products from the market.

If not properly addressed and defined, SECs will only exacerbate the problem of biotechnology acceptance, as the cases clearly show how they become triggers for commercialization failure and public rejection of agbiotech.

Social license positions itself as a collective action solution and in some cases, like the canola case study, the model worked in this regard. Notwithstanding, the model was a poorly constructed collective to address SECs in the two failed cases where the voices of farmers and other directly affected stakeholders were largely conspicuously absent. Based on its current design and application, social license seems to be a problem in search of a solution because it is still unclear what problem the model seeks to resolve and how exactly it intends to solve that problem.
Chapter 7: Lesson Drawing and the Effects of Sectoral Differences

7.0 Introduction

This chapter introduces two new theoretical considerations with significant effects on the effective operation of the social license model in the agri-food space. The theories are Hall’s (1993) three orders of change and Rose’s (1991) lesson drawing framework. One of the main research questions this study seeks to answer is the challenge of social license as it migrates from its sector of origin, mining, to the agri-food sector and more specifically agbiotech. This chapter provides a response to that question.

While Hall’s (1993) three orders of change would have different effects on programs, projects and policies, Rose (1991) cautions that lessons must be drawn simultaneously with an evaluation of compatibility and fit or an assessment of generic attributes and sectoral differences. This chapter, therefore, discusses the sectoral differences between mining and agbiotech, in order to determine social license challenges, compatibility and fit as a borrowed concept in the agri-food sector.

7.1 Lesson Drawing: Transferability and Fit

This research uses the concept of lesson drawing and its related elements of compatibility and fit to understand the challenges of social license in the agri-food sector, as a concept from mining and extractive industries. Lesson drawing pertains to the logic by which decisions are made to either copy programs from elsewhere or do something completely new and innovative to solve problems. According to Rose (1991), concerns about practical solutions to current challenges lead to the search for lessons across ‘time and space’ (p. 6) from other jurisdictions. This kind of search is common within the policy space.

This study takes on Rose’s definition of a lesson as ‘an action-oriented conclusion about a program or programs in operation elsewhere; the setting can be another city, another state, another nation or an organization's own past’ (Rose 1991, p. 7). The focus is on a particular program that may be adopted and entails judgement about replicating the same elsewhere. This makes lesson drawing more than just a program evaluation because implicit in lesson drawing is the drawing of right or wrong and making judgements about copying programs or models, as is
the case with social license that was copied from the extractive sector. As already established, the principal aim of lesson drawing is to resolve challenges or improve a current situation (Rose, 1991).

Rose (1991) identifies five lesson drawing mechanisms: copying (adoption of existing programs from other jurisdictions); emulation (existing programs in other jurisdictions are adopted with modifications); hybridization (combination of program features from different sources); synthesis (combination of similar program features from multiple sources); and inspiration (existing programs in other jurisdictions form the basis for creating a new program which is not a replica of an existing program).

Other authors such as Campbell (2004) and Thelen (2009) have offered various typologies on the transfer of ideas and policies from one place to another in their discussions on ideational and institutional change and stability. Campbell (2004), for example, presents the concepts of bricolage and translation as ideas move from one place to another. He uses bricolage in reference to a process of recombining, rearranging or reorganizing already existing institutional ideas, practices and principles in new innovative ways that produce change when searching for institutional solutions to novel challenges. With the process of bricolage, ‘new institutions differ from, but resemble old ones’ (Campbell, 2004, p. 69). Campbell also makes a distinction between bricolage and translation, which is similar to but different from bricolage. Translation involves the modification and blending of new ideas to properly fit within existing institutional arrangements. It entails ‘a combination of locally available principles and practices with new ones originating from elsewhere’ (ibid.), or simply a local implementation of imported principles or models. In other words, while bricolage speaks to the ability of actors to create something new by combining pre-existing ideas, programs and institutional components within their environment, translation, on the other hand, relates to adapting external ideas or programs to a specific institutional setting such that they blend in (Campbell, 2004).

In the same vein, Streeck and Thelen (2005) offer their own typology of institutional change, identifying different patterns and mechanisms - displacement, conversion and layering -- to describe the change. With layering, original institutions remain unchanged, and new institutional models are simply layered on pre-existing ones. Displacement occurs when existing institutions are replaced with new ones, while with conversion, existing institutions remain in
place but are reinterpreted to accomplish new goals and purposes or serve new functions. While all these diverse mechanisms may resemble or differ from each other, their common defining characteristic is their ability to explain varying degrees of change and reform processes within institutional legacies.

Table 7.1: Types of Lesson Drawing

<table>
<thead>
<tr>
<th>Author</th>
<th>Type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rose (1991)</td>
<td>Copying</td>
<td>Existing programs are adopted from other jurisdictions.</td>
</tr>
<tr>
<td>Rose (1991)</td>
<td>Emulation</td>
<td>Existing programs in other jurisdictions are adopted with modifications.</td>
</tr>
<tr>
<td>Rose (1991)</td>
<td>Hybridization</td>
<td>Combination of program features from different sources.</td>
</tr>
<tr>
<td>Rose (1991)</td>
<td>Synthesis</td>
<td>Combination of similar program features from multiple sources.</td>
</tr>
<tr>
<td>Rose (1991)</td>
<td>Inspiration</td>
<td>Existing programs in other jurisdictions form the basis for creating a new program which is not a replica of an existing program.</td>
</tr>
<tr>
<td>Campbell (2004)</td>
<td>Bricolage</td>
<td>Recombining, rearranging or reorganizing already existing institutional ideas, practices and principles in new innovative ways that produce change.</td>
</tr>
<tr>
<td>Streeck and Thelen (2005)</td>
<td>Layering</td>
<td>Original institutions remain unchanged, and new institutional models are simply layered on pre-existing ones.</td>
</tr>
<tr>
<td>Streeck and Thelen (2005)</td>
<td>Displacement</td>
<td>Existing institutions are replaced with new ones.</td>
</tr>
<tr>
<td>Streeck and Thelen (2005)</td>
<td>Conversion</td>
<td>Existing institutions remain in place but are reinterpreted to accomplish new goals and purposes or serve new functions.</td>
</tr>
</tbody>
</table>
The conceptual overlap between social license and CSR (explained in Chapter 5), puts the social license model in the bricolage or layering categories. Social license contains several elements from CSR, as previously explained, and its introduction in business did not displace or replace any pre-existing public regulation or pre-existing private self-regulatory model. It also falls within Rose’s copying mechanism because it is a model that was simply adopted from the mining jurisdiction. While many authors agree that policy actors look to other domains and jurisdictions for solutions to new institutional, social or other problems (Rose, 1991; Hall, 1993; Campbell, 2004; Thelen, 2009; Weyland, 2008), there is also a general agreement that the efficacy or success of one institution or program created for a specific context might not necessarily be successfully replicated within a different context (Rose, 1991; Thelen, 2009; Weyland, 2008). This makes the exploration of contextual and sectoral factors or differences between the mining and agbiotech sectors critical in determining the practical utility, added value and compatibility of social license as a borrowed model.

A program or model which is the object of lesson drawing is seen as a policy instrument because it is an essential tool for meeting policy goals or accomplishing policy intentions. Rose (1993) notes that lesson drawing is primarily dependent on contextual factors and generic characteristics. The central factor in any lesson drawing exercise is to question the extent to which an existing program in another jurisdiction will be successful if transferred to another sector, under its current conditions. Program satisfaction in one sector does not guarantee automatic effectiveness in another. There are many factors involved in determining the transferability, compatibility and fit for borrowed programs, policies and models.

This next section explores some of these factors within the framework of contextual and sectoral differences in mining and agbiotech. It is important to note that while lesson drawing seeks to use knowledge from other times and places to improve current programs, these lessons can be positive or negative. Positive lessons can be transferred with the necessary adjustments to ensure an effective fit, while negative lessons will be avoided and observers will learn from the errors of others.
7.2 Contextual and Sectoral Differences: Orders of Change and Generic Characteristics

As previously stated, contextual and sectoral characteristics are crucial in lesson drawing exercises. The effective operation and success of borrowed programs or models depends on these sectoral and generic attributes. There are many differences between the mining sector, where the social license model first emerged and the agbiotech sector. This study explores these differences in two principal ways: first, by the extent of sectoral changes caused by the introduction of new projects or products in both sectors and second, by the scope and nature of operations in mining and agbiotech.

Unlike mining, agbiotech has been described by several authors as a transformative technology (Phillips, 2007; Smyth et al., 2016; Kerr, 2016a; Wartburg and Liew, 1999). As these authors explain, transformative technologies usually constitute a paradigm shift that presents significant challenges for existing institutional architectures and require institutional adjustments or a complete institutional change or overhaul in some instances. Phillips (2007) asserts that biotechnology as a transformative technology is expected to stress existing national and international regulatory architectures. The concept of a paradigm shift speaks to Hall’s (1993) characterization of change according to the degree and magnitude of the level of alterations within a policy framework. Hall’s typology classifies the concept of change into three different levels which he refers to as first, second and third order change. He describes first and second order change as instances of "normal policymaking" (p. 279), with only minor policy adjustments. First order change occurs when the levels or settings of existing policy instruments are altered, while second order change entails replacing policy instruments without changing the overarching policy goals. By contrast, third order change according to Hall (1993) involves transformative policy changes or shifts that completely reconfigure current policy goals and objectives. Agbiotech innovations and other technological changes fall under the third order change category. Kerr (2016a) notes that transformative technologies such as agbiotech create disequilibrium in society and destabilize existing structures. Disequilibrium in this instance, means that new biotechnologies in the agri-food sector compel both economic and non-economic actors to make certain adjustments. Some authors also refer to technologies that cause major shifts as radical technologies. As Phillips (2007) explains, the term radical innovation as used by
some authors, ‘typifies changes that transform the relationships between customers and suppliers, restructure marketplace economics, displace current products, and often create entirely new product categories’ (p. 23). It should be noted, however, that not all technological change is transformative; some are marginal, incremental and non-disruptive.

The transformative and contentious nature of a third order change makes this type of change more problematic to handle. Transformative agbiotech innovation, as demonstrated in the three case studies examined in this research, is basically about the introduction of new revolutionary scientific processes that alter the public’s perception of particular products and opportunities. Wartburg and Liew (1999) qualify technological change as a paradigm shift because new technologies demand new knowledge, new ways of thinking and new skills as old skills become obsolete. This is in line with Hall’s (1993) third order change which involves a radical departure from past trajectories and the introduction of new ideas. Technological changes usually affect many aspects of society and the lives of most individuals and they often fuel wider societal conflicts and debates. Apart from posing threats to existing institutional arrangements, technological innovations often mark a turning point or a decisive moment for society at large (Wartburg and Liew, 1999). They also cause resource redistribution and create a ripple effect in society.

The generic characteristics and scope of operations between the mining and agbiotech sectors are different. Unlike the transformative changes with new biotechnologies in agriculture, technological innovation in mining is usually a first order or second order change at best. Olvera (2021, p. 1) describes the mining industry as a ‘traditional and conservative industry with respect to innovation.’ Regarding mining concerns, Sanchez and Hartlieb (2020) say innovation is secondary. Technological innovation in mining is often characterized by routine adjustment to existing operational procedures (first order change) or replacing the operational strategies and procedures used to achieve mining goals (second order change). Many mining companies are yet to adopt tech-enabled transformations (Metals and Mining Practice, 2018). Only a few corporate leaders and governments focus on understanding the opportunities, challenges and anticipated changes from technology adoption (Ramdoo, 2019). Ramdoo (2019) also opines that the mining sector is yet to experience similar levels of disruption caused by the advent of disruptive technologies in other sectors.
Technological change and adoption in mining is driven by many factors: health and environmental safety of mine workers, minimizing operational costs, extreme weather conditions, declining ore grades and levels of productivity and competition for scarce resources (Olvera, 2021; Ramdoo, 2019). For Sweeting et al. (2000), technological innovation in mining has been triggered by the need to earn a social license, which has led to the adoption of cleaner and more environmentally friendly production methods. The major areas of technological applications in mining include automation (drones, drilling and tunnel-boring, autonomous or semi-autonomous remote-controlled mines and trucks), Internet of things, 3D printing, advanced digital monitoring systems large data collection e.g., smart sensors and GPS navigation programs, robotics, blockchain and analysis and renewable power generation (Sanchez and Hartlieb, 2020; Olvera, 2021; Ramdoo, 2019). The benefits of these technological innovations are safer working conditions, enhanced efficiency and sustainability, improved underground communications, increased productivity and reduced environmental footprints. One major challenge with technology adoption in the mining sector is the risk some technologies like automation pose to lower-skilled and less educated workers whose skills are at a great risk of obsolescence (Corneau 2019; Ramdoo, 2019). The danger here is that this obsolescence which can lead to significant job loss is a major social risk for the mining sector as it threatens its social license with host communities (Metals and Mining Practice, 2018).

Innovative biotechnological applications and processes such as bioremediation are also used to treat contaminated soils and ground water in the mining industry. These applications play an essential role in cost-effective waste management and site remediation. Mining operations cause environmental pollution and contaminate soils, groundwater and surface waters (Bernoth et al., 2000). According to Lawrence (1998), other areas for the application of biotechnology in mining include leaching of base materials, gold ores treatment, metals recovery and desulfurization of fossil fuels.

For its part, agbiotech, which is used in this research in relation to plants, involves the use of living organisms to modify plants for specific purposes in agriculture. It involves the use of crop modification techniques to develop enhanced nutritional content, increase productivity or produce certain agronomic traits in plants. Below is a table that compares different aspects of biotechnology use in mining and agriculture.
### Table 7.2: Comparison of Technological Innovation between Mining and Agriculture

<table>
<thead>
<tr>
<th>Mining</th>
<th>Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Types of (bio)technology</strong></td>
<td><strong>Crop modification methods:</strong></td>
</tr>
<tr>
<td>- Artificial intelligence</td>
<td>- Genome editing</td>
</tr>
<tr>
<td>- Automation</td>
<td>- RNA interference</td>
</tr>
<tr>
<td>- Robotics</td>
<td>- Transgenics</td>
</tr>
<tr>
<td>- Automation</td>
<td>- Mutagenesis</td>
</tr>
<tr>
<td>- Industrial Internet of Things.</td>
<td>- Traditional breeding</td>
</tr>
<tr>
<td>- GPS navigation</td>
<td>- Agronomic Traits</td>
</tr>
<tr>
<td>- Blockchain</td>
<td>- Herbicide tolerance</td>
</tr>
<tr>
<td>- Big data</td>
<td>- Insect resistance</td>
</tr>
<tr>
<td>- Renewable power generation.</td>
<td>- Disease resistance</td>
</tr>
<tr>
<td>- 3D printing.</td>
<td>- Temperature tolerance</td>
</tr>
<tr>
<td>- Bioremediation</td>
<td></td>
</tr>
<tr>
<td><strong>Drivers</strong></td>
<td><strong>Drivers:</strong></td>
</tr>
<tr>
<td>- Need to improve health and safety for mine workers.</td>
<td>- Need to meet increasing global food demands.</td>
</tr>
<tr>
<td>- Competition for scarce resources.</td>
<td>- Combat pests and increased pesticides use.</td>
</tr>
<tr>
<td>- Need to reduce operating costs.</td>
<td>- Food security and malnutrition concerns.</td>
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<tr>
<td>- Regulatory and social demands for social responsibility.</td>
<td>- Decrease in agricultural productivity and arable land.</td>
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<tr>
<td>- Decline in ore grades.</td>
<td>- Water scarcity.</td>
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<td>- Decline in productivity.</td>
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<tr>
<td><strong>Benefits</strong></td>
<td><strong>Benefits:</strong></td>
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<tr>
<td>- Increased productivity.</td>
<td>- Increased productivity and higher yielding crops.</td>
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<tr>
<td>- Reduced environmental footprints.</td>
<td>- Reduced production costs via minimization of pesticides and herbicides use.</td>
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<td>- Improves labor efficiency.</td>
<td>- Ability to withstand biotic and abiotic stress.</td>
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<tr>
<td>- Development of new expertise.</td>
<td>- Disease and insect resistant crop varieties.</td>
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<td>- Enhances workplace safety.</td>
<td>- Nutritionally enhanced foods and food products.</td>
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<td>- Improved underground communications.</td>
<td>- Minimizes environmental footprints.</td>
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<td>- Improved operational procedures.</td>
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<td>- Improved waste management.</td>
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<td>- Cost-efficient energy use.</td>
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<td>Reduced GHG emissions.</td>
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<tr>
<td>- Minimized workplace accidents.</td>
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<tr>
<td>- Improved connectivity across mining value chain.</td>
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<tr>
<td>Challenges</td>
<td></td>
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| - Danger of job loss and threatened social license. | - Public rejection usually triggered by activists-led anti-GM campaigns.  
- Raises socio-economic, environmental, health and ethical concerns.  
- Risks and uncertainty regarding new biotechnologies.  
- Issues with ownership and control.  
- Possible contamination of non-target species by GM seeds. |                                                                                                                                                                                                 |
| Level of change                                | - First and second order change: routine adjustments in operational processes and changes in operational methods to improve productivity.                                                                                                                                                                                                 | - Paradigm shift or third order change. Threatens existing institutions, regulatory architectures and society’s equilibrium. |

Unlike mining whose industrial activities are concentrated within specific geographic limits, the development and commercialization of biotechnological foods and innovation is usually global in nature. Although mining companies sometimes operate at a global scale, actual mine activities and operations usually take place within specified geographical locations at a given time. While mining operations may raise health and environmental concerns within their operational geographical spaces, biotechnological operations, for their part, go beyond plant engineering to involve a complex interaction of technical, institutional, economic, social and ethical factors. Commercial mining activities which diminish poverty and facilitate empowerment are often a source of economic gain to host communities, despite their potential negative environmental and social impacts. Social license or acceptability of industrial operations within host communities can be negotiated through strategies such as Impact Benefit Agreements (IBAs). IBAs seek to offset the potential unavoidable impacts of corporate action by providing benefits to those affected by industrial activities in host communities. They also ensure access to the benefits of economic development from commercial operations. In contrast, agbiotech arrangements typically involve a global socio-technical system, with a complex...
network of interrelated and interconnected components and actors. For such complex structures, an ill-defined model like social license will be both challenging and potentially unsuccessful. The structural deficiencies of the social license model and its original local community focus, make it unable to handle the complex interrelated and interconnected components of biotechnological operations. Securing public acceptance or social license in the agbiotech sector becomes even more problematic and challenging because the people with vested interests in a previous institutional system or those who are disadvantaged or negatively affected by new technological innovation will oppose every new idea or form of change.\(^1\) Being a good fit for community level operations or localized businesses, does not automatically make social license compatible with agbiotech’s global scale operations. In fact, structural gaps in the model, such as the absence of compliance conditions or objective standards on which social license claims can be established, make it a poor fit for meeting the governance challenges of agbiotech at a global scale. Dare et al. (2014) note that the customary conceptions of the social license model are incompatible with large scale industries with large social diversity and stakeholder operations at varying scales. The wider the stakeholder group, the more complicated it is to acquire a social license because what is acceptable for one group of stakeholders may be unacceptable for another. As a project- or context-specific model, social license offers no strategies for how stakeholder relations should happen whether at community or international level.

Another major sectoral difference that affects the effective operation of the social license model in the agbiotech sector is the conceptual difference in the interpretation of the notion of risk between the two sectors. The mining and agbiotech sectors both recognize the concept of risk in relation to the acceptance of their activities by society, but this recognition stems from varying perspectives and approaches. Agbiotech focuses primarily on the technical risks usually associated with the evolution, design and use of biotechnological innovations and products. Mining focuses predominantly on non-technical risks which are typically associated with political, environmental, safety, health, and social issues. As explained in Chapter 2, the primary

\(^{1}\) It was previously noted that most biotechnological changes may require new regulatory or institutional architectures or institutional adaptations to meet the challenges of new products or innovation.
intent of social license at the model’s inception, was to proactively manage business risks such as financial and reputational damage that stem from conflict with local communities when their expectations from corporate activities are unmet. Addressing these non-technical risks is a way of ensuring that mining operations get accepted by host communities. Meanwhile, the risk factor in agbiotech largely results from the uncertainties generated by new technologies whose consequences or long-term effects cannot be fully known because they are new products (Smyth et al., 2017). These uncertainties could eventually put human, environmental or plant health at risks. This then makes reduction of risks a central factor in the governance and regulation of agbiotech innovation. The social license model is, therefore, not a good fit for agbiotech because its focus on non-technical risks makes it incapable of addressing the most prevailing issue with biologically derived foods, products and innovation.

For the agbiotech sector, acquiring a social license is further challenged by the conflicts, controversies and uncertainties that accompany the introduction of a new biotechnology as a force of change. Transformative technologies, like GURTs, can be divisive and controversial due to the societal imbalance that comes with their development and introduction to society. The long-standing highly polarized debate between proponents and opponents of agbiotech makes acquiring a social license extremely hard, if not impossible, given the irreconcilable differences between both camps. A mining operation as a local activity is not known to have polarized debates or cause any significant disequilibrium within host communities; the disagreement is most often between the local inhabitants and the corporation and not within the community itself. This implies that the differences in sectoral challenges and the varied effects of new technological developments within both sectors require different solutions.

Moreover, the dynamics of developing a new biotechnological product are entirely different from the initiation and development of a mining project. The regulatory procedures, institutional architecture and timeframe for product or project approval are different for both sectors. The divergent and opposing regulatory structures that the agbiotech sector has to deal with (explained in Chapter 4) make social license a more complicated than helpful tool to facilitate acceptance of a new biotechnology.

Additionally, the social license model does not offer any new solution to the challenges in the agbiotech sector. The focus on social participation in the decision-making process elicited
by the social license model is not new in the agri-food space. In recognition of the growing public concern over the overall governance of technological developments, many governments across the world have since the 1980s designed an extensive variety of processes to engage the broader society in agbiotech decision-making, although with minimal evidence that these engagement efforts have improved public acceptance (Phillips, 2012; Medlock & Einsiedel, 2014). Phillips (2012) asserts that some of these public participation strategies were calculated responses to a recognized democratic deficit related to decision-making on emerging and transformative technologies. Several terms have been used to refer to these diverse models of participation: citizen’s juries or panels; consensus conferences; referenda; public opinion surveys; negotiated rule making; citizen’s advisory committees; public hearings; and focus groups (Rowe and Frewer, 2000). Howlett and Migone (2010) opine that public participation is especially important for biotechnology because of the complex ethical, health and economic issues which their application could potentially generate. The end goal of initiating and promoting these public participation models was to secure wider acceptance of agbiotech developments. In a way, agbiotech was already ahead of the mining sector in this regard. Social license, therefore, adds little or no value in terms of incorporating stakeholder and citizen voices in shaping the outcomes of new biotechnologies because there were already pre-existing and tested strategic participation mechanisms before the advent of the social license model.

Another complication with the social license model stems from the controversy around who grants it. There is no consensus in the literature on who should grant a social license, as noted in Chapter 2. Cooney who used the term in the 1990s notes that social license is granted by host communities, while other authors emphasize that social license is granted either by the public or stakeholder opinion leaders (Moffat and Zhang, 2014; Moffat et al, 2014, 2017; Boutilier, 2017; Boutilier and Thomson, 2018). Their premise is that social license could also represent the expectations of society as a whole and not just those of the local stakeholders. It is therefore not clear if each of the many actors across the agbiotech supply chain will be required, at specific decision points, to either grant a social license for product development or acquire a

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2 These democratic engagement models of participation were explained with a table in Chapter 3 under discussions on the action arena of the IAD framework.
social license for product commercialization. Furthermore, the social license model leaves many unanswered questions in the biotechnology space. It is not also clear where social license discussions should begin or where these negotiations fit within the agbiotech regulatory or policy process and who should be invited to participate in these negotiations.

### 7.3 Conclusion

We asked: as a model with origin from the mining sector, what are some of the challenges of social license within the agbiotech space? This chapter provides a response by evaluating the social license model’s transferability and fit from mining to agbiotech, as well as the differences in the generic and contextual attributes between both sectors.

The social license model is a poor fit in the agbiotech space for several reasons. The model’s structural deficiencies and initial local community focus make it unable to handle agbiotech’s complex global operations and diverse stakeholders across the agri-food supply and value chain. Most importantly, the social license model does not bring any new solutions to the challenges in the agri-food sector. The social participation component which the model claims to introduce in the mining sector had long been experimented in various ways in the agbiotech space.
Chapter 8: Field Data Analysis – Insights into Perceptions on the Social License Model in Canada’s Agri-Food Sector

8.0 Introduction

This chapter presents and analyses the field data and offers insights into perceptions and conceptualizations of social license in the agri-food sector from a uniquely Canadian perspective. The results presented in this chapter were generated from interviews with 27 agbiotech stakeholders from over 21 different organizations across three provinces: Ontario, Alberta and Saskatchewan. Research respondents came from government bodies, industry, civil society organizations, farmer organizations, the farming community and members of the general public who are interested in agbiotech and the social license debate.

As explained in Chapter 5, all interviews were transcribed and re-read prior to the coding process. The audio recordings were replayed several times to ensure accuracy of the transcribed information. Using NVivo, the data was coded into the thematic nodes that characterized the discussion, using Braun and Clarke’s (2014) concept of thematic analysis. At the end of the coding process, queries were run with the NVivo nodes to generate comparatives and visual representations of the data for the research results analysis. Most of the percentages represented by each slice in the pie charts are suppressed in the analysis because they are only representative and not statistically relevant.

The data analysis was largely driven by the research’s overarching objective of determining the practical utility, added value and role of the social license model in the pathway to the adoption and successful commercialization of agbiotech foods and innovation. The interview questions were therefore designed to achieve these three major goals.

First, the questions and sub questions prompted respondents to unpack the social license model. The idea was to gain insights into the understanding, conceptualization, motivation and operationalization of the concept by Canada’s diverse agri-food actors. Through the responses, the research was then able to map out existing gaps and variations in the model’s conceptualization and implementation. Second, the research sought to understand the model’s added value by comparing social license with other self-regulatory governance models like CSR and voluntary certification. Third, discussions around the opportunities, challenges, way forward
and effects of social license on regulation spoke to the role of social license in the adoption and successful commercialization of agbiotech food, products and innovation as well as the model’s sustainability.

**Figure 8-1: Thematic Representation of Research Data**

![Thematic Representation of Research Data](image)

Source: Research Field Data (NVivo Coding)

Figure 8.1 shows the results of the interviews in which research participants discussed various aspects of the social license model. The slices represent the main themes or broad topic areas that emerged from the research data. The themes are based on the research questions and provide a synopsis of the conceptualization of the social license model by Canada’s agri-food stakeholders. Each slice is proportional to the percentage of responses for the specific category. Each theme was coded as a parent node on NVivo. The questions that sought to understand the participant’s knowledge of social license and its acquisition process had more sub questions than all others. These sub questions were principally aimed at helping participants deconstruct the model into its critical components.
For purposes of coherence in the discussion, three of the main themes shown in figure 8.1 (challenges, opportunities and limitations; future of social license and general impressions about social license) are discussed in the next chapter. This chapter will examine the research results on the social license process, social license achievements, social license and regulation, social license and self-regulatory schemes and understanding social license. Below is a detailed explanation of each theme.

8.1 The Social License Process

This section unpacks respondents’ discussion on the social license process. Understanding the process that leads to acquiring, maintaining or losing a social license is of particular importance in this research. The interview data only confirmed previous assertions of the absence of a clearly established pathway to obtaining or revoking a social license, as illustrated in the social license scholarship review discussed in Chapter 2.

To understand the social license acquisition pathway, participants were asked a few questions about how a license is obtained, who is involved or who should be involved in the social license process, how a social license is recognized, lost or revoked and how the concept is measured. These questions are crucial in determining the efficacy of and gaps in the model and in meeting the overarching objectives of this research.

During the coding process, the data was broken down into various characterizations that help explain different aspects of the social license acquisition process. Figure 8-2 below, shows the main sub-themes that emerged from participants’ discussions on the social license process. Each sub-theme was coded as a child node under the parent node ‘social license process’. It is important to note that for this research, the parent nodes contain the main research themes or ideas of interests. When organized in hierarchies, these nodes move from parent nodes to child nodes which contain sub-themes or specific topics which are directly related to the parent nodes.
There were two principal questions under this first classification: how is a social license earned? and how do I know I have a social license? The research data, in confirmation of the existing corporate and academic literature, shows that there is no officially established procedure for obtaining a social license. All research participants highlighted the lack of a clearly established pathway for obtaining a social license. The process of acquiring a social license is at the discretion of the pursuing or demanding party. What this means for the model is that both its conceptualization and procedure for acquisition are completely controlled by personal or individual interpretations. Phrased differently, social license is to its opponents or advocates whatever they make of it because there are no official standards or universally agreed benchmarks on which contesting claims or differing opinions on the model can be judged.
8.1.1 Granting or Revoking a Social License

There was no general consensus on who grants or revokes a social license, according to the research data. Some participants said farmers and other stakeholders, others said the general public or society as a whole, while another set of respondents said anyone along the agricultural supply chain can grant or revoke a social license. One participant said:

‘I think it's the public. It has to be from the public or whoever may be stakeholders; it could be farmers, or it could be ranchers. But it's always a segment of the public or the stakeholders you’re trying to influence.’ (Respondent 2)

Another respondent had the following remark:

‘Social license by definition means its social, and so it can only be granted by society. But it's not a formal process. The agricultural community has to work within social norms in order for it to be granted social license. It's a social license that is not granted by an individual or safeguarded by a legal institution.’ (Respondent 7)

Commenting on who can revoke a social license, one participant said:

‘Revoking a social license could come anywhere along that supply chain. If farmers decide it is not working for them, they could stop it right there. If consumers really don’t want it because of some very strong consequences on land or health it might not get to the market.’ (Respondent 12)

Another interviewee thought the license should be revoked by the end user. This is at variance with the original intent of social license because the end user was never meant to be an ultimate decision-making authority in the social license process.

‘It’s the people who are involved in the end result. That's ultimately who revokes social license. So it's the market or the people that form the marketplace, it's the people who influence politicians, and it's the people who might choose to oppose a product or a project in a very active way through protests or boycott or getting involved in opposing something through the more traditional regulatory avenues.’ (Respondent 14)

One discussant who pondered on how the license could be granted along the agbiotech supply chain and concluded that the system is convoluted, said:

‘I don't know if there's actually any more point in the supply chain, or the farm and even prior to the farm where social license can be granted or revoked. For someone to be able to grant social license in that chain for grains and oil seeds, I don't see an obvious one in that whole system…Consumers are not really interested in science because that's not their world. In summary, trying to see whether it's the scientists or the farmers, or the consumers, or the retail that provides that social license, I don't have a place in the system
to say if these people accepted it, then that's the approval point. To me, it's very convoluted in how social license is really thought of in that whole chain.’ (Respondent 10).

8.1.2 Measuring Social License

How social license should be measured was another major issue for research participants to consider in this study. Approximately 77 per cent of interviewees responded to this question. More than half of the respondents said there are a variety of ways in which social license can be measured including a public trust survey, polling, or message testing. Others noted that the end results such as changing opinions, social media conversations, regulatory changes, and actual product sales or consumers’ willingness to purchase are all factors that could be used in measuring social license. Most participants agreed that measurement is complicated because social license is conceptual and it is hard to get a read on a broad public.

One discussant said social license can be measured through opinion points and protests.
‘I'd say social license is one of those things that is conceptual but it's measurable. It can be measured by the approvals and buying of people along that chain. Whether it’s the farmers buying all the way down to consumers and in between, as well with processors and handlers. It's one of those things that perhaps you can measure through opinion points or through the actions of people, whether they're protesting on the streets or not. We see many examples of people who are protesting these days because they don't feel that they have the support of the police in their communities or buy in from the judiciary or things like that. So social license can occur in various fields.’ (Respondent 12)

Another interviewee called for caution when considering protests as a measurement for social license, noting that people will protest for just about anything. One respondent referred to measurement as a sliding scale.
‘Speaking about the measurement tools, I do think we need to create accurate ways to measure public trust but I also think we need to understand it's a sliding scale. With every new article that comes out, or a really popular tweet that's either positive or negative, or when a new diet fad comes out, I think that the scale of public trust will change daily, minute by the minute. It's definitely a sliding scale and not a yes, we have public trust or no, we don't, and it also depends on the population.’ (Respondent 22)

One respondent also categorically stated that social license cannot be measured because it is totally subjective.
8.1.3 Social License Procedure – Earning a Social License

Here are a few responses to the question ‘how is a social license earned?’

‘I don't think there's an established procedure for a social license in agbiotech or in North America.’ (Respondent 12)

‘If there is an acceptance of your product and a market for your product, then you could infer that there's social license. If you avoid costs that are associated with people actively opposing your production or your project, then you could infer that you have social license. If you have political support for production or for a project, then you can infer that you have social license because politicians, for the most part, are not going to act without thinking that they have the support of the public. I think that's the measure of whether you have social license or not.’ (Respondent 14)

The procedure could be affected by sectoral differences:

‘I don't think there's an established procedure; it seems to vary sector by sector.’ (Respondent 15)

Determining a social license pathway is still a struggle after more than two decades of the model’s existence:

‘How a social license is obtained has been a struggle for everyone. I think we still struggle with what that really should look like or what that is and could be.’ (Respondent 9)

About 75 per cent of the discussants provided perspectives on how a social license should be obtained. One said it is dependent on ethics and the company.

‘I don’t think there's a predetermined procedure for it, but in general it has to do with conversation and a two-way feedback; interacting with the public and collecting feedback and really being open to making changes to the way you operate based on what's determined to be the ethical way of doing things in the society that you're operating in. It's not a clear path and it’s very dependent on the business, but it does require a lot of back and forth and understanding the public. There’s a lot of consumer research and it very much depends on what you're trying to do.’ (Respondent 3)

According to one participant, there is no space to talk about a social license procedure when social license is viewed as public trust. There is no fit.

‘When you look at social license from a public trust lens, the questions on its process don't necessarily fit. I think that's part of why it manifests as public trust. Because in the agricultural space, you really couldn't answer these questions. There isn't a body you go to get a social license. There's a number of sub sections of the public, all with different wants, needs and concerns, and their trust or belief or license can fluctuate, so you can't
really get one granted, hence why you have to look at it as how much trust do they have in agriculture or in any specific segment of it.’ (Respondent 18)

Closely linked to the question of procedure is the issue of recognizing ownership or possession of a social license. How do people know they have earned a social license if there is no official procedure or confirmation? The field data reveals three major ways through which discussants say a social license can be recognized: by inference from successful technology commercialization, public support and cultural acceptability. One participant said some form of certification or accreditation from a recognized agency can serve as proof of a social license.

‘You could show proof of your social license by demonstrating that you have certification, accreditation or some credentials. In terms of credentials that may or may not be recognized by the public but at least they can see that we operate according to the Canadian safety standards or within what’s acceptable for Agriculture and Agri-food Canada, Canadian Grains Commission or Canadian Food Inspection Agency. I would imagine that would go to some extent in terms of building the trust.’ (Respondent 23)

Participants were skeptical about the possibility of having a complete social license. One of them who mentioned the intangible and continually evolving nature of social license, cited complacency as a potential fallout of having a social license. Here’s their observation:

‘Because it’s not a tangible license, it’s constantly evolving and even the science changes. I’m not sure you ever have it a hundred per cent because the goal posts are constantly evolving. The risk that accompanies a social license is that is you become a little bit more complacent (Respondent 25).

8.1.4 Identifying Stakeholders

The question on the relevant stakeholders sought to identify who should be involved in the social license decision-making process. Again, there was no unanimity on who should take part in determining who should be granted a social license or not.

Participants were generally unsure of the correct response.

‘There isn't an easy answer, and I really don't know what that answer is, to be honest. At one point in time, I would have hung my hat a lot on the scientists because they're the ones that are developing and using the technologies, and the consumer is eating it at the end, while farmers are producing the crops. But then you have the retailers in there somewhere who are making sure it gets from the farm to the processors and to the consumer. That’s a hard one.’ (Respondent 11)
One perspective was that the whole value chain should be considered as relevant stakeholders in the social license process. Others cited academic researchers, government scientists and private companies who they say should be involved in creating biotechnologies and communicating the benefits of these to the public.

Some industry partners who assert they face challenges with public trust because of the commercial nature of their activities, use a peculiar approach to identify stakeholders. One interviewee explained.

‘We have thought about where we are in the spectrum and because we have a trade association, there's limits on how much people will trust us because they see us as having a vested interest. For us, we have looked in terms of who the relevant stakeholders are. Our idea has been that if people don't want to receive the message from us who might they accept the messages from? We've identified important groups like media, dieticians and academics, such have an important role to play. And so do farmers specifically.’ (Respondent 18).

Some respondents said the public is the relevant stakeholder in the social license acquisition process, while another group thought anyone who is affected or directly impacted by a biotechnological development should take part in its social license. According to this group of respondents, this could be the general public or anyone who is aware of the technology’s existence. One participant responding to this question noted that key players within the system should be identified as relevant stakeholders.

‘It should be everybody from consumers, people selling the product, investors, stakeholders, scientists, I think it's important for everybody to be involved in that discussion. I think it starts with the consumer; we have to see what people want at the end of the day. You know, as a scientist, as someone starting a startup company, it's certainly important to gauge where people are comfortable.’ (Respondent 13)

### 8.2 Social License Achievements

The query on the achievements of social license had an 81 per cent response rate. Of this overall percentage, 4.5 per cent of the respondents said social license has only been successful in attaining the objectives of those who wield it as a political weapon. Eighteen per cent of the total respondents noted that social license had only recorded some achievements through CSR and voluntary certification standards, while 58.5 per cent said social license has no achievement whatsoever. This response amplifies, confirms and re-enforces an earlier assertion, based on
theoretical assessments in this study, that social license is more of a duplication of effort than a value addition. Some of the discussants who stated that social license has achieved nothing in Canada’s agri-food sector cited the model’s intangibility.

‘No. Like I said at the start I don’t think social license is a tangible thing you can really get to, it’s more of the cultural and social norms. So, I think it would be difficult to say social license has achieved anything.’ (Respondent 17)

Others said a social license is hard to achieve because of its non-specific nature. One respondent who examined the concept’s achievement from a trade and market access lens gave this explanation:

‘I'm gonna say no. Social license has not achieved anything that other schemes have not, and I specifically will take that from a trade and market access point of view and say that when it comes to trade, we're driven by the science and the regulations. And, therefore, public acceptance, social license, has nothing to do with how we get to certain markets. Social license doesn't necessarily open up any market for us. Not having a social license doesn't hamper getting into certain markets. Social license has almost taken a back seat in the last three to four years, from a producer point of view because we're dealing more and more with market access issues. We want the consumer to still view us in a positive light in what we do and feel good about the food they're eating, but we're dealing with many more trade issues that are driven by protectionism versus consumer acceptance.’ (Respondent 10)

There was a general sense of agreement among respondents that there has not been enough action to match the much talk about social license. One respondent who asserted that social license has successfully achieved its objectives as a political tool also argued that the political motives for which social license is used is unrelated to self-regulation. In fact, he argues that in the political agenda for using the social license model, the end user’s need is hindmost.

‘I would say that the mechanism of social license is first and foremost a political one. In that sense, those who have used the concept of social license have certainly achieved their objectives for using it both on the GMO side and the trust building based on science. The use of social license has been very successful by those who wanted to use it to achieve political objectives, something that has nothing to do with self-regulation. For any group that has actually used social license as a method to achieve whatever they want to achieve, the need of the end user was absolutely last on their list because the direct measurable impacts and benefits of GMOs and other biotechnologies are very substantial. In Europe, for example, the anti-GMO organizations get what they want, but the European consumer doesn’t. These things do have a very measurable flow through into the socio-economic system.’ (Respondent 27)
8.3 Social License and Regulation

The study participants unanimously agreed that regulation or regulatory approval is superior to a social license. Every product or biotechnological innovation that has received regulatory approval has the right to commercialization. One respondent who insisted that regulation must always have first place explained that governments have a responsibility to objectively assess issues, projects and products, while society hardly performs any objective evaluation.

Over 55 per cent of the respondents agreed that social license can influence or impact regulation in several ways. One of the first ways participants explored the possible impact of social license on regulation was through politics. They explained that politicians who want to stay in power, might tweak regulation to favour public opinion or social license. One respondent explained the possible influence of social license on regulation as follows:

‘It influences the political system. It influences politicians who create legislation and regulation. The political bodies in our country create legislation and set regulations. To the extent that those politicians are influenced by the social license discussion, and I think they are, then it can change the law and it can change regulations. I don't think it does so directly, but it does so through the influence that it has on those politicians and politicians are in part motivated by a desire to be elected to office and reelected to office. They may see social license as an indication of the direction that the general public wants to go in. So, if they see something as having social license or not having social license that may influence politicians, because politicians will see that as an indication of where there will be support from the electorate and where there will not be support from the electorate. I would think the points in time when social license would have the largest influence would be at election time.’ (Respondent 14)

Some respondents noted that the influence of public opinion can be risky for regulation, especially in cases where public opinion is based on incomplete information which can be more easily distorted. Others argued that the government will keep erecting regulatory barriers to ensure checks and balances for business activities, even without the social license model. One viewpoint was that social license can ease access for some biotechnologies along the regulatory channel or it can translate to the political will to facilitate the adoption of a particular technology.

Most discussants who said social license cannot impact regulation examined the relationship between social license and regulation from a science and safety perspective. For these respondents, the assurance of product safety and science-based evaluations are the most
important issues to consider in biotechnology regulation. They argue that regulatory oversight has to be science-based, while any public factors only come in second place. Commenting on this, one participant said:

‘Once you're done with science-based regulation, you can then move on to the public element. If the public has less faith in their regulatory institution, the regulatory institution might put increasingly higher level of oversight on the product in an attempt to garner more public trust.’ (Respondent 24)

A respondent commenting on regulation and change in the system said he’d like to see the government do a better job of explaining to society what they are doing to protect the public.

‘Government has a role to play in explaining in a very unbiased way how they are looking at these regulatory issues and how they're looking out for the best interest of the people they serve. I think that government isn’t known for moving quickly because they're a giant organization with many priorities. But coming into the new information age and the ability for the government to reach their stakeholder base and taxpayers, the more clarity they can give on what they do and why and also when they don't do something, why they don't do it. Once they get those messages out, then whatever sector they're regulating, they build on those and explain what the sector is doing to ensure that it's doing the science and the safety at the beginning.’ (Respondent 19)

8.4 Social License and Other Self-Regulatory Models

One of the most important segments of this research is comparing social license and other self-regulatory governance schemes, to determine the improvements or advancements that the social license model brings to the agri-food space. Two of the probes in the interviews encouraged participants to compare social license with corporate social responsibility and voluntary certification standards and also to comment on the achievements of social license. The main goal was to find out what social license has achieved that other self-regulatory regimes have not.
Comparing Social License with Voluntary Certification Standards and CSR

Figure 8-3: NVivo Word Tree for CSR

Source: Research field data (NVivo coding).
Figure 8-4: NVivo Word Tree for ‘certification’

Source: Research field data (NVivo coding).
Figures 8-3 and 8-4 show the word trees for certification and CSR. The word tree is one of the visualization tools in the NVivo software. It displays the results of a key word or root word search with branches representing the various instances or contexts in which the root word occurred in the coded texts. The word tree is useful for displaying the root word’s frequency of use and also shows how findings were identified. The root word’s font size indicates the number of times the word was found in the coded transcripts. The size of the word tree is determined by the number of references linked to the root word. The more references there are, the bigger the word tree. According to the word trees in figures 8-3 and 8-4, there were more observations or references on the connection between social license and voluntary certification or standards than CSR from the research data.

8.4.1 Social License and Voluntary Certification Standards

Participants were asked to comment on the relationship between social license and voluntary certification standards. Overall, an overwhelming 92 per cent of respondents said social license and voluntary certification complement each other. However, unlike CSR, the complementary relationship between social license and voluntary certification standards was highly conditional for most participants. Of the 92 per cent who described the relationship between social license and voluntary certification standards as complementary, half of them agreed that both concepts were completely complementary, while 42 per cent thought despite their complementary nature, the concepts become competitive in specific instances.

Discussants noted that social license and voluntary certification standards are complementary to the extent that both help in accomplishing sustainability demands like biodiversity conservation, water and soil management and preservation of protected species and protected land spaces. One participant said:

‘As long as the voluntary certification standard is agnostic or neutral on agbiotech, then that complements the social license. That is another communication tool with the public which says we are growing our crops in compliance with some of these sustainability goals.’ (Respondent 5)

A participant said both concepts were complementary, but described that relationship as a complex process:
'The certification process is an avenue by which social license can be granted, but there are steps involved and it's more complex than that. You create a certification program and then you develop public trust and then public trust grants you a social license. It has to be looked at in terms of a process, not in the terms of being mirror images of each other (Respondent 5).

One stance asserted that certification standards and other self-governing protocols are in many ways a response to social license. They argue that certification standards are a response to consumers who may feel that there was no social license granted to a specific food production system or consumers who feel they had no say or were ignored during a product development process. Certification standards then create a second supply chain, with a supply of food within a system that has received a social license through the buy-in of consumers and producers. Certification standards complement social license as a by-product of a process where some segment of society felt marginalized in the product development process.

Another respondent who noted that both concepts are complementary added that the plethora of certification labels on food products only helps to confuse consumers and is not often helpful, especially when they are competing labels like GMO and non-GMO certification labels. When participants cited instances of social license and certification standards as competitive schemes, they noted that meeting the demands of voluntary industrial standards produces great results but competing certification standards harm public trust and promote miscommunication. Here's the explanation from one respondent.

‘If you mean voluntary standards also like non-GMO labelling, then yes, it is competing and harming public trust and it’s some kind of miscommunication. So in terms of voluntary certification and marketing labelling that’s not great. The labels and certification can be misleading, like the fear around labels of GMOs. But industry wide standards and code of conduct and guidance that's agreed upon can be helpful. (Respondent 1)

Another participant who commented on the difference between the two concepts said:

‘If certification standards work from a social license and a consumer acceptability point of view, then they are complementary. They're complementary, if you want them to work together but they can also be very different depending on your goal. If you're trying to segment markets for either profits or to leave the impression that your product is very different and are thereby worth more while somebody else's is worth less, then they're not complementary. They then become very different because they just aren't working in the same vein of and goal of providing consumer with confidence about their food.’ (Respondent 11).
8.4.2 Social License and CSR

This segment of the discussion began by asking the research participants if they considered social license and CSR as complementary or competing concepts. All respondents who made the comparison between CSR and social license said the two concepts are complementary to some extent. Despite this unanimity, participants had diverse opinions on the similarity, goals and objectives of both concepts and described varying ways in which they complement each other. While some respondents spoke of a conceptual overlap between CSR and social license, others noted that they complement each other to the extent that they work together to achieve public trust or a social license.

According to respondents, social license and CSR complement each other because their goals and values blend nicely. They note that some corporations have strong statements on their CSR strategies that align with social license issues or help address the social license questions. To support this assertion, some respondents pointed to corporate environmental protection strategies and climate action plans outlined in CSR strategies as examples of CSR initiatives that align with the social license agenda. Others said social license is an extension of CSR, while for some others, CSR is a tool to achieve social license.

‘It's definitely a complementary relationship because one came from the other. The social license was out there as how do we provide consumers with confidence in our product from their point of view of growing and raising food. From that, came a lot of the different programs such as standards and standards are a good one because some of the programs were very prescriptive in the sense of if you don't do this, you can't sell into this market.’ (Respondent 10)

Although almost all participants said CSR and social license complement each other or sometimes overlap, most respondents made some distinctions between the two concepts. While there was a general sense of agreement that CSR can positively impact the acquisition of a social license or help build trust, some participants admitted that the objectives of both concepts are different.

One participant commenting on the difference between CSR and social license said CSR focuses on a company’s overall attitude and culture, while social license is more about business branding. In contrast, other participants said both concepts have corporate reputation as a central focus.
Another respondent said CSR is often about internal policies or actions, while social license is about external activities and acceptance. To another, CSR activities are mostly about the usual expectations from society and cannot be leveraged to become a social license. Social license should go over and above those societal expectations. One respondent who said the concepts could complement each other although they are dissimilar and seek to accomplish different objectives, gave this explanation:

‘I don't see them as similar at all. I think CSR and voluntary certifications are industry-based advertising. I think they can be used in support of social license or seeking social license, but I basically just see them as being some sort of an advertising campaign to obtain social license and don't see them as being the same or similar. I don't think that they compete with each other, they complement each other to the extent that CSR and voluntary certification can be used to gain social license...CSR and voluntary certification can also assist with getting political support. They can assist with everything, but only through obtaining social license. I see corporate social responsibility and voluntary certification as being tools used to achieve social license and then its social license that achieves the market and the avoidance of opposition and the political support. I don't even think that they seek to achieve the same thing as social license.’ (Respondent 14)

In contrast, another participant said ‘They overlap. They both get to that common goal, but they have different mechanisms on how they get there.’ (Respondent 20)

**Figure 8-5: NVivo Word Tree for ‘compete’**
8.5 Understanding Social License

As seen in Figure 8-1 above, a large part of the field data was centered on the respondents’ understanding and conceptualization of social license. All 27 research respondents answered the questions related to this research theme, albeit with wide variations and gaps in understanding and applying the social license model among Canada’s diverse agri-food sector actors. This variance in conceptualizing the model indicates a general lack of consensus as to what social license actually means in Canada. The results also confirm that social license means different things to different agriotech actors. In other words, social license is a subjective concept. This also confirms earlier discussions in the literature review on the model in Chapter 2, where it was established that social license is whatever the user chooses it to mean. Even within Canada’s agri-food sector, the concept continues to defy a uniform conceptual interpretation.

Here are a few examples of how the model is understood and interpreted in the agri-food sector. For many respondents, social license is primarily about community acceptance or buy-in and community perceptions about corporate activities.
‘In my opinion, social license is the ability for your business to operate. For example, if you're running a cannabis operation, social license will have to do with whether the society or the community you’re trying to set up in will allow your business to set up in their neighborhood or sell your products. If you are able to sell products, then you have social license.’ (Respondent 3)

To yet another discussant, social license has to do with community buy-in:

‘Social license is when a project or whatever it is, needs buy-in from the community or from stakeholders who may be affected parties, and it could have different dimensions. It could be geographical, i.e., if you want to do something in a particular area. That's how I understand it broadly.’ (Respondent 2)

One respondent conceptualized social license in terms of community perception and the effects of business operations on others.

‘My interpretation of the concept is basically how your actions and potentially your business is perceived by people in the community or any social group of people. I guess it really comes down to the way you might be perceived by others, and how your operations and functions affect others.’ (Respondent 21)

Other respondents equate social license to other concepts like public engagement or support for a policy decision:

‘Social license is basically getting public support and engaging the public before you proceed with some sort of policy decision.’ (Respondent 1)

Closely related to this public support notion of social license, is the definition of the concept by two other participants in relation to public acceptance.

‘The acceptance of a project, or a product, or a form of production by the general public.’ (Respondent 14) and

‘The willingness of the general public to accept certain behaviors or practices or even beliefs.’ (Respondent 15)

Beyond community and public acceptance, social license for others involves acceptance by and responsibility to employees. Here are the remarks from other discussants:

‘Social license is the overall acceptance by our employees. It is also acceptance by stakeholders and the general public of what our company produces, whether that’s in biotech or chemistry, as well as the fact that we are producing safely for the betterment of society and the general public (Respondent 10). And

‘Social license to me, means my responsibility to the staff and how people perceive their working there too.’ (Respondent 23)
Two respondents made a connection between social license and social and cultural norms.

‘My understanding is that social license means you're operating within the social and cultural norms of the society you live in. So, whether that’s animal welfare, for example, if the cultural norms are that animals should be well cared for from birth through to slaughter in an agricultural situation and you’re operating in a situation where you’re not taking care of your animals, you would be at risk of losing that social license to continue your operation. You should be aware of what those cultural norms are to you.’ (Respondent 5)

‘I've worked with Social license before and my understanding of it is that any society has a set of norms and those set of norms is what people consider to be appropriate in their society. Different cultures have different norms. When you participate in your culture and you obey those norms, then you are obeying the social license.’ (Respondent 7)

To many others, social license is unequivocally connected to public trust:

‘Social license, effectively, is society giving the right for you to carry out your activities. Obviously, if we're talking about farming or biotechnology, we're talking about society's level of trust in the ability to perform food production.’ (Respondent 16)

‘From a science point of view, we definitely think about a regulatory license because the government can actually outlaw, legalize, authorize or not authorize products, so you need a license for certain things. And then the flip side of that is you need the public to be on board. I think that's how it works, there's a regulatory license and then there's the social license, but then, as the conversation matured, we realize we're not getting licensed by the public, we're just asking them to believe in us and have trust in us and I think that is an interesting evolution.’ (Respondent 18)

‘We actually use the term public trust. We used social license before but we've graduated to public trust. I think social license is just a new term. If the consumers don't trust the food system, then there's a decreased chance of success for Canada's food system. The biotech question is an extremely complicated topic and, therefore, public trust or social license is very crucial.’ (Respondent 22)

For several respondents, social license is an amorphous concept. ‘Social license can mean specific things for specific projects’, remarked a respondent. One respondent from the non-GMO sector noted that ‘the entire process of building the organic certification model is an exercise in addressing or assessing social license.’

To one respondent, social license is about doing the right thing:

Essentially, it’s doing the right thing. If you're looking for a really short and simple definition, it’s doing the right thing, but of course, we have to find what that right thing is and the right thing does appear to change and evolve over time.’ (Respondent 25)
One respondent who described social license from a public policy lens noted that:

‘Social license is illegitimate and definitely not democratic. To put it bluntly, the way I've seen it used in terms of pipelines and the energy sector, social license is a form of hijacking direct democracy, where you cannot ascribe a right that does not exist legally, yet you use that right to then state a position which you argue is held by a majority, something that is not verifiable. That's not very democratic.’ (Respondent 27)

In summary, respondents used social license to refer to acceptance and approval of corporate activities and products by employees and the general public, or in reference to project buy-in from community stakeholders, public trust, satisfying cultural and societal norms, meeting the demands of certification standards, responsibility to corporate staff, relaying information to consumers about how their food is grown and an illegitimate hijacking of democracy. One participant from the corporate sector who described social license as a moral compass said the concept elicits many questions:

‘Does what I’m doing support agriculture? Is it legitimate? Do I have the trust of everybody else, like the general populace or the trust to do what it is that I need to do? Social license is a kind of moral compass; do I have the right morals to do the right thing? And by saying yes to that, you give me a license to operate.’ (Respondent 23)

8.5.1 Sub-Themes from Participant’s Understanding of the Social License Model

There are several significant derivatives from the data generated in this study. Figure 8-7 shows the research data that emerged from recurring sub-themes in the ‘understanding social license’ category. This category was grouped into a two-level hierarchy of main themes and sub-themes. These sub-themes were coded as child nodes under the above-mentioned parent node. They represent various characterizations of the social license model according to the conceptualizations of the research participants. The size of each category is indicative of the proportion of observations that are in that specific sub-theme. As seen on the pie chart, one of the sub-themes also explores the drivers for social license as explained by the respondents.
The sub-themes shown above are indicative of the core concepts and operations which Canada’s agri-food sector actors ascribe to the social license model. Just like the varied definitions of social license, discussants also displayed differing impressions about social license. Participants generally agreed that while social license is real, with much talk about public trust and its importance in the agbiotech sector, there has not been adequate action to match the excessive talk. Besides, business decisions always come first; social license, therefore, is only secondary. Other respondents said social license is just another way to explain a phenomenon which has existed in society for more than two decades. They explained that every society has issues which they agree or disagree on, and these issues are not necessarily put into law. Having a social license then becomes an issue that is more of a social norm than it is a legal requirement. One participant who said social license is not an absolute term made the following remark:
‘If you have 90 per cent of society agreeing with what you're doing, that effectively is a social license. And in some cases, even if it's only 25 or 30 percent, as long as that group and society both accept it, it’s still a social license. Let's talk about something like gambling, for example. 90 per cent of society may not think gambling is a good idea and may not participate in it, but so long as the people who are gambling give it a social license, then it continues.’ (Respondent 7)

Social license was also likened to social capital or something that needs to be created and delivered through a process. These divergent impressions reinforce the descriptions of the social license model in the academic and corporate literature as hazy and fluid. As has been stated persistently throughout this study, the model’s haziness and fluidity negatively affect the workability of the model.

Five major sub-themes emerged from the data coding process as shown in Figure 8-7. These sub-topics display some dominant highlights which are significant for a critical assessment of the social license model. They were prioritized during the coding process due to the respondents’ frequent references to them. A majority of respondents spoke repeatedly about the relationship between social license and public trust, while some participants made frequent references to the need for communication and education. Many discussants connected social license to either some form of labelling, branding or public relations. Another factor that stood out in the discussions was the role of both the social media and the general media on social license. Some participants examined social license through a sustainability lens. Respondents also spoke about the drivers of social license.

### 8.5.2 Drivers of Social License

The first category in figure 8.7 shows the research participants’ data on the drivers for social license. Understanding the motivating factors for social license is pivotal to this research. To understand the model’s contribution to biotechnology adoption, it is essential to determine the problems the concept was initially intended to resolve or the challenges it was created to address. From easing access to global markets, to ensuring business viability and managing risks, the drivers for social license presented by respondents were quite extensive.

The business case for social license according to most participants is the concept’s role in explaining to consumers the origins of the food they consume and to ensure that industry is doing
the right thing. However, participants agree that sometimes, there are challenges in determining what the right thing is and this usually evolves over time.

‘I think the motivating factor for us is that people want to know that what they are eating is being produced ethically or in the right way and is being done well. They know that at the end of the day they are expecting food on their table. Motivation is two ways: for us as a company, it’s also about how we conduct ourselves.’ (Respondent 25)

Another participant had a similar view:

‘To me, the biggest motivating factor for pursuing this concept from the ag point of view is to inform the consumer about agriculture or what we do, that is bringing in the modern day farming practices versus leaving consumers with the impression that we still farm like we did back in 1910 or 1920, with horses or ploughs and where everything is done by hand. We've evolved in farming, we've adapted a lot of technology, not only from an efficiency and economics point of view, but also, we've learned a lot of environmental and social things about farming. To me, social license has a lot to do with wanting consumers to understand that modern agriculture as we go about it today is good. It's not a negative thing that we've changed technology over 100 years or more to produce food.’ (Respondent 10).

Managing risks was another principal driver for pursuing a social license. A group of respondents mentioned lowering business risks and ensuring business viability, as reasons for the emergence of the model. Here’s one explanation:

‘I think lowering business risk is one of the motivators for social license and it is very critical to ensure viability of the business. You can only have your social license denied if the public is aware of your technology. As long as they're not aware, you may not be impacted by the idea of social license, but the moment they become aware through some kind of media article or advocacy group, all of a sudden it can become a huge issue.’ (Respondent 3)

Another reason for the emergence of social license according to the research data, is to ensure business success, build public trust for new technologies and demonstrate the benefits of scientific solutions to current global challenges. Some participants argue that social license is central to technological advancements. They opine that social license can be used to stall objections to the release of new technologies, since the public will be adequately informed about the technology prior to its release through social license operations. One respondent provided a three-fold explanation for the development of social license.
I think social media is the driver of social license but what's the motivating factor for pursuing a social license? If you're the developer, the project proponent or the producer who's seeking the social license, the reason that you do that is to achieve what I think are the end products of social license. Social license is at least three things. One is an acceptance that translates into a willingness of people to purchase products that are developed. That's number one that deals with social license’s connection with production. Number two would be an acceptance that avoids opposition to the production or to the project. So, if a product or project is accepted, then people aren't going to take active steps to oppose the production or the project. That is a benefit to the party that's seeking a social license. And the third would be social license translates into political support for production or the project. The proponent needs that political support with or without social license, but social license generally translates into political support. The motivating factors for seeking social license, therefore, would be to maintain or create a market for products, to reduce the costs associated with opposition to production or to a project and to obtain political support for the production or the project.’ (Respondent 14)

Some respondents who supported the assertion that social license facilitates market access, added that it also strengthens an industry’s position in a competitive market space. They said companies which fail to acquire a social license can be easily pushed out of the market. However, the case analyses and discussions in chapter 6 showed that market access is hugely determined by many other principal factors.

Closely related to market access, is the idea that social license facilitates and hastens technological adoption, according to some interviewees. According to an industry respondent,

‘The motivating factor for social license is to get an accelerated pathway for technologies to get where they need to go as quickly as possible. Without a social license, the pathway is slower and more expensive and potentially prohibits our ability to contribute to society’s greater good. That’s a huge motivational factor for us. If we don’t have a social license, the pathway is much more expensive but more importantly, our technologies are not going to reach the people that we need to reach around the world.’ (Respondent 25)

In spite of this assertion, the evidence throughout this research illustrates that social license considerations for the most part hinder agbiotech adoption.

In agreement with the literature, discussants also identified reputation building as one of the triggers for the rise of social license. To support this, participants mentioned some lawsuits against multinational seed companies that have caused deep divisions regarding the public’s opinions and created groups that ardently oppose biotechnology. Consequently, there is strong resistance and robust opposing views about the benefits of biotechnology, making it both a consumer and scientific issue. Social license thus serves as a corporate reputation and
biotechnology reputation booster.

Misinformation and the need for accountability are two other reasons for the emergence of social license according to participants. One participant specifically called out the social media for fueling this misinformation.

‘The negativity that drives people to not trust comes from incorrect news, I think from social media. That's what has initially driven social license. It’s the wrong information that has got out. In general, it's because everything's on the internet, it’s the Internet of Things. That's what's driven it. We've got to be accountable for what we're doing.’ (Respondent 23)

A third sector respondent identified market protection and consumer protection as the most motivating factors for pursuing a social license. For instance, the organic sector with its organic standard as its social license, sets the bar to ensure that consumer expectations are met with every organic purchase. As one respondent explains,

‘The main reason for a national certification and really to hold a social license that is organic, was to stop cheap imports flooding the country that did not meet that standard, but could describe themselves as organic. In Canada, the certification system is a market protection system that allows consumers who agree to the standard that is set by the Canadian organic standard to get what they want… The need to certify was really about communicating that social license when you can't talk directly to the farmer, or you're not engaging directly with the farmer’s business.’ (Respondent 8).

8.5.3 Social License and the General Media / Social Media

The second sub-theme from the understanding social license category involves social license and the media, both the general media and social media. Participants had positive and negative reactions regarding the connection between media and social license.

Discussants who made a positive connection between social license and the media saw the latter as an essential tool for promoting the safety and power of biotechnological innovation. They also recognize the media - broadcast, print and internet - as important avenues for scientists and agri-food stakeholders to speak about their activities. Others noted that social media tools have enabled activists and other influential voices to reach a wider audience and a critical mass more quickly.

Other respondents attributed the rise and spread of social license to the expansion of social media and the conventional media.
‘I would see social license as something that has developed in line with, or in conjunction with the expansion of social media or the opening up of traditional media. As communication and the exchange of information has gone beyond just the traditional news media, and opened up to everyone through social media, that's where social license has developed. I see social license as being tied very closely to social media. I think as long as social media is as pervasive as it is right now, then social license is going to continue.’ (Respondent 14)

8.5.4 Social License and Public Trust

Respondents referred to the connection between social license and public trust 36 times, highlighting the primacy of public trust in the operation of social license. Ninety-six per cent of the respondents mentioned it at least once.

Chapter 2 of this research examined Thomson and Boutilier’s (2011) model of social license with its core concepts of legitimacy, credibility and trust, which are also used by many other authors to describe social license (Moffat and Zhang, 2014; Prno and Slocombe, 2012; Prno, 2013; Joyce and Thomson, 2000). Thomson and Boutilier’s model also presented social license as a continuum of four levels: withheld/withdrawn; acceptance; approval; and co-ownership or psychological identification (see Figure 2-1, Chapter 2). According to this model, a company’s location on this continuum is indicative of the level of legitimacy, credibility and trust that has been accorded to them by the local community.

However, participants in this study did not necessarily present the public trust factor as being part of a continuum of levels in acquiring a social license. Rather, a majority of the respondents said both terms were connected but not entirely the same, synonymous or interchangeable, while a limited number of respondents said they actually mean different things. One respondent commenting on the relationship between public trust and social license said:

‘I think they are connected, I don't think they're entirely the same because it’s seen in the way it is done that consumers don’t necessarily license technologies, though they'll still buy them. And so, it's not exactly the same thing, although they are very strongly connected. The narrative should be changed from social license to public trust, the narrative should still be about social license but acknowledging the importance of trust as a major element in building that social license. Social license is very business centric. If you're talking about it in a public forum, maybe the word you use would be different than when you're talking about it in an industry-specific environment. Among your peers, you
might talk about social license, but among the public, you might say earning the public’s trust.’ (Respondent 3)

Discussants who thought both terms were fairly synonymous noted that social license is more compelling than public trust. One respondent remarked:

‘I think they're fairly synonymous. I feel like social license is a little stronger. Public trust feels a bit like, oh, just trust me, I'm doing the right thing but social license allows us that opportunity to have those deeper conversations and examine the issues a little more critically. Public trust feels like we just have to convince the public or like the public is kind of dumb. I think public trust is super important too and it’s happening as well. But I wouldn't want it to replace the concept of social license. I see social license like when you think of a different sector such as forestry, that social license is needed to clear cut a forest. Well, the forest industry lost that social license and they had to change their methods. We have to keep that in terms of making sure we're working within those social and cultural norms and understanding where we can move things forward based on technology and science. We can't have public trust without social license.’ (Respondent 5)

Several discussants said public trust and public engagement are some of the ways they understand the concept. These group of respondents say social license is just another word for public trust, although public trust is a better fit.

‘When I started working in the ag industry and heard the term social license, I equated it to just a different word for public trust. In the minds of many it’s the same, but public trust just puts it better. I think the term social license is a bit outdated though it’s used in some circles but outside of your research we don’t really hear it a lot. I haven’t heard the term social license as much as I’ve heard public trust or public engagement. People understand the word trust as a very emotional word that they connect to immediately. Social license is a little different in the sense that it talks more about the will to proceed with something or support something whereas trust is a little bit different and trust is the same concept in a whole lot of ways that people easily understand. With social license people wonder what that is and it talks more about communication. Social license sounds a little bureaucratic and jargony. So does this project have a social license to proceed versus do people trust this thing?’ (Respondent 1)

Another participant noted:

‘From the broader point of view, public trust is a better fit because what we're really asking the consumer to do is to believe we're doing the right thing and our food is safe and produced sustainably, as well as all the positive messages that we want to put out there. I don't necessarily have any concern about the term public trust, but then it gets into that question about what exactly does that mean from both sides?’ (Respondent 10).
Some discussants view social license as another word for public trust:

‘I’ll begin by saying the term social license is an interesting alternative to the term public trust. I think the actual concept of a license is perhaps a little bit dangerous because your license can be taken away from you. And there are questions about how you gain the right to grant a license. I know that when this topic became more front and center for a larger section of the agricultural community that was the term that was pursued, but there's been a concerted shift to the use of the term public trust because it's less of a power play and more of a relationship term. If you want to use those two interchangeably, then I would say it's real. If you look at license as something that can be taken away, I would be a bit hesitant to say it’s real.’ (Respondent 18)

Many respondents, including those from government agencies are already changing the narrative from social license to public trust. One explanation for this switch was that the connotation around social license suggests the need to apply for a license, which is not the case. In fact, one respondent referred to social license as falsely connoting the need to apply for a license as in the practice of agronomy or medicine.

‘We've actually moved away from the term social license and we're now focused on public trust. It’s more of the general term like trust in agriculture, trust in biotechnology, and trust in science. When you talk about social license, for example, my view is you have to apply to get a license or you have to go through a process to get accredited to do certain things. And I'm not sure that is necessarily the case. It's the public’s trust around what you are doing and why you are doing it.’ (Respondent 16)

Another respondent said:

‘We actually use the term public trust. We used social license before, but we've graduated to public trust. I think social license is just a new term. And if the consumers don't trust the food system, then there's a decreased chance of success for Canada's food system. So as the majority of Canadians aren't involved in the biotech space which is an extremely complicated topic, public trust or social license becomes very crucial.’ (Respondent 22)

A second reason for the changing narrative from social license to public trust is because some discussants consider trust as being more overarching. They explain that public trust can be obtained in a variety of different venues, from farming practice to harvesting methods through to the general safety of food consumption.

Respondents who support a change of narrative also argue that while an acquired social license can be revoked or taken away, no one is really taking away your food production license. In essence, they assert that what they are trying to accomplish is increased confidence in what
the public is consuming. They say one of the reasons for the emergence of new concepts within the agri-food space is because consumers have been further removed from the primary production process.

‘We have roughly 3% of the population now that is involved in the actual primary agricultural production, so you have about 97% that don't really understand why you would use a GMO canola, or why you would use different herbicides or insecticides on your farm. There’s a lack of full understanding and trust around some of the things we're doing because there's just no tie anymore. If you look back even a generation ago, at least people can go to their grandparents or aunts and uncles and talk about farming, but now, we've become so removed from primary production. The other issue is, we haven't done our job as farmers to involve the public because the public didn’t really want to hear what we want to say. And that's quite away from the truth because consumers did want to know but we just didn't provide that avenue for them to interact with farmers or the agriculture industry in general. Now, as a result of some of these voids, you have different special interest groups that are promoting either certain products or marketing products as free of this or anti that or whatever it happens to be. This creates a level of question, I guess I wouldn’t say distrust, but it creates a level of questions and the answers aren't necessarily easy to actually find. When it comes to building up trust, our goal is to make sure that consumers can make confident decisions. It doesn't mean that you have to eat meat or consume canola oil; it means they understand some of the basics around these products and can make confident decisions about their food choices. It's about increasing general trust in agriculture.’ (Respondent 16).

Supporters of the view of changing the social license conversation also describe social license as representing a conversation of trust because the model is primarily about building trust, with society granting a social license as proof that trust has been earned. One respondent noted that trust is simply a label that enables a pattern of behaviour and the label describes what the sector is trying to achieve. Others assert that trust is the central factor because the biggest part of what is considered social license is establishing trust between business, people or groups but also with companies and consumers there should be also a level of trust. They refer to trust as an emotional word that is used to solicit people's emotions, while social license is really just talk with not much action around the model. ‘Social license is to everyone whatever they interpret it to be.’ (Respondent 21).

A third argument raised by respondents in favour of changing the conversation from social license to public trust is that social license is more of a relational term. This is an
important consideration especially given that all actions are usually directed at the public. As one participant observed:

‘If you’re reading an article about social license people are going to wonder what you’re talking about versus public trust which I think is just much more palatable. The general population just relates to it more.’ (Respondent 18).

One participant who was not in support of moving from social license to public trust argued that changing the conversation completely alters the concept and reframes the argument.

‘Words, rhetoric and concepts are used by groups whether for or against a particular cause to quash something and these concepts become rhetorical devices. So changing the conversation from social license to public trust makes it become a completely different concept and you’re reframing your argument. Public trust can be something that you can measure with dollars because consumers are showing that they are buying the product, but it doesn’t mean that they are informed about the product… Public trust for companies may have a different meaning from what an individual consumer considers it to be when they are making that purchase in that moment at the retail store. There could be a cognitive dissonance there and that is not captured in that debate. It’s interesting how each group sees the social license concept through their own lens and meaning. There just hasn’t been a process in place that adequately delivers on social license and so groups are using it to express how they feel that they’ve been left out and others are using it to show their authority or their legitimacy when they say they have social license or public trust. There are always marginalized groups throughout the system and because there has never been a process or an expressed way of measuring it, it allows for the most powerful group or the group trying to write the story to use it or frame it in a perspective that best suits their need. It’s a very interesting complication.’ (Respondent 12)

Very few participants were indifferent about the use of either terms:

‘Either one is fine, we move from language. The term social license is a relatively new term. We’ll move to another term after this term loses its terms of public trust. Public trust is just another word for the same thing. But either term is amorphous, like how do you know whether you have public trust? It doesn't make any real difference whether you change the terminology. In a sense, if you have public trust then they grant you a social license. So they're not exactly interchangeable.’ (Respondent 7)

Over 96 per cent of the respondents linked social license to public trust with a large majority asserting that public trust leads to obtaining a social license. In this sense, social license then becomes an outcome and should not be promoted as a model per se, within the agri-food sector. This characterization of social license is again amplified in a later analysis in this chapter, where the observations of discussants indicate that social license cannot be described as a
standalone model because all of its achievements are tied to other processes or other existing self-governing regimes.

8.5.5 Social License and Communication / Education

Another major sub-theme that clearly stood out from the research data was the connection between social license and communication and education. Discussants highlighted three major reasons that triggered the need for communication and education within the agri-food sector in relation to obtaining a social license: changing consumer perceptions on food and food production, consumers’ disconnect from farming, and the disconnect in informing the public about the potential benefits of biotechnology and impacts of misinformation.

Some government bodies have identified building agricultural awareness as a strategic priority due to changing consumer perception around agriculture. This basically involves educating consumers on happenings in the industry and why agricultural activities are being carried out in specific ways. This awareness and engagement strategy empowers industry stakeholders and individual producers to go out and speak to consumers, schools or the general public about what they do in the agriculture industry.

One participant commenting on the need for communication in obtaining social license made this observation:

‘I think it's very important, and there's been a lot of examples where the science is there, but there hasn't been work done to communicate the science to the general public or to the decision makers. Sometimes, there's a disconnect between where the science can take agbiotech, and what society and the cultural kind of norms are ready for. It's a really important thing that the agriculture industry and the biotech industry need to be more aware of and spend the time to communicate the science properly.’ (Respondent 5)

There was a general agreement from respondents on the need to make consumers have a deeper understanding of the activities of the food system. They also underscored the importance of understanding why consumers feel the way they do about certain subjects in the food space, whether biotechnology, farming practices or pesticides use. Discussants also spoke about having a unified voice when they communicate with producers. They emphasized that the idea is not to support or promote one commodity or crop over another. Rather, the goal is to make consumers understand the various aspects of food production and the greater good in the agri-food industry.
and receive adequate information to enable them make informed choices on their food and increase their trust in agriculture.

Industry participants noted that apart from helping to educate the public, they also work with government and other industry stakeholders to ensure that there is balanced information within the agri-food sector. They explain that this collaboration provides policymakers with the required information to make the right decisions on issues raised by the public, or issues that impact the industry’s ability to function (their social license). Transparent communication also helps to build trust, they said.

Another prominent reason for the need for communication is to combat misinformation. Some respondents asserted that misinformation is their biggest challenge, especially with the numerous questions around farming and food. While they accept that questioning their activities is not necessarily bad, they however recognize that too many negative voices could eventually become very loud and have a negative impact on farming and food.

The major communication barrier identified by some participants is the disequilibrium that results from the need for public communication and education and the desire of some farmers to not interact with the public. As one participant explains:

‘We need to get more farmers and more people in the agriculture industry to talk about what we're doing. Here lies some of the disequilibrium. When I look at the people I farmed or ranched with in the past, part of the reason some of these individuals have chosen the profession to grow food is because they like being by themselves, they like being their own boss and they like not having to speak to people every day. It's a little bit of a disequilibrium there.’ (Respondent 16).

According to participants, the risk this situation poses is that if farmers do not tell their stories or fail to communicate effectively, consumers will turn to other sources for information, thereby opening doors for disruptive information.

### 8.5.6 Social License and Sustainability

A fourth sub-theme that emerged from the data coding process was the connection between social license and sustainability. As noted in Chapter 2, advocates of social license say the model is premised on sustainability theory and sustainable development practices, which includes project benefits to society, local empowerment, and community participation in
decision-making. Authors like Prno and Slocombe (2012) have explored the emergence of the model from a sustainability perspective by attributing social license to increasing demands for more benefits from development projects by society. They note that a community’s approval of any corporate project would largely depend on its conviction that the social, environmental, and economic advantages are greater than their potential negative impacts and the fulfilment of other sustainability demands.

According to Hall et al. (2015), social license is not a complete departure from prevailing CSR and sustainability concepts. Rather, it simply places more emphasis on stakeholder and community relations, while intensifying commitment to sustainability principles to ensure that outcomes are beneficial to both the environment and society.

For some industry participants in this research, sustainability demands and the sustainable development goals are a major part of their social license strategy. They assert that their national and international associations promote the UN’s sustainable development goals and tell the story of how industry helps achieve this goal. Other industry partners include the sustainability ticket in their operations by making a conscious decision to create a more sustainable ecosystem both nationally and globally and having conversations about how their activities meet the demands of sustainability. As one participant explained, they had retrofitted their office building with LED lighting as part of their corporate sustainability commitment.

‘How social license relates to us is we would have a certain part of our organization make a conscious decision to have better sustainable or social impacts. We are being conscious of what we're doing in creating a more sustainable ecosystem both locally and globally. We are also starting to highlight our impacts on sustainability and we push these out to people who are looking for that information to show that we are doing certain things that meet this new kind of social guidelines. We retrofitted our building with LED lighting, and that would be something that I would see as contributing to a social license.’ (Respondent 20).

For yet another industry actor, social license should be looked at as one of the three pillars of sustainability: social, economic and environmental. They consider social license as part of the social pillar and argue that although the concept is critically important, it must be engaged alongside the economic and environmental pillars or within the complete people, profit and planet framework and not work as a standalone model.
8.5.7 Social License as Labelling, Branding and Public Relations

The research data also reveals some participants believe social license operates as a form of distinctive design and representation, such as labelling, branding or a public relation strategy. This observation came from about 33 per cent of the respondents. As with the previously discussed themes, opinions about the labelling, branding and public relations roles of social license were diverse.

Two participants said social license is a public relations approach which involves having a conversation with or responding to questions from society. Three others described social license as a label that permits certain behavioral patterns or demonstrates acceptance of agbiotech or some form of agricultural practice. They said the label is a description of what its promoters are trying to accomplish.

One of two discussants who considered social license as a form of branding rather than labelling had the following remark:

'It's a form of branding but not a form of labelling. On a label, you actually need to have scientific measurables to determine what you're saying. A label is a specific legislative requirement. But social licensing refers more to cultural norms and social license has only been adopted by agriculture and other industries in some ways. Social license, in effect, only really refers to any number of activities that society condones or doesn't condone.' (Respondent 7).

Two other participants refused to associate social license with any of the three forms of distinctive design and representation, citing the risks of greenwashing and competition.

'I don't actually see social license that way. I'd be worried about getting into labelling because it can run the risk of greenwashing things. I'd prefer to see it as more of really understanding how to communicate the science and the benefits of the science to the general public and really emphasizing the positive outcomes for public good that come from some of the scientific technologies. I'm involved in projects related to sustainability and we have that discussion around labels really often. This can be a sticker on a product that the consumer sees and says I prefer not to be sustainable.' (Respondent 5)

8.6 Conclusion

The field data is quite revealing. First, the data amplifies, confirms and re-enforces most of the assertions on the social license scholarship. As a subjective and intangible model with a highly variable definition, social license remains open to any form of interpretation. The absence
of a benchmark standard for evaluation and assessment makes it even more difficult to claim a
rightness or wrongness of personal interpretations of the model. There is still a lot of ambiguity
on how a social license is recognized, granted and revoked and who should be a part of the
discussions.

The research data also highlights the jurisdictional confusion between social license and
CSR. On a wider scale, the research finds that social license, CSR and voluntary standards are
more complementary than competitive, although competition can arise between the models in
specific situations. A clear response to one of the main research questions based on the findings,
is the fact that social license has not achieved anything more than other existing schemes.
Chapter 9: The Role of Social License in Governing

9.0 Introduction

This chapter concludes the empirical part of this study, reporting on the respondents’ remarks about the challenges, opportunities, and way forward for the social license model. It briefly explores respondents’ comments on sectoral differences between social license and mining and discusses the business versus policy case for social license. There is also a discussion on the role of social license in governance.

9.1 Social License Challenges and Opportunities

One principal objective of this study is to understand the limitations, challenges and opportunities of the social license model. In general, participants saw more challenges than opportunities for social license as shown in the word trees below (Figures 9-1 and 9-2).
Figure 9-1: NVivo Word Tree for the word ‘opportunities’

Source: Research field data (Nvivo coding)
The following subsections explore the views of the study participants.

9.1.1 Opportunities for Social License

Only two research participants (7.4 per cent) identified opportunities presented by the social license model, while one participant categorically stated that social license only presents...
challenges for the agri-food system. One of the two respondents stated that social license offers an opportunity to adopt a specific behavioural pattern because those practices are what a label certifies. However, this participant agrees that achieving a social license is a daunting task.

Another respondent thought social license offers an opportunity for multinationals and other corporations to (re)build their image and societal trust which might eventually make technological progress and expansion easier. This participant also said social license provides an opportunity to educate the public about agricultural practices and the food system in general.

‘We still have to explain to people what technologies we are using and how that fits in. That’s the opportunity social license provides. It is important to have programs that explain how we grow our crops and why the breeding technologies that we use today achieve better goals than they did say 30 years ago, or why we use the pesticides and other chemical products that we use whether for insects, weeds, fungus or diseases, how that has evolved and changed over the years and the benefits to everyone in the value chain and supply chain.’ (Respondent 11).

A respondent who saw no opportunities for biotechnological progress with the social license model said:

‘I think it only presents challenges. It seems like producers need social license but it’s another hurdle to jump through before your product or your project can achieve success. So, I don’t see it as an opportunity. I see it as a necessity and it’s another hurdle that companies are going to have to deal with.’ (Respondent 14)

If one of the principal challenges in the agri-food sector as identified by most respondents is educating the public about farming practices and food production systems, then the social license model is not necessarily the most effective tool to address this gap. If the model only presents more challenges than opportunities, and if social license only adds more complications to an already complex agbiotech system, then the model is unhelpful to the agri-food sector.
9.1.2 Social License Challenges, Gaps and Limitations

Figure 9-4: Social License Challenges

Communication was identified as the biggest challenge to acquiring a social license. At least 50 per cent of the respondents spoke about some aspect of communication as being a barrier or needing improvement. For instance, one respondent who identified communication as a challenge for the entire value chain said the science world, which is very accustomed to merely educating still needs to learn the art of effective and targeted communication. Another respondent speaking along the same line cited the need for more engaging conversations between scientists and the public. This same participant in another statement said:

‘There's interesting work from other disciplines and I think agriculture doesn't always look into understanding communication from other fields like the medical technology field, for example. Agriculture sometimes gets into its own little world and doesn’t look around at the way people are reacting to medical field technologies or similar pieces, for
instance. I think there's a lot of opportunity to embrace other disciplines and other ways of looking at technologies and innovations and understanding science literacy.’ (Respondent 5)

One respondent who pondered on the communication challenge, specifically about getting the message to the consumer, talked about the disconnect in the agri-food value chain.

‘The challenges are purely from a consumer acceptance, public trust and social license point of view: how do we get our message to the consumer? There are so many pieces in that chain from the farm all the way to the consumers and their homes, with so many points of disconnect. As farmers, we have organizations that we fund and participate in to get that message to the consumer, but we’re always left with the impression that the consumer doesn't really fully connect with that message because they're either not really taking notice... It’s something that we struggle with because we've got all these great messages or we've developed messages that are really cool in our heads and put them out there, but it's always a struggle to understand if that's really a connection that the consumer’s making and where in that system do you get the people involved. It's only farmers trying to promote that message sometimes. It's a disconnect and it's a struggle for us.’ (Respondent 10)

Other discussants called for improved communication:

‘The agbiotech sector needs to change the conversation and look for points of unity and they need to actually be able to brand what they're doing far better than what they currently are. They can actually use social license to their advantage to spur on new innovation. As long as people think that they're poisoning the soil, poisoning the lab and abusing their market privilege, then they will lose social license.’ (Respondent 7)

Other participants identified misinformation as another barrier to social license.

According to one respondent, emotions prevail over logic when people listen to the uninformed opinions of non-experts or people who lack knowledge of the science involved in biotechnological development. This respondent also notes that:

‘It's very hard to overcome these challenges by just communicating about facts and science if public sentiment is founded on unreasonable emotions and not the grasp of the topic. There are many historic examples of how public sentiment crashed innovation in the Middle Ages.’ (Respondent 1)

Participants thought the numerous issues around public trust and social license, make it hard to determine what issues are priorities. This group of respondents say sometimes the nature of the agbiotech industry just makes trust difficult.
About 30 per cent of respondents specifically mentioned some sources of inaccurate and misleading information like the social and traditional media. As one participant explains, the fact that social license is based on the social media leaves the concept open to manipulation, misinformation and malevolent actors and competition.

‘It’s a way for competitors to undermine the operations of their competition. I think that is a challenge with social license and a weakness in the social license model... Apart from the regulatory process, projects have to go through the process of gaining political support and then obtaining a social license. Maybe the regulatory process has more rules and more transparency than the political process, but the social license process has no rules and has no transparency. It's just a discussion that's going on Facebook or Twitter, and there's no rules and no guaranteed outcome. It is just open-ended and significantly exposed to manipulation and malevolent actors.’ (Respondent 14)

Another respondent commenting on the same issue said despite the communication advantages of social media and the general media, they could be disadvantageous in that on Facebook, for instance, more people are believing moms and other unqualified people about what they should be eating, than listening to dieticians who provide accurate information.

Study participants noted one major challenge to communication from the farmers’ end. They identified a disequilibrium where farmers may not be good at speaking to people. This set of farmers might be very passionate about what they do and be very good at producing food, but not necessarily enthusiastic about speaking to the public. A respondent from the corporate sector talked about the challenges they faced as an industry having to adjust to the demands of social license.

‘I would say some of the bigger challenges were internal to us as a sector, because it really required us to change our orientation. It's like learning a second language for our organization, because people in our sector are very scientific or agriculture based. Those are both worlds where there’s a language that the public doesn't understand. Our first big challenges were to overcome that. Once we overcame that and started to talk to audiences in a language that they could appreciate, the next challenge was about thinking really strategically about who amongst all the Canadians are going to help us move our messages forward most quickly or most efficiently. Who has the trust of average Canadians to carry that forward? You have to make these decisions because there's no way that you can reach everybody.’ (Respondent 18)

Another industry respondent who described public trust as a gradient noted that there is need to accept that some people will never be convinced despite the logic of your argument.
‘I think another good thing that I've learned is the right approach. In a scientific experiment, for instance, you could just replicate over and over and eventually this will work. But with social license, you need to recognize that it’s a gradient and there will be portions of the public that no matter what you have to say, they are not going to be open to your messaging. You just have to understand that and work with it appropriately. A big part of the challenge is to not get distracted by trying to convince the folks who will never come on board no matter how logical your arguments are.’ (Respondent 19)

Lastly, respondents talked about the model’s underdevelopment and unsuccessful deployment as being one of its major limitations.

‘There's certainly limitations. We haven't seen social license deployed successfully. There are various limitations where we just haven't found a way to develop the model. The Government of Canada or provincial governments haven't really provided a model or template for communities and peoples to participate in these debates and have a say. We've seen some movement in that direction with the duty to consult with Indigenous Peoples on developments in their territories and on large infrastructure projects, but we don't have those same sorts of protocols or forums in much of our other technological development projects and in commercialization of new technologies. (Respondent 13)

9.2 Sectoral Differences Between Social License and Mining

Only 18 per cent of the study participants responded to the question on sectoral or contextual differences between social license and mining. Most respondents said the agriculture and biotechnology landscapes are more widespread and much more conceptually complex than a mine. They opine that most often, the activities of the mining sector take place somewhere else, whereas your food is right there on your plate. This makes food issues more driven by people's hearts than their heads and something that cannot be played around with.

Another respondent who compared the scope of both industrial operations said agbiotech operations and most of its supply chain actors are more global in nature than those of the mining industry. Hence, the introduction of a new biotechnological product has far greater impacts on social license globally than does the development of a mine in a specific community. Secondly, the interviewee asserted that the value chain in mining is quite confined when compared with the agricultural value chain that ensures food production from field to fork and all other processes within the entire global food chain.
9.3 Way Forward for Social License

Determining the staying power of the social license model is an essential part of the concept’s evaluation. By asking the study participants what they thought about the future of social license, the interviews sought to unpack whether respondents thought the model is transitional or transformational and what its staying power is. Twenty-seven per cent of the respondents said the social license model is here to stay, 35 per cent said the concept has no staying power, while 38 per cent said the underlying principles or ideas might stay, but social license as a concept or model will evolve as the agri-food sector expands.

There are several reasons why some participants said the social license model is permanent and not transitional. One respondent asserted that businesses need a social license to remain competitive and to succeed. Another interviewee said social license cannot be ignored because the concept obliges us to examine important issues and overlooking the model can hinder technological advancement.

‘We can't ignore the social license concept because it can stop technology in its tracks, which could be problematic for all sorts of good outcomes. But that being said, social license can also highlight when a society is not comfortable with a technology. I think the social license conversation also forces us to examine those issues that are really important to us as a society.’ (Respondent 13)

Discussants also attributed the concept’s staying power to social media influence where false opinions are easily spread. One respondent who described social license as a political weapon said social license will always remain a part of the political arsenal.

A second category of respondents said the concept of social license per se will not last because of the evolving nature of the agri-food landscape, but the underlying ideas of the model will stay. This group stated that there will always be engaging activities or opportunities to talk about food and farming and to create a more knowledgeable population base and more confident consumers. A discussant remarked that the concept will expand as the agri-food sector transforms because social license is a social norm. He said farmers and businesses need to continually remind consumers that they are making the world a better place and not creating harm for the society or the environment.

One respondent who cited citizen juries and consensus conferences as prototypes of what a social license should look like, suggested that the concept ought to be transformed to involve
an engaged citizenry that examines biotechnological issues from a more holistic and wider lens than just whether it is good for a farmer, a consumer or an agbiotech company. He suggested that the model should look at the interplay of technology on all groups as a whole and ask the questions which some groups might not otherwise ask, because they do not think about these sorts of questions.

Other discussants said social license is here to stay but it will exist in different formats. In its current form, there are no clear pathways for engagement in the model. Some said the concept will not fade away because people have accepted the ideas embedded in it, but the model will evolve as consumers change their values and expectations.

‘The concept of social license is going to evolve and how soon that evolves I don’t know. Consumers change and their values change or at least their expectations change, so I wouldn’t think that the word social license is something we’ll be talking about in say 10 years. But yes, the underlying concepts are going to continue on.’ (Respondent 10)

A fairly large group of participants said the social license model has no staying power. Other respondents said while social license has brought some change in corporate practices to allow for more participation in the agbiotech space, the concept has no staying power because opposition to agriculture is mellowing.

In support, another interviewee asserted:

‘I might even go a little farther and say that social license, as a concept in Canada, has already gone by the wayside and public trust is really taking its space. For agriculture, I think we're wrapped in the larger challenge of public trust and biotech is just one element of it. You have animal welfare, land use, greenhouse gas emissions, and agriculture's contribution to climate change. It's a multi-faceted public trust element, and I don't think you can solve just one of them. There's no 100% solution for any one of these, you can only make it better. But for agriculture as a whole, public trust and not social license, is going to continue to be an important element.’ (Respondent 19)

9.4 General Impressions about Social License

The interviews revealed different impressions, thoughts and views of Canada’s agri-food sector stakeholders towards social license and agbiotech in general. Many participants stated that there will always be disagreement about information communicated to the public. The focus therefore should not be to convince those who will never be convinced, but to promote technologies that are beneficial to the greater good.
‘There's always going to be deterrents no matter what. There's always going to be opposing views, and that's fine. But we need to focus on the masses, the masses are 90 to 95% of the population that want to know more about how their food is made, why are you spraying that herbicide, or why would you need to use GM crops?’ (Respondent 17)

Other participants thought social license is an ancient concept as every society has things which they agree to or do not agree to and these things are not necessarily put into law. They considered the concept important for different reasons. First, because industries have to sell to the public, they need to ensure that what they sell is appropriate and is what the public wants. Social license is a part of that space as no sales can take place without a social license, according to these discussants. Second, social license should be based on scientific knowledge and not superstition or misinformation. This is the point where social license can become tricky and misleading.

Some interviewees used social license only to signal what they care about – their preferred outcome. This group described social license as a very good and catchy phrase. Participants talked about the concerted efforts by the environmental movements to block GMOs and how they have used social license to penetrate the political arena.

‘About twenty or more years ago, there was a very concerted effort by the environmental movement to block GMOs. They used the social license model to get that into the mainstream political machinery, so to speak, and won that battle. But if you ask people more certainly of the older generations, whether they have an inherent problem with GMOs, you don't get any support for the anti-GMO position. The environmental movements have used various iterations of social license to get themselves into the two key elements of what homo sapiens need to thrive: food and energy.’ (Respondent 27)

Others said social license was introduced without proper measures or a process to ensure consumer buy-in. As such, it is not a concept with complete information.

There were also a few comments on the implication of social license on the rule of law. Participants who spoke on this issue said social license is not a threat to the rule of law per se, but the model becomes disrespectful to the rule of law when protesters carry out illegal actions due to what they describe as the absence of a social license for a product or project. Here’s one explanation.

‘I don't see social license as a threat to the rule of law. Again, I see the end results of social license as being those three things that I've mentioned: the market, the avoidance of active opposition and political support. If a product or a project doesn't receive social
license, I don't see that as translating in any way to a threat to the rule of law because the regulatory process and the political process are both separate from social license. They're influenced by whether there’s social license for a product or a project, but they don't depend absolutely on that. There's still a separate system that is subject to rules and regulations. I don't see social license as a threat to the rule of law except maybe in one respect. If protestors or terrorists or other actors in society who are taking actions that are illegal are doing so on the basis that there's no social license for the product or the project that they are targeting, then that's a disrespect of the law. That in a sense is an attack on the rule of law and could be something that affects or attacks the rule of law. But beyond that, I don't think that social license undermines the rule of law or is an attack on the rule of law.’ (Respondent 14)

Participants from the farming community stated that while social license has been an avenue to provide the consumer with information about the why and how of certain agricultural practices and technologies, one important question remains unanswered: does social license really achieve its goals? This question, they said, led them several years ago to ask if social license is the right term to use. They then concluded that social license is not necessarily the right term because farmers are not asking consumers if they can still farm or raise animals. Rather, it is more about showing the consumer that agricultural practices are good and sustainable. To them it is still unclear if social license is a sustainability program or if it is about communicating through different organizations or informing and explaining farming practices to consumers. As one farmer explains:

‘Consumers don’t go to the grocery store looking for messaging around social license. They are looking for where the food is produced, and they desire to support their local farmers whatever local means (Saskatchewan, Canada, North America). We are yet to see how social license changes anything on the store shelf. Consumers sometimes make choices on food purchase for traceability reasons. They are comfortable knowing where the food came from, perhaps from a not-to-far off farm and can ask questions about it, while accepting the practice of production even if it is not what was initially desired. Social license was a big conversation six or seven years ago in Saskatchewan, it’s still there and we are using different organizations to educate and inform, but is that really what the consumer is asking for? I have trouble with that.’ (Respondent 10)

Other participants simply questioned at what point social license discussions need to start in the agbiotech and innovation lifecycle. They note that social license discussions should not wait until the very end of when the product is brought to the market.
9.5 Social License and Governance

There are specific defining characteristics for the concept of governance in both the public and private sectors. Rhodes (1996, p. 3) identifies three foundational principles of governance: ‘openness or the disclosure of information; integrity or straightforward dealing and completeness; and accountability or holding individuals responsible for their actions by a clear allocation of responsibilities and clearly defined roles.’ As explained in the early chapters of this research, the governance configuration of agbiotech involves a mix of actors from the public, private and third sectors, each with specific governing attributes. However, the research data reveals that the operationalization of the social license model as part of the agbiotech governing structure generally leaves more questions than answers. This is illustrated by the structural deficiencies (lack of an established process for acquiring or revoking a social license) as well as the gaps and variations in conceptualizing and implementing the model. The question then is: what does this mean for governance?

At the heart of this study is an attempt to assess the effectiveness of the social license model and its contribution to agbiotech adoption and commercialization. For the model to be effective and valuable, the responses to certain governance questions must be provided and made available to all actors in each sector and the general public. Who gets to define the social license model and who gets to provide answers to questions raised about the model? Who decides what we want social license to do or the exact issues it needs to address? What is the procedure for obtaining a social license and who is in charge of oversight? Who announces acceptance, approvals or rejections and what is the procedure for an appeal? Who should be included in the social license discussions and at what stage in the project or product development process should the social license discussions start? For some sectors, discussions might need to be broadened to a larger group of people for public acceptability to be achieved. As Baumgartner and Jones (1991, p.1046) explain in their “policy imaging” concept, framing policy ideas is a critical factor in justifying new policies or models, and legitimizing alternative views. Responding to these questions would provide a clearer framework or underlying structure for how the social license model should operate and define its actions from a governance stance. In fact, the social license model has yet to answer the basic who, when, what and why questions. Many respondents said they struggle with many aspects of the social license model.
‘That's been a struggle for everyone, I believe. From a grains and oilseeds point of view, I think we still struggle with what that [earning a social license or knowing we have one] really should look like or what that is and could be.’ (Respondent 10)

‘I really struggle with that one too [how social license is earned] and there isn't an easy answer. I really don't know what that answer is, to be honest.’ (Respondent 11)

Figure 9-4 NVivo Word Tree for ‘struggle’

As noted by Rhodes (1996), there needs to be a clear allocation and definition of roles and responsibilities for the actors in each governing sector. The social license model needs to show how governance activities are executed at each level and how the actions and activities of all stakeholders are coordinated. For social license to be an effective governance operating model, it needs to demonstrate how the elements of its framework translate to policies and define operating procedures and codes of conduct.

Accountability is an equally crucial element for governance as Rhodes (1996) explains. Accountability established through lines of reporting, transparency and other participative processes will help build confidence and trust in the model. A clearly established social license
model would provide a framework that can be replicated or modified and would help to determine risks that might be associated with the concept. The interconnected and complex nature of the agbiotech supply chain stakeholders, makes the governance considerations and attributes of the social license model even more crucial.

It is important to note that because social license is not a one-size-fits-all model - its operating governance infrastructure will always require an adaptation to sectoral differences. Industries are different, businesses within the same industry are different, sectoral challenges are different and so are the stakeholders: however, the basic underlying principles of governance will often remain the same, regardless of the sector. The model fails to consider this sectoral adaptation requirement in its migration to the agbiotech sector.

9.6 The Business Case versus the Policy Case for Social License

The business case for social license in the agri-food sector is its risk and reputation management function that helps companies ensure continuous business activities to secure profits and avoid product boycotts that would lead to financial losses. This is important for business survival but not for government. Instead, social license or its absence has been used to hinder agbiotech food approval and successful commercialization. When decisions by a minority group, which may not truly reflect the desires and interests of the wider public supersede decisions made by democratically established statutory authorities, then democratic institutions and the rule of law are greatly threatened. The opportunity cost of adopting the social license model, therefore, is something worth exploring. In other words, what will the agbiotech sector lose if the social license model is not adopted? This consideration brings this research full circle and leads to the next important question. Is social license a transitional model which will only be useful for a while and ultimately be discarded or is the model going to be a permanent feature in the agri-food landscape? This discussion is essential for every sector where the social license model has been adopted.

A majority of respondents in this study noted that the basic tenets of the social license model have staying power, but not the concept per se or the concept in its current form. There are many other factors that speak to the transient nature of the social license model. One of the themes that stood out in this research was the strong coherence regarding the non-achievements
of the social license model. The few successes of the model noted by discussants were all linked to CSR and voluntary certification, depicting social license as an incremental adjustment to these existing regimes. Also, the shifting terrain of the model (explored in chapter 1) speaks to its unpredictable and transient nature. Social license as an ideological and rhetorical construct is more abstract than real. All these attributes of the model make social license more transitory than transformational.

9.7 Conclusion

The field data shows that social license presents more challenges than opportunities for the agri-food sector. For the model to be effective and valuable within this space, the responses to several governance questions must be provided and made available to all relevant actors and the general public. Additionally, respondents were generally unsure about the future of social license. Most respondents agree that while the underlying principles of the model could have some staying power, the model is more likely to evolve over time. This finding speaks to the model’s shifting terrain discourse explored in Chapter 1. Social license, therefore, is more of a transitional than a transformational model.
Chapter 10: Conclusions

10.0 Summary

This research is aimed at understanding the responsibility, need and value of social license in the agbiotech adoption pathway and agri-food governance as a whole. The study examines two principal research questions: (1) what has social license as a self-governance model accomplished relative to agbiotech adoption and commercialization that is different from other already existing public and private governance structures in the agri-food sector? and (2) as a model piloted in the mining sector, what are some of the challenges of social license within the agbiotech space?

The dissertation theoretically unpacks the institutional arrangements of social license and agbiotech using Ostrom’s (IAD) framework and explores the two major contrasting regulatory pathways in the agri-food sector. The empirical analysis draws on three case studies of successful and unsuccessful agbiotech food and technology adoption and commercialization, and 27 semi-structured interviews with key agbiotech supply chain actors in three Canadian provinces: Saskatchewan, Ontario, and Alberta. The transcribed interviews were manually coded using the NVivo qualitative software.

This chapter provides the answers to each research question, explains the conclusions drawn, outlines the study’s limitations and discusses the policy implications and possible avenues for further research.

10.1 Findings

In response to the first research question, this research finds that the most noticeable achievement of the social license model has been to bring social considerations to the fore of corporate mainstream discourse and decision-making and to reignite the need for communicating and educating consumers on the how and why of food production and farming practices.

‘No. Like I said at the start I don’t think social license is a tangible thing you can really get to, it’s more of the cultural and social norms. So, I think it would be difficult to say social license has achieved anything.’ (Respondent 17)
‘I'm gonna say no. Social license has not achieved anything that other schemes have not and I specifically will take that from a trade and market access point of view and say that when it comes to trade, we're driven by the science and the regulations. Therefore, public acceptance, social license, has nothing to do with how we get to certain markets. Social license doesn't necessarily open up any market for us. Not having a social license doesn't hamper getting into certain markets. Social license has almost taken a back seat in the last three to four years, from a producer point of view because we're dealing more and more with market access issues.’ (Respondent 10)

‘I think it's very important, and there's been a lot of examples where the science is there, but there hasn't been work done to communicate the science to the general public or to the decision makers. Sometimes, there's a disconnect between where the science can take agbiotech, and what society and the cultural kind of norms are ready for. It's a really important thing that the agriculture industry and the biotech industry need to be more aware of and spend the time to communicate the science properly.’ (Respondent 5)

‘We need to get to more farmers and more people in the agriculture industry talking about what we're doing.’ (Respondent 16).

Although the model reignites the need for clearer and more communication in the sector, there are still major barriers like misinformation, the presence of non-expert opinions on agbiotech and the prevalence of emotions over logic.

‘It's very hard to overcome these challenges by just communicating about facts and science if public sentiment is founded on unreasonable emotions and not the grasp of the topic. There are many historic examples of how public sentiment crashed innovation in the Middle Ages.’ (Respondent 1)

Despite the above-mentioned achievements, social license fails to address agbiotech’s most pressing challenges of risks and uncertainty in the development of new biotechnology. Moreover, these findings confirm the model’s departure from the original intent of social license as a socio-political risk management tool aimed at managing business risks, such as financial and reputational damage that stem from conflict with local communities when their expectations from corporate activities are unmet.

In response to the second research question, the major challenge of the social license model is its poor fit in the agri-food sector, due to contextual and sectoral differences and the contrasts in the generic characteristics of both sectors (discussed in Chapter 7). The social license model was originally developed to suit a local community context, with focus on mining companies and their immediate host communities or external stakeholders. It is conceptually and
theoretically unable to address the complex global and multi-level stakeholder interactions in the agri-food supply chain.

‘Agbiotech is more widespread and much more conceptually complex than a mine. And often, a mine is somewhere else, whereas your food is right there on your plate. That makes it more driven by people's hearts than their heads. Food is food and you cannot play around with that.’ (Respondent 15)

‘The biggest difference I think, would be that the business of agriculture is certainly global and so what we do around the world greatly impacts our social license everywhere. The food production from field to fork and the process within the entire agricultural food chain makes it a little bit different. Mining demands some sense of community. If mining activities are going to be having an environmental impact on an area, they have to make certain commitments at the local level.’ (Respondent 26)

Additionally, the model’s structural deficiencies such as the absence of compliance conditions or objective standards on which social license claims can be established, make it a poor fit for meeting the governance challenges of agbiotech at a global scale.

Most respondents asserted that social license presented more challenges than opportunities.

‘I think it only presents challenges. It seems like producers need social license but it’s another hurdle to jump through before your product or your project can achieve success. So, I don't see it as an opportunity. I see it as a necessity and it's another hurdle that companies are going to have to deal with.’ (Respondent 14)

The comparison between Figure 9.1 and 9.2 (the word trees for social license opportunities and challenges) shows the respondents overall observations on these issues. Based on the above explanations, therefore, pushing for an adoption of the model in the agbiotech space is problematic.

Overall, the research data is quite revealing, with many important conclusions that can be drawn from it. The data assessment indicates that social license as a private self-governance model in Canada’s agri-food sector has been unworkable for several reasons. As was demonstrated and persistently stated throughout the study and in the interviews, social license is a vague and highly variable concept. There is a general lack of consensus on what social license actually means in Canada. Determining the accuracy or error in each social license definition is daunting because there is no generally acceptable definition of the model and no baseline from which definitions can be assessed for correctness. This is problematic for any governance model
because the concept then becomes a weapon or tool to justify individual or group interests and ideologies, depending on whether it is wielded by a product opponent or a proponent. The social license model is solely contingent on personal or individual interpretations of what it could or should mean. The fluidity of the concept means it can become most powerful and prosperous in the hands of whoever is most skilled at using it or whoever has the strongest influence. As such, it can become an easy self-justification tool for both opponents and proponents of biotechnologies.

‘Social license means to everyone whatever they interpret it to be’ (Respondent 21)

The model operates by inference and not by methodical prescriptions or organization. It is more rhetorical than concrete.

‘There's really just talk and not much action’ (Respondent 21)

‘I've been to a number of events, and everyone talks about how important social license is, but I haven't really seen a ton of action in terms of engaging and speaking with one voice as an agriculture community. Everyone talks about how much we need to do that. There's a real lack of public trust and social license, and I think it's definitely a big issue. While social license is important, I also think that things have moved forward without a social license, on a level of public trust that would be somewhat acceptable.’ (Respondent 2)

Many respondents support a change of narrative from social license to public trust.

‘I think there's been a concerted shift to the use of the term public trust because it's less of a power play and more of a relationship term.’ (Respondent 18)

‘An acquired social license can be revoked or taken away, but no one is really taking away your food production license. What we are trying to accomplish, is increased confidence in what the public is consuming.’ (Respondent 19)

‘Basically, social license tends to really boil down to public trust.’ (Respondent 4)

The social license model is not a standalone self-governance model. It is more of an outcome than a process.

‘I see corporate social responsibility and voluntary certification as being tools used to achieve social license and then it is social license that achieves the market, the avoidance of opposition and political support.’ (Respondent 14)

‘You create a certification program, then you develop public trust, and public trust grants you a social license.’ (Respondent 6)
‘I think in many ways CSR does impact social license.’ (Respondent 3)

They complement each other and they [CSR and certification] are tools to achieve social license. It’s what you basically do to get a better image and I would classify them as tools.’ (Respondent 1).

Also, the canola case study illustrates how social license or market access was achieved through certification after previous rejection. Implicit in the use of standards to overcome international market resistance to GM products and generate social license, is the notion that social license as an outcome or end result can be achieved through other private self-regulatory systems. In the NewLeaf potato and GURTs cases with intense contestations and worldwide protests (for GURTs), the decision outcomes were unfavourable for the technology’s adoption and commercialization, despite domestic regulatory approval for NewLeaf potato in Canada and the US. All three cases show that domestic approval is not enough to secure a social license and as the canola case illustrates, private self-regulatory models can sometimes be useful for filling a regulatory void. However, the conceptual overlap and jurisdictional confusion between CSR, voluntary certification and social license (discussed in Chapter 3), make the social license model more of a duplication of effort than an added value to the agri-food sector.

10.2 Policy Implications

The policy implications of this study relate to three principal areas: the contrast between the original intent of social license and the realities of Canada’s agri-food sector, the role of government in balancing competing values and interests among social license stakeholders and what this means for regulation and the need to assign roles and responsibilities within the policy space.

In considering the institutionalization of social license, policy makers would need to consider the usefulness of the model in addressing the unique challenges of Canada’s agri-food sector. The field data points to a misalignment between the original intent of social license and the principal challenges of Canada’s agri-food sector. As established in Chapter 2, social license was developed as a proactive socio-political risk management tool for mining industries in developing countries. According to respondents in this research, the two major challenges for
Canada’s agri-food sector are: the consumers’ disconnect from farming, and the need to inform the public about the potential benefits of biotechnology and combat all forms of misinformation on agricultural production. Social license might not be the most effective tool in addressing these challenges but could be an outcome of helping consumers understand how their food is produced and why food production is done in a specific way.

The social license practice needs to pay more attention to the role of the state which is largely absent in the concept’s discourse. Government bodies are involved in the regulation, R&D, commercialization and ownership of some new technologies like the GURTs case. The long wait times in obtaining regulatory approval and the potential impact of new technologies on human health and the environment accentuate the state’s role in mediating between public and private interests.

Although agbiotech foods and products are typically developed for profits by private corporations, they also provide solutions to agricultural challenges at local, national and global levels. This public-interest nature of agbiotech innovation highlights the government’s role in protecting the public’s interest. Moreover, countries with a strong preference for a knowledge economy, whose prosperity is largely dependent on successful technological use and advancement, are most likely to see a more enhanced role for the state in addressing social license concerns, while ensuring market access and environmental and health safety regarding new biotechnologies. However, advocates of the social license model have no clearly defined strategies for how governments are expected to play this central role of balancing the values and interests of social license promoters and industry. Rather, the current social license discourse seemingly presents or treats the government as third-party regulators in the social license discussion.

Social license is relatively new in the policy and regulatory arenas. Some provincial governments are playing lead roles in increasing agricultural awareness within their jurisdictions. Some respondents from the public sector report that their offices are already promoting initiatives that help educate the population about agricultural activities, provide information about the activities of industry and the reasons for their action, all to help build trust in agriculture.
As previously discussed in Chapter 4, different attitudes to biotechnological discoveries have resulted in significantly divergent regulatory architectures (Smyth et al., 2017). Canada firmly commits to a science-based risk assessment framework for the regulation of agbiotech, a system which is often criticized for not allowing non-science concerns and other socio-economic considerations in its regulatory decisions process. Implicit in the acceptance and promotion of social license as a self-governance model in agbiotech, is a move towards actually bringing together the contrasting scientific rationality and social rationality regulatory approaches and, ultimately, a revision or an eventual overhaul of the existing regulatory framework. The extent of this potential regulatory change would need to be evaluated according to Hall’s (1993) concept of orders of change. A first order regulatory change would involve minor changes in policy instrument, while a third order transformative change, would require a complete overhaul of the entire regulatory infrastructure. As North (1994) argues, while formal rules and regulations might be fairly easy to change quickly, informal norms, which anchor beliefs, knowledge, and other mental models are harder to change and only do so gradually. It is however unlikely that major regulatory adjustments would need to be made on the basis of a transitional model like social license.

One of the major differences between the scientific rationality and social rationality perspectives is that the social rationality perspective ostensibly promotes a broad social mandate. What this means for regulation is that a biotechnological product can be legitimately halted for economic, social, environmental or ethical reasons, if opponents find any potential effects or impacts on non-users. This takes us back to previous assertions in this study that social license would then become a legitimate justification for hindering agbiotech acceptance and adoption decisions.

Besides being a potential restricting factor to agbiotech acceptance and adoption, combining the two divergent regulatory perspectives is problematic and challenging. While Canada’s current regulatory architecture does not make room to accommodate socio-economic factors, there are very limited existing guidelines for implementing and evaluating socio-economic considerations. Integrating both processes would require much work as governance principles require the foundational underpinnings of accountability, clear delineations of roles and responsibilities and other operating procedures.
Another ramification of social license or the inclusion of non-scientific considerations in agbiotech regulation is its potential cost on compliance and duration of the regulatory process. One research participant who spoke about regulatory challenges, said the regulatory process currently takes from nine months to five years and adding a wide array of non-scientific considerations to an already prolonged regulatory process only means more delay. This is further exacerbated by the uncertainty which socio-economic considerations inject into the regulatory system due to their lack of specificity. These avoidable costs on the regulatory process negatively impact agbiotech and innovation adoption and could disincentivize research and other potential agbiotech discoveries (Falck-Zepeda, 2012). Social license therefore presents another layer of complexity and is an additional burden to the regulatory framework.

In terms of policy, the advent of social license signals a clear shift from a traditional hierarchical and centralized form of governing to a horizontal form of governance involving both state and non-state actors. The government’s role in this social license governance framework necessitates the distribution of roles and responsibilities, democratic accountability and clear lines of reporting within the system. The institutionalization of social license will require clarifications on what exactly is a social license, what problem or issue it intends to resolve in the agbiotech space and also provide a response to questions of who should grant a social license, under what conditions and how the relevant stakeholders are identified, among many other issues. Also, the state will need to determine at what level social license discussions take place within the policy process and who should take part in the discussions. Clearly defining the boundary of social license is of utmost importance because as shown throughout this study, social license has moved far beyond its original intent to mean the ability to halt a technological development of a beneficial project, despite having received regulatory approval.

One major risk of institutionalizing the social license model in its current form is the likelihood of promoting rent-seeking behavior. Veto threats and the ability to halt corporate activities or biotechnological developments can result in the appropriation of rents that are disproportionate to biotechnological impacts.

The foregoing governance and policy implications have important ramifications for the sustainability of the concept of social license as a governance model.
10.3 Study Limitations

This study has three main limitations. The first is that it examines the operations of social license within a sector-specific context. This hinders the generalizability of most of the research results because as already explained, sectoral challenges and realities are different from one domain to another. The compatibility and fit for social license in each given sector are largely contingent on these sectoral differences. Notwithstanding, the overarching policy and governance questions, challenges and implications of the model are generalizable to almost all sectors. Additionally, the research targeted three major agricultural provinces in Canada. Broadening the provincial scope of the study might have produced slightly different research results.

Second, the research was conducted in Canada, an agbiotech friendly nation with non-polarized views on the usefulness of the concept. The research findings would probably be different from what would have obtained in a country with a strong preference for technological precaution and a broad social mandate. In this case, the results of social license perceptions in Canada’s agri-food sector may not be fully applicable to other countries, specifically in countries whose national perceptions of agbiotech differ significantly from Canada’s. Although the case studies examined operations of the precautionary regulatory approach in a real-word setting, having an understanding of the conceptualization of social license from the opposing side of biotechnology, is useful for finding a balance in determining the model’s usefulness and added value in the global agri-food space.

Third, this study as earlier stated, is appropriately aimed at critically analyzing the social license model, rather than at prescribing alternative policy or governance approaches to addressing agbiotech adoption and successful commercialization efforts. Nevertheless, the insights offered through this study should be informative and enlightening for all agri-food sector actors from the public, private and civil sectors.

10.4 Possible Agenda for Future Research

The evaluation of the social license model in this research is limited to a single sector. Despite the insights into the social license model provided by this study, the research results are
insufficient to make broad conclusions about the operations of the social license model in other sectors. However, rather than studying the general sectoral operations of the social license model in different fields as is mostly the case in the literature, this study adopted the IAD framework as a tool to study the governance structure and complex interactions among the diverse stakeholders and actors. It could also be a fruitful endeavor to apply other theoretical approaches and frameworks other than the IAD. This could allow for some of the claims made in this study to be strengthened and probably modified. It could also bring new perspectives to the social license discourse or produce challenges for some of the assertions in this research based on the IAD framework.

On reflection, wheat, flax or any other crop that is uniquely within the Canadian geopolitical space could have been a third case study. GM wheat, for instance, went through the same Canadian governance and regulatory systems but failed to acquire market access. Evaluating the social license applications within this case study might provide further insights into the role of social license in the adoption and successful commercialization of agbiotech.

Misinformation is a concern that was raised by some respondents as one of the challenges for social license. All three cases studied in this research showed no absolute malevolence from any of the actors as the issues raised were basically value-based arguments. However, there is a wide scholarship on other ways of framing social license in terms of pure power dynamics and not a search for optimal or better outcomes. This might be a research area worth exploring to provide another perspective to understanding the social license model.

Future research could also be done to examine the interplay between the social license model and both social and conventional media. This was one of the major themes in this research with some participants arguing that social license will have staying power as long as people have access to media channels where they can widely spread information in a relatively short period of time. Understanding how the media fuels the social license debate and its portrayal of the concept, might provide new insights into the various conceptualizations and interpretations of the model. Also, the framing and language around social license should be considered for further research. Many participants in this study often mentioned that they ‘struggled’ with the social license language as well as understanding how certain aspects of the model are expected to work.
This research focused on Canada as case study, which as previously noted, is a primarily agbiotech friendly nation. Undertaking a study on the social license model in the agri-food sector in a predominantly anti-biotech nation, will most likely yield different research outcomes and new perspectives on the social license debate.

With a strong stance on changing the narrative from social license to public trust, an interesting research extension could examine the role of technologies such as blockchain in building a trust-based agri-food system and its implications for social license. Blockchain offers a unique opportunity to contribute to a more flexible quality assurance. It can help build trust by addressing food sourcing challenges and providing end-to-end supply chain visibility from farm to consumers. Consumers can know the origin of their foods as well as access or verify information about the producer or supplier or any sourcing information. This could replace current and traditional communication and education strategies aimed at helping consumers make choices or purchase decisions and enhance trust in food production and supply.
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Appendices

Appendix A: Interview Questions

1) **Understanding social license:** What is your understanding of the term social license? How important is it in the agricultural biotechnology (agbiotech) space? What in your opinion is the motivating factor for pursuing a social license?

2) **The process:** Is there an established procedure for obtaining a social license? For instance, how does a social license come into existence? How is it earned? Who grants this license or determines that it has been earned? How do I recognize one (how are decisions about acceptance or rejection of a license communicated? How are the relevant stakeholders identified? How is a social license measured? Who can revoke a social license?

3) **Comparing social license and other self-regulatory regimes:** How different or how similar is social license to other self-regulatory regimes such as corporate social responsibility or voluntary certification standards? Do they complement or compete with each other?

4) What has social license achieved that these other schemes have not?

5) As a concept that originated from the mining sector, are there any sectoral differences between agbiotech and mining that could affect the operation of social license?

6) **Challenges in operationalization:** In your opinion, are there any gaps, limitations, or controversies around the social license concept?

7) **Where do we go from here/ moving forward:** What opportunities does social license present to agbiotech? What do you think is the future of this concept (Is it here to stay or do you see it fading away soon)?

8) Do you think social license could change the operations of government regulations, corporations or any actors in the agbiotech supply chain?

9) Any concluding thoughts or remarks or something you’d like to see about social license research in relation to biotechnology?
Appendix B: Participant Consent Form

Johnson Shoyama Graduate School of Public Policy Participant Consent Form

You are invited to participate in a research study entitled:


Researcher(s):

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Purpose(s) and Objective(s) of the Research:

- This research is an integral empirical component of a doctoral thesis. It seeks to provide an original contribution to the emerging concept of social license and the field of agricultural biotechnology, by examining the motivations, practical application, and definitional construct of the concept among a variety of public, corporate and non-corporate stakeholders.

- The research also seeks to expand the literature and enhance our understanding of social license in agricultural biotechnology (agbiotech) by determining if and how the meaning and application of the term varies between stakeholders and identify similarities and differences in their understanding and application of the concept.

Procedures:

- One primary method of data collection for this research will be interviews.
- The interviews will take a semi-structured approach, solely via telephone, with a total of 36 people expected to participate in the exercise.
- The conversations will last 30 – 45 minutes and will consist of open-ended questions based upon the research themes and questions.
- There will be follow-up questions where needed, to extract more detailed responses or clarification.
- The interview questions will cover your understanding of social license, the motivations for its practice, the description and application of the concept, its challenges, the relation
between social license and other corporate concepts such as corporate social responsibility, and what you think about the future of social license or how it can be measured relative to agbiotech.

- Notes will be taken during the interview and each interview will be digitally recorded, transcribed verbatim and the data will later processed / analyzed through NVivo, a qualitative computer research application. **Participants may request that the audio-recorder be turned off at any time.**
- Please feel free to ask any questions regarding the procedures and goals of the study or your role.

**Funded by:**
- This study is not funded.

**Potential Risks:**
There are no known or anticipated risks to you by participating in this research. However, you are encouraged to only respond to the questions you are comfortable with.

**Potential Benefits:**
- It is hoped that this research will provide an original contribution to the emerging concept of social license and the field of agbiotech, through the lens of corporate and non-corporate stakeholders.
- It will also identify areas where decision-making power and governance are challenged as many actors get involved in the agbiotech governing process.
- There will also be policy recommendations based on the outcome of the research.
- Nevertheless, these anticipated benefits of the research are not guaranteed.

**Compensation:**
- There is no compensation for participants in this interview.

**Confidentiality:**
- No identifiable information about you will be disclosed when the research findings are reported, either in the final research publication or at conferences.
- Research findings will be reported in an aggregated manner (as emerging themes from the research), thereby making it impossible to identify you or any particular individual in the final report.
- Whenever your direct quotations are used in the report, you will be assigned pseudonyms and no identifying information will be included. **Participants can indicate if they have a preferred pseudonym.**
- The consent forms and master list of participants will be stored separately from the data collected and the master list will be destroyed by shredding upon completion of data collection, when the list is no longer required.
- Your identity and the identities of all interviewees will be kept confidential at all times.

There are several options for you to consider if you decide to take part in this research. You can choose all, some or none of them. Please put a check mark on the corresponding line(s) that grants me your permission to:
I grant permission to be audio taped: Yes: ___ No: ___
I wish to remain anonymous: Yes: ___ No: ___
I wish to remain anonymous, but you may refer to me by a pseudonym: Yes: ___ No: ___
The pseudonym I choose for myself is: __________________________________________
You may quote me and use my name: Yes: ___ No: ___

**Storage of Data:**
- Paper trails will be locked in a filing cabinet, while all transcribed documents will be encrypted. The research project findings and all associated materials will be safely stored by me for at least five years after publication.
- When it is time for its final disposition, the data will be shredded by the Johnson Shoyama Graduate School of Public Policy.

**Right to Withdraw:**
- Your participation is voluntary and you can answer only those questions that you are comfortable with. You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort.
- Should you wish to withdraw after your interview is complete, any data that you have contributed will be destroyed at your request.
- After your interview, and prior to the data being included in the final report, you will be given the opportunity to review the transcript of your interview, and to add, alter, or delete information from the transcripts as you see fit.
- Your right to withdraw data from the study will apply until August 2020, when the research results would have been disseminated. After this date, it is possible that some form of research dissemination will have already occurred and it may not be possible to withdraw your data.

**Follow up:**
- A summary of the research findings will be sent to you by email upon the completion of the thesis. You can also contact me directly, by email, if you require any further information.

**Questions or Concerns:**
- You can contact me using the information at the top of page 1;
- This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

**Consent:**

*Option 1 - SIGNED CONSENT*

Your signature below indicates that you have read and understand the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to
participate in the research project. A copy of this Consent Form has been given to me for my records.

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<tr>
<th>Name of Participant</th>
<th>Signature</th>
<th>Date</th>
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<th>Researcher’s Signature</th>
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**Option 2 - ORAL CONSENT**

Oral Consent: If on the other hand the consent has been obtained orally, this should be recorded. For example, the Consent Form dated, and signed by the researcher(s) indicating that “I read and explained this Consent Form to the participant before receiving the participant’s consent, and the participant had knowledge of its contents and appeared to understand it.” The oral consent will be audiotaped.

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<th>Name of Participant</th>
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**Waiving Confidentiality:**

- If you agree to be identified by your name in this research, please select the appropriate statement below:
  
  I agree to be identified by name / credited in the results of the study.
  
  I agree to have my responses attributed to me by name in the results.

  ________________ (Participant to provide initials).
Appendix C: Sample Recruitment Letter
Subject: Participants needed for research on social license and agricultural biotechnology innovation

Dear [insert name],

My name is Yvonne Nyake Ndelle and I am a PhD candidate from the Johnson Shoyama Graduate School of Public Policy at the University of Saskatchewan, working under the supervision of Professor Peter Phillips. I am writing to invite you to participate in my research study about the concept of social license and its relation to agricultural biotechnology (agbiotech) innovation or inventions. You're eligible to be in this study because of your knowledge of and experience with social license as one of the strategic and essential stakeholders within the agbiotech supply chain. I obtained your contact information from your organization’s website.

If you choose to take part in this study, your participation is confidential and voluntary and you are free to answer only the questions you’d like to, and you can withdraw your consent or terminate your participation at any time, without any penalty. The objective of this research is to provide an original contribution to the emerging concept of social license in the field of agbiotech by examining the motivations, practical application and definitional construct of the concept among a variety of public, corporate and non-corporate stakeholders. It also seeks to determine if and how the meaning and application of the concept varies between stakeholders and identify similarities and differences in their understanding and application of the term.

Your contribution to this research will involve participating in a semi-structured telephone interview which will be scheduled at your convenience. The conversation which will last 30 – 45 minutes and will consist of open-ended questions based upon the research themes and questions. There will be follow-up questions where needed, to extract more detailed responses or clarification. These questions will be sent to you prior to the interview. I will take notes during the interview and it will also be digitally recorded, transcribed verbatim and the data will later be processed / analyzed through NVivo, a qualitative computer research application.

No identifiable information about you will be disclosed when the research findings are reported. There will be a total of 30 participants in this research and the research findings will be reported in an aggregated manner, making it impossible to identify you or any particular individual in the final report. Whenever your direct quotations are used in the report, you will be assigned pseudonyms and no identifying information will be included.

This research is not funded and there are no compensations for participants in this study. You will be required to read, sign and return a consent form to me or alternatively, you can provide oral consent prior to the interview. The consent form will be sent to you alongside the interview questions, a few days before the interview takes place.
This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

Please remember that participation in this research is completely voluntary. If you’d like to participate or have any questions about the study, please email me at ynn436@mail.usask.ca or contact me at 306-717-1229.

Thank you immensely for your time. I sincerely look forward to your response.

Sincerely,

Yvonne Nyake Ndelle
Appendix D: Certificate of Approval

Certificate of Approval

Application ID: 1536
Principal Investigator: Peter Phillips
Department: Johnson-Shoyama Graduate School of Public Policy

Locations Where Research Activities are Conducted: Across four provinces in Canada: Saskatchewan, Manitoba, Alberta and Ontario, Canada
Student(s): Nyake Yvonne
Funder(s):
Sponsor:
Title: Contested Governance, Orders of Change and Lesson Drawing: The Case of Social License and Agricultural Biotechnology (1998-2018)

Approved On: 14/Nov/2019
Expiry Date: 13/Nov/2020
Approval Of: Consent form; Recruitment material; Interview questions; Transcript release form

Acknowledgment Of:

Review Type: Delegated Review

CERTIFICATION
The University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2 2018). The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this project, and for ensuring that the authorized project is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month prior to the current expiry date each year the project remains open, and upon project completion. Please refer to the following website for further instructions: https://vresearch.usask.ca/researchers/forms.php.

Digitally Approved by Patricia Simonsen, Vice-Chair
Behavioural Research Ethics Board
University of Saskatchewan
Appendix E: Certificate of Re-Approval

Certificate of Re-Approval

Application ID: 1536
Principal Investigator: Peter Phillips
Department: Johnson-Shoyama Graduate School of Public Policy

Locations Where Research Activities are Conducted: Across four provinces in Canada: Saskatchewan, Manitoba, Alberta and Ontario, Canada

Student(s): Nyake Yvonne
Funder(s): Yvonne
Sponsor:

Title: Contested Governance, Orders of Change and Lesson Drawing: The Case of Social License and Agricultural Biotechnology (1998-2018)

Approval Effective Date: 13/11/2020
Expiry Date: 13/11/2021
Acknowledgment Of: None

Review Type: Delegated Review

* This study, inclusive of all previously approved documents, has been re-approved until the expiry date noted above

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2, 2014). The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this project, and for ensuring that the authorized project is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

ONGOING REVIEW REQUIREMENTS

In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month prior to the current expiry date each year the project remains open, and upon project completion. Please refer to the following website for further instructions: https://vresearch.usask.ca/researchers/forms.php.

Digitally Approved by Diane Martz
Chair, Behavioural Research Ethics Board
University of Saskatchewan

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