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CRSB SUSTAINABILITY INDICATORS FOR BEEF PROCESSORS: DRAFT 1

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GLOSSARY OF TERMS

Animal stress*:* includes stress resulting from handling, loading and unloading; transportation; cattle facilities, and environmental conditions.

Co-products: Co-products can be defined as any non-red meat part or product derived from these parts.[1].

Discrimination: "any distinction, exclusion or preference made on the basis of race, colour, sex, religion, political opinion, national extraction or social origin, which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation[2]".

Ecosystem health: the condition of the ecosystem, including the land, soil and ecosystems.

Equity*:* fair, impartial and a lack of discrimination.

Feasible: reasonable, practical and cost-effective.

Food loss and waste: Food, or any substance intended for human consumption, and/or associated parts removed from the food supply chain that is avoidable[3].

Healthy: reasonable steps are taken to reduce the risk of illness.

Measure*:* a direct or proxy metric of the desired outcome of an indicator.

Quality of beef and co-products*:* Customer (e.g. buyers including retail and food service companies) requirements for beef and other co-products are consistently met.

Responsibly managed*:* managed in a way that seeks to balance social, economic and environmental components of the resource and system.

Safe: reasonable steps are taken to reduce the risk of injury.

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[1] Meat and Livestock Australia. (2014). Co-products. Retrieved online (April 26, 2017).
[2] United Nations Human Rights Office of the High Commissioner. (1958). Discrimination (Employment and Occupation) Convention, 1958 (No. 111). Available online: http://www.ohchr.org/EN/ProfessionalInterest/Pages/EmploymentAndOccupation.aspx
[3] Food Loss and Waste Protocol (2017). Food Loss and Waste Accounting and Reporting Standard. Food Loss and Waste Protocol: Washington, DC. Available online: http://www.wri.org/sites/default/files/FLW_Standard_final_2016.pdf

1. INTRODUCTION

Background

The Canadian Roundtable for Sustainable Beef (CRSB) is a multi- stakeholder organization focused on advancing sustainability efforts within the Canadian beef industry. The CRSB is a member of the Global Roundtable for Sustainable Beef (GRSB), a similar multi-stakeholder initiative focused on the sustainability of the global beef value chain. The CRSB's work aligns the GRSB's high-level efforts with relevancy to the Canadian context.

> **Definition of 'sustainable beef'**: a socially responsible, environmentally sound and economically viable product that prioritizes the planet, people, animals and progress.

The CRSB is creating a Verification Framework that will enable stakeholders in the value chain to produce and source verified sustainable beef. Participation in this framework will be voluntary and will require an on-site audit. The CRSB has developed sustainability indicators for beef processors that build on the GRSB's Principles and Criteria (P&C)[4], released in November 2014.

In order to ensure broad stakeholder engagement and representation in the Indicator Development Process[5], the CRSB has committed to releasing the indicators for beef processing for two rounds of public comment. The first round is scheduled for June 29 to August 29, 2017; the second round is scheduled for Fall 2017. The CRSB will review all comments received during the consultation and provide a response to each comment in a report posted online. The first draft of the sustainability indicators for beef processors are being released for the first round of public comment, and the CRSB is seeking constructive comments from all interested stakeholders to ensure the indicators are comprehensive and address sustainability issues. The indicator development was guided by the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance Code of Good Practice for Setting Social and Environmental Standards[6].

Underpinning the indicators is the triple-bottom-line approach that balances environmental, social, and economic considerations and the requirement that a sustainable beef value chain respects provincial and national laws that govern the activities of value chain participants.

The CRSB recognizes that the Canadian beef industry plays an important role in the lives of the people and communities who produce and consume beef; the well-being of the animals under their care; the

[4] Global Roundtable for Sustainable Beef. (2014). Principles and Criteria. Available online http://www.grsbeef.org/page-1861850
[5] Canadian Roundtable for Sustainable Beef. (2016). Indicator development process. Available online: http://crsb.ca/wp-content/uploads/2017/02/IndicatorDevelopmentProcess_v4_May19-2017.pdf
[6] ISEAL. (2014). Code of practice for setting social and environmental standards. Available online: http://www.isealalliance.org/our-work/defining-credibility/codes-of-good-practice/standard-setting-code

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management of natural resources; and in efficiently meeting the growing global population's demand for animal protein.

What is an Indicator?

An 'indicator' represents *what* will be measured in the context of a desired outcome (Figure 1). The CRSB Indicators reflect *what* will be measured in the context of sustainability in primary processing operations.

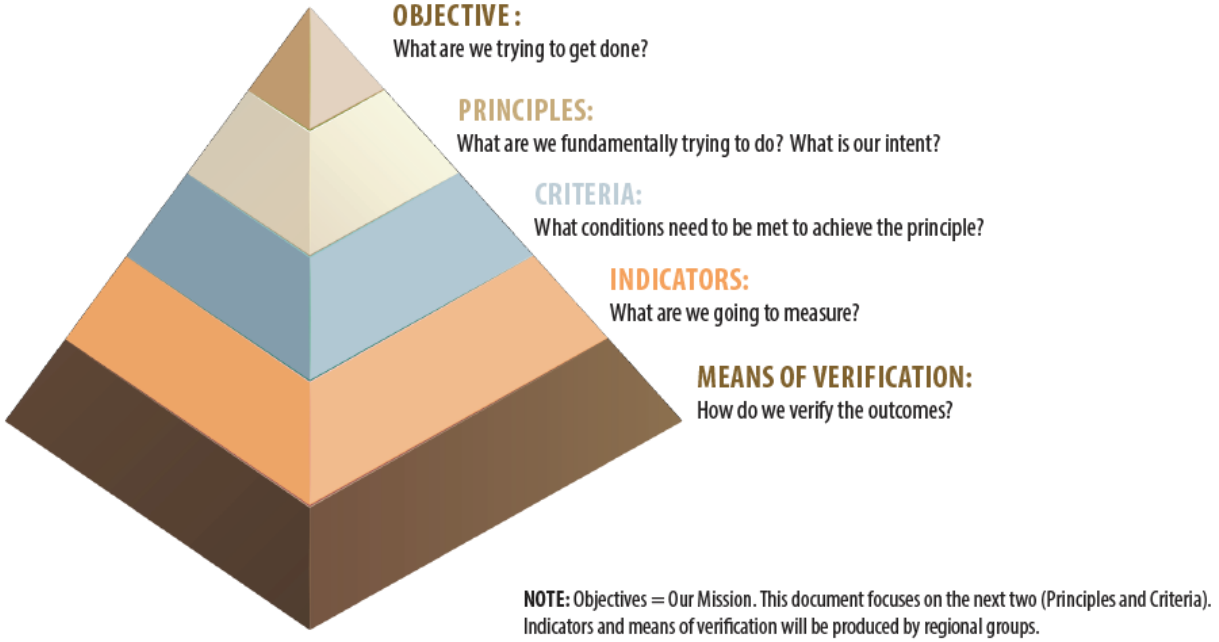

Figure 1: Pyramid of concepts and definitions guiding the CRSB's Indicator Development

How the CRSB Indicators were drafted

The CRSB Indicator Committee developed practical and meaningful indicators through a multi-stakeholder, collaborative approach that align with the five GRSB principles (Figure 2):

- Natural Resources: the beef value chain manages natural resources responsibly and enhances ecosystem health;
- People and the Community: sustainable beef stakeholders protect and respect human rights, and recognize the critical roles that all participants within the beef value chain play in their community regarding culture, heritage, employment, land rights and health;

- Animal Health and Welfare: sustainable beef producers and processors respect and manage animals to ensure their health and welfare;

- Food: sustainable beef stakeholders ensure the safety and quality of beef products and utilize information-sharing systems that promote beef sustainability; and

- Efficiency and Innovation: sustainable beef stakeholders encourage innovation, optimise production, reduce waste and add to economic viability.

Figure 2: The five Principles of Beef Sustainability

The indicators are outcome-based (rather than prescriptive); measureable; based on science and expert opinion; and address key concerns around sustainable beef production. **The indicators for beef processors apply to primary processing facilities where cattle are slaughtered for beef and co-products. Secondary processors are not in scope for a sustainability verification audit in this iteration of the framework, in part because they do not handle live animals.**

Lastly, the indicators do not explicitly address one of the three pillars of sustainability: economics. This is intentional, in part due to privacy concerns, but also because the CRSB believes that economic viability is an overarching theme and must be taken into consideration in the interpretation and application of each indicator. The National Beef Sustainability Assessment (NBSA) was released in October 2016; this robust scientific study set benchmarks in various social, economic and environmental areas at the national level. From the assessment, the CRSB developed a Sustainability Strategy that consists of goals, key performance indicators and action items to support continuous improvement[7]. The assessment and strategy will be used to measure the industry's sustainability progress over time, as well as helping to guide the efforts of the CRSB and its membership.

[7] Canadian Roundtable for Sustainable Beef (CRSB). (2016). National Beef Sustainability Assessment and Strategy summary report. CRSB: Calgary, AB. Available online: http://crsb.ca/wp-content/uploads/resources/NBSA_and_Strategy_summary_report_web1.pdf

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Scoring System for Beef Processing Indicators

Table 1 provides an overview of the draft scoring system for the indicators developed by the CRSB's Verification Committee. It reflects a progression, beginning at Level 1 and building with increased stringency through Level 3 (e.g. the expectations in Level 1 carry over to Level 2). It is important to note that this scoring system will be revised based on the feedback received through the public consultations as well as the field testing that is planned over the next few months[8]. More specific details for each indicator are provided in section 3.0 below. Currently, a Level 1 is required in all indicators that are applicable and scored.

Table 1 — DRAFT Scoring System for the CRSB Sustainability Indicators for Beef Processors

Barrier to Entry	**Level 1** *Score – 1 point*	**Level 2** *Score – 2 points*	**Level 3** *Score – 3 points*	**N/A**
• No awareness, understanding, or plans for improvement related to the Indicator. • Negative outcomes resulting from ongoing acts that are not being addressed by the operation.	• Baseline knowledge or data for the operation is available. • Evidence of Measures for the Indicator.	• Plans, protocols, practices or other measures are established for the Indicator. [9] • Evidence of Measures for the Indicator. • Anecdotal examples of improvement. • Training for individuals and staff carrying out tasks related to the indicator, where appropriate. • Some documented information.	• Applicable[10] policy, plans, practices, protocols, processes, procedures, control measures, programs or systems are established for the Indicator. • Documented results of measurement and/or monitoring. • Evidence of continual improvement. • Documented information typical.	• Not applicable.

[8] Note that the CRSB is currently developing a process for establishing equivalencies with existing programs and tools, including their respective scoring systems.
[9] Plans, protocols, policies and practices, for example, can be documented or not documented.
[10] The need for specific plans or other measures will be operation-specific. Examples of indirect and direct measures that producers might employ are provided for each Indicator.

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The Verification Committee will create an audit manual, assurance protocols, chain of custody requirements and a process for determining equivalency with existing tools and programs within the Canadian beef industry. Synergistic to this work will be the communications and claims guidelines, being developed by the Communications and Marketing Committee of the CRSB. The CRSB's verification work is guided by the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance Code of Good Practice for Assuring Compliance with Social and Environmental Standards[11] and Good Practice in Claims and Labelling[12].

2. BACKGROUND AND CONTEXT

This section provides context and background for the sustainability indicators for beef processors drafted under each principle in section 3.

Natural Resources

Beef processors are responsible for managing a broad suite of natural resources. These operations require good quality water in adequate quantities to run their operations in a way that maintains the safety of beef products; wastewater needs to be of appropriate quality to reduce impacts to ecosystems and watersheds; and finally, emissions from these operations contribute to climate change and influence air quality. The sustainability indicators identified in the Natural Resources principle focus on these key areas.

People and the Community

The processing sector plays an important role in the Canadian economy and also in the lives of people and the communities in which they operate. The NBSA found that for every worker employed in the packing and processing sector, another 4.2 workers are employed in Canada (including direct and indirect impacts). Challenges for packers include labour as their capacity to add value to products and maximize utilization rates is reduced[13]. From a social perspective, the NBSA showed that processors have low social impacts overall (e.g. working conditions, temporary foreign workers, health and safety, animal welfare). Despite these positive results, the CRSB is committed to continuous improvement and therefore identified health and safety, equity and respect, career development, and community involvement as the core indicators for the People and the Community principle.

Animal Health and Welfare

Respect for, and management of, animals that ensures their health and welfare underpins the indicators within this principle. The intent of the indicators is to minimize animal pain, distress and suffering, and

[11] ISEAL. (2012). Code of Good Practice for Assuring Compliance with Social and Environmental Standards. Available online: http://www.isealalliance.org/our-work/defining-credibility/codes-of-good-practice/assurance-code
[12] ISEAL. (2016). Sustainability claims good practice guide. Available online: http://www.isealalliance.org/our-work/defining-credibility/good-practice-in-claims-and-labelling
[13] Canadian Roundtable for Sustainable Beef. (2016). National Beef Sustainability Assessment – Economic Assessment. Canfax Research Services: Calgary, AB.

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maintain animal health and welfare. The following themes were identified as being critical from a sustainability perspective and have been incorporated into the indicators: regular monitoring of cattle; the provision of feed and water when necessary; the use of humane slaughter methods; reduction of animal pain and distress during animal handling, movement through facilities and when being transported, loaded or unloaded; and finally, prompt identification and management of compromised and sick animals.

Food

Food safety is of utmost importance for the Canadian beef industry, the public and consumers alike. A food safety program is imperative to identifying risks and mitigating these risks—one of the indicators included in this principle. Although a requirement for all federally inspected processing plants, a Hazard Analysis and Critical Control Points[14] approach to food safety is strongly recommended by the CRSB for all operations seeking a verification audit.

Information sharing can help facilitate continuous improvement as well as provide opportunities for participants to improve their businesses, while at the same time respecting confidentiality. Therefore, an indicator on information sharing was included to support these efforts.

Beef processors have customer requirements and specifications; it is important for the processor to meet their customers' specifications for their overall sustainability, particularly in the economic context. An indicator was added to verify that the processor is consistently meeting customer specifications with the goal of reducing the number of rejections.

Approximately one-third of all food produced for human consumption in the world is lost or wasted each year. Each stage of the value chain has a responsibility to help reduce food waste and loss. There are a number of different approaches to assessing food waste and loss; however, the Provision Coalition has identified the following root causes of food waste at the processing and packer level broadly across the entire food supply chain (i.e. incoming quality; process losses; cold chain deficiencies; employee behaviour; poor machine set up; inaccurate forecasting; contamination; trimming & culling; supply/ demand issues; date codes; customer rejections; inconsistency in quality of ingredients; and food safety issues)[15]. The Provision Coalition suggests that developing strategies aimed at reducing food waste first, followed by redistribution, recycling and effective disposal would help reduce food waste. The CRSB has included an indicator focused on food waste and loss reduction.

Efficiency and Innovation

The goal of the indicators in the Efficiency and Innovation principle is to encourage innovation, optimize production, reduce waste and add to economic viability. The CRSB has focused on reducing, re-using and recycling; energy use; efficiency and productivity; and learning and collaboration to support continuous improvement.

[14] Canadian Food Inspection Agency (CFIA). (2012). Hazard Analysis Critical Control Point (HACCP). Government of Canada: Ottawa, ON. Available at: http://www.inspection.gc.ca/about-the-cfia/newsroom/food-safety-system/haccp/eng/1346306502207/1346306685922
[15] Provision Coalition. (2014). Developing an Industry Led Approach to Addressing Food Waste in Canada. Available online: http://www.provisioncoalition.com/assets/website/pdfs/Provision-Addressing-Food-Waste-In-Canada-EN.pdf

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3. CRSB SUSTAINABILITY INDICATORS FOR BEEF PROCESSORS: DRAFT 1

The first draft of the CRSB indicators is provided below in **blue font**, followed by the objective of each indicator, examples of measures that can be used to show achievement in the indicator, and the requirements to achieve Levels 1 through 3 for each indicator. Please visit the CRSB's website for our Resources Database that contains reference materials for the indicators (http://crsb.ca/processors/). The indicators are divided according to the five principles described in section 2.

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NATURAL RESOURCES

1. Water resources are responsibly managed.			
Objective:	Incoming and outgoing water quality is managed appropriately. Water is used responsibly and recycled where possible.		
Examples of measures:	Water use bills/monthly usage (intensity = use/produced); water tests; water use measures – gallons per head; litres per kilogram of meat; water management plan; water permit/licence; wastewater discharge quality; emergency response plan for spills; repurposing/recycling of treated water to irrigation; maintenance of wetlands; dust control.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
Discharge of untreated effluent or unacceptable chemicals in water bodies.	Operation secures adequate and consistent quality and quantity of water to conduct business in a responsible manner. Operation treats wastewater and takes actions to increase water use efficiency.	Operation implements a water management plan that seeks to maintain adequate water quality, and maximize water use efficiency. Water use is calculated or otherwise measured (e.g. gallons per head, litres per kilogram of beef).	Operation has a documented water management plan that is reviewed at least annually. Opportunities for improvement are identified and implemented, where feasible.

2. *Air emissions (e.g. greenhouse gases, air quality) are responsibly managed.*			
Objective:	Efforts are made to reduce the operation's carbon footprint; air pollution is responsibly managed.		
Examples of measures:	Carbon reduction strategy; greenhouse gas footprint measurement; tracking of complaints and process to address complaints; environmental permit; air quality tests; carbon dioxide equivalents per head, pound or kilogram of beef produced.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
Lack of awareness of the operation's impact on air quality or carbon footprint.	Operation takes actions to reduce greenhouse gas emissions and enhance air quality. Operation has a process in place to receive and mediate odour-related complaints.	Carbon footprint (e.g. carbon dioxide equivalents – CO_2e) is calculated. Results from air quality tests are documented.	Air quality and greenhouse gas emissions are tracked over time. Opportunities for improvement are identified and implemented, where feasible.

3. *Land resources and ecosystem health are maintained or enhanced.*			
Objective:	Efforts are made to reduce negative environmental impacts to, and minimize contamination and pollution of, land, soil and ecosystems.		
Examples of direct measures:	Soil tests; magnitude and frequency of chemical spills; monitoring of hazardous materials management plan (frequency, containment); disaster management plan; land footprint; environmental permit.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
Workers are not trained in emergency/disaster management that addresses spills and hazardous materials. No efforts made to reduce negative environmental impacts.	Workers are trained on emergency response or disaster management measures. The operation has policies to mitigate land impacts and protect biodiversity (e.g. for new facility developments).	Operation has an emergency response or disaster management plan that addresses chemical spills and hazardous materials. The number and magnitude of chemical spills as well as mitigation efforts are documented.	Operation has a documented emergency response or disaster management plan that addresses chemical spills and hazardous materials. Plan is reviewed at least annually. Opportunities for improvement are identified and implemented, where feasible.

PEOPLE AND THE COMMUNITY

1. *A safe and healthy work environment is ensured.*			
Objective:	Steps are taken to reduce the risk of injury and illness.		
Examples of measures:	Occupational health and safety (OH&S) training program; OH&S protocol; risk assessment; preventative measures to avoid accidents or injury; emergency response protocols; worker safety protocols; Personal Protective Equipment (PPE) available for workers; first aid training; incidence of injury is documented (workers compensation documents); job-specific hazard analysis; availability of first aid kits; locked gun cabinet; health and safety signage; Workplace Hazardous Materials Information System (WHMIS) certificate; Possession and Acquisition Licence (PAL) training certificate for use of firearm; safety metrics; interviews/observations of workers and work environment; participation in workers compensation system.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
No health and safety programing to provide baseline data and/or no plan for improvement.	Operation has identified the risks to health and safety for its business and workers, and has protocols in place to mitigate these risks. Workers are trained and follow health and safety protocols.	Operation has a health and safety monitoring plan and adjusts as necessary to assist safe working conditions. Reportable Frequency or Incident Rate, or other injury/fatality-related measure, is calculated.	Operation has a documented health and safety plan that is reviewed at least annually. Opportunities for improvement are identified and implemented, where feasible.

2. *All workers are treated with equity and respect.*			
Objective:	Workers are treated fairly and impartially.		
Examples of measures:	Level of worker engagement; retention/turnover rates; communications in multiple languages as needed; interviews/observations of workers about employee treatment; minimum wage paid to workers; appropriate working hours; equal opportunity to all workers; code of ethics/conduct; recognition of cultural holidays; process for feedback from employees; benefits package.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
No process to document/validate and address complaints of discrimination.	There is an absence of discrimination in the workplace (e.g. impartiality in the interview process and employee management). Workers are free to express concerns about their treatment without repercussions.	Operation has a code of ethics, code of conduct or non-discrimination policy that is implemented by management and understood by workers. Worker complaints are logged and resolved in a timely manner.	Operation has a documented code of ethics, code of conduct or non-discrimination policy that is reviewed at least annually. Opportunities for improvement are identified and implemented, where appropriate.

3. *Operation is involved in its community (community is defined by each individual).*[16]	
Objective:	To recognize beef processors for their contributions to their community. Community is defined by each individual operation.
Examples of measures:	Volunteer efforts; mentorship (formal or informal); donations; purchasing from local businesses; hire local labour; sponsorship.

Yes	**Not applicable**
Operation makes a contribution to its community (as it defines it).	Not applicable.

[16] This indicator is binary (assessed as 'yes' or 'not applicable'). It is for information collection purposes only; it will not be scored in the audit.

4. *Career development opportunities are provided.*			
Objective:	Workers are given training and other career-related opportunities to develop their skills and expertise.		
Examples of measures:	Interviews with workers; promotions tracked; apprenticeship program; advancement/leadership development opportunities; English as a Second Language program or support; teaching/training/mentorship program or support; employee goal-setting/performance monitoring and tracking/feedback; regular performance reviews.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
No career development programming or no overview provided in initial training upon being hired.	New workers are trained and competent to complete their assigned tasks.	Employee performance reviews are conducted on a yearly basis and documented. Mentorship or learning opportunities are provided.	A career development program is in place for workers who wish to participate.

5. *Operation maintains a provincial or federal licence to operate in good standing.*	
No	**Yes**
Barrier to entry.	Valid licence.

ANIMAL HEALTH AND WELFARE

1. *Cattle are regularly monitored and have sufficient quantity and quality of water and feed, when required, to meet their physical needs.*	
Objective:	Cattle are checked regularly for health and welfare, and provided with feed and water when required.
Examples of measures:	Regular monitoring of cattle; (access to veterinary advice if needed); availability of water and feed; contingency plan if power goes out; ability to understand when animals are in distress; understanding of amount of time animals stand in pens prior to slaughter.

Barrier to Entry	Level 1	Level 2	Level 3
Cattle are not monitored and may be in distress or not able to access feed/water. Cattle are not provided water and/or feed when required in emergency or unusual conditions (e.g. hot weather, when held for longer-than-normal periods of time).	Operation undertakes regular monitoring of live cattle so basic needs are met: 1. Understand when cattle are in distress 2. Access to feed and water when needed 3. Know what to do if power goes out/access to feed and water is cut off	Operation has an emergency response plan for cattle needs while waiting for slaughter. Some review and documentation on cattle monitoring and/or actions taken to address animal comfort prior to slaughter.	Documented monitoring includes emergency response plan, and animal monitoring/correction plan, which are reviewed at least annually. Opportunities for improvement are identified and implemented, where feasible.

2. Operation takes actions to minimize animal pain and distress.			
Objective:	The operation's facilities are designed or managed to minimize pain and distress. Holding pens have adequate ventilation and space. Workers undertake humane animal handling. When the processor is responsible for transport, the processor ensures the cattle are loaded, transported and unloaded in a way that minimizes pain and stress. Humane slaughter is practiced.		
Examples of measures:	Monitoring of humane practices for animal handling, loading, unloading; training or mentoring provided to workers; comfortable facilities and appropriate design; understanding of procedures if animal is non-ambulatory; holding pen space; transport protocol; communication with transporter if unacceptable actions; monitoring animal injuries and deaths including records.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
Inappropriate transport or off-loading procedures that cause unnecessary pain or distress to animals and there is no plan for improvement. Consistent animal pain and distress from a source and there is no plan for improvement. Use of electric prods on sensitive parts of the animal, when cattle have nowhere to move, or to non-ambulatory or disabled cattle.	Operation undertakes humane animal handling that includes safe loading and unloading conditions, transport, consideration for extreme weather, and understanding of unacceptable procedures. Actions are monitored and adjusted when necessary. Electric prods are used sparingly as last resort and people understand how to deal with difficult, injured or compromised cattle. Slaughter is conducted in a humane	Workers who handle live cattle are trained on humane or low stress animal handling techniques. Training is monitored and re-training provided when necessary. A policy exists and is followed regarding wilful acts of abuse.	Operation has a documented protocol to minimize animal pain and distress associated with the movement of live cattle through the facility; transport; handling prior to slaughter; and during slaughter. Protocol is reviewed at least annually. Facilities are revised when necessary. Opportunities for improvement are identified and implemented, where feasible.

Wilful acts of abuse are not remedied.	manner, including ensuring animals are unconscious/insensible before bled. Workers understand what to check for and how to remedy inadvertent errors. Facilities have adequate lighting and ventilation, are in good repair and monitored to prevent injuries, bruising and falls. Efforts are made to minimize processing wait times.		

3. Compromised and sick animals are managed appropriately.			
Desired outcomes:	Compromised and sick animals are identified in a timely manner, and a course of action is taken that is appropriate to the situation and reduces animal pain and distress.		
Examples of measures:	Animal health measures are taken when necessary; veterinary advice is available for animal health treatment; workers understand animal treatments and undertake when necessary; training provided and facilities available to treat; understanding of how to handle non-ambulatory animals and what not to do.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
Compromised and/or sick animals are not promptly identified and/or not treated humanely. There is no plan for improvement.	Operation undertakes or deals in an expedient manner, with cattle that are injured, sick or otherwise compromised. These animals are promptly identified and treated or euthanized. Euthanization is done with appropriate equipment and competent personnel in an acceptable manner. Workers know what to do when cattle are not fit for consumption.	Workers follow a formal policy to promptly manage compromised or sick cattle. Non-ambulatory policy exists. Veterinary advice is sought and cattle are provided with alternate care when needed. Training is monitored and documentation exists.	The policy for compromised and injured/sick animals is documented, and reviewed at least annually. Opportunities for improvement are identified and implemented, where feasible.

FOOD

1. A food safety program is followed.	
Objective:	Operation meets federal or provincial standards for sanitation and takes all reasonable actions to ensure food safety.
Examples of measures:	Documented plan; observation of implementation in the facility; Food Safety Enhancement Program and Hazard Analysis and Critical Control Points programs in federal plants. Equivalent procedures or program to ensure sanitation and food safety actions in provincial plants.

No	Yes
Barrier to entry.	Operation must have a documented food safety program that meets provincial or federal requirements and ensures the safety of beef and co-products. All workers are trained and follow the food safety program. Food safety procedures are monitored and corrective actions taken when necessary. Opportunities for improvement are identified and implemented.

2. *Information is shared up and down the supply chain.*		
Objectives:	Information that is relevant for verification and required by value chain stakeholders, both upstream and downstream, is shared. Confidentiality in the information is maintained, as appropriate.	
Examples of measures:	Participation in a data-sharing program (e.g. Beef Information Exchange System); data management system; evidence of information sharing.	
No		**Yes**
Barrier to entry.		Operation makes efforts to build relationships with beef producers and customers in the supply chain and share information to support sustainability efforts.

3. *Responsible efforts are made to ensure the quality of beef and co-products to customers further down the supply chain.*			
Objectives:	To provide quality beef and co-products to customers in the supply chain and minimize rejected product that does not meet customer specifications.		
Examples of measures:	Number of rejections by customers; quality assurance personnel; actions to remedy quality control failures.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
There are no efforts made to address customer complaints.	Customer specifications are known. There is a process in place to receive and resolve customer complaints.	Customer complaints are logged and resolved in a timely manner. Remedy may include re-direction of product to other streams to avoid wastage.	The number of rejections from customers in the supply chain is tracked and remains the same or is reduced over time. Opportunities for improvement are identified and implemented, where feasible.

4. *Efforts are made to reduce food waste.*			
Objectives:	The operation makes efforts to reduce food waste and loss that can be avoided, and recognizes that the optimal use of products is for human consumption first (1. reduce; 2. divert - prevent, redistribute and recycle; and 3. dispose).		
Examples of measures:	Food loss and waste accounting system; food loss and waste assessment; benchmarking; goal setting.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
Operation does not identify seek to reduce landfill waste and has no plan for improvement.	Operation identifies food waste and loss in their business and implements practices to reduce landfill waste.	Operation has conducted a food waste and loss assessment, optimization assessment, or similar.	Operation tracks food waste and loss over time. Opportunities for improvement are identified and implemented, where feasible.

EFFICIENCY AND INNOVATION

1. Operation reduces, reuses and recycles.			
Objective:	Operation reduces, reuses and recycles wherever feasible.		
Examples of measures:	Recycling program; rendering bills.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
Operation does not make efforts to reduce, reuse and recycle, and has no plan for improvement.	Operation takes actions to reduce, reuse and recycle non-food materials (e.g. packaging) used in the facility.	Operation has a program in place to reduce, reuse and recycle non-food (e.g. packaging) materials.	Operation has a documented program to reduce, reuse and recycle, and can show evidence that it is diverting materials (non-food) from the landfill.

2. *Energy is used efficiently and innovative options are considered.*			
Objective:	Energy is used as efficiently as possible and options for enhancing energy use efficiency are considered.		
Examples of measures:	Adoption of energy efficient technologies; energy efficiency plan; cost-benefit analysis of different options; evidence of reduced energy use (e.g. bills); kilowatt hour per kilogram of beef produced (kwh/kg beef produced); receipts or bills.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
No practices for energy use efficiency have been considered.	Practices are implemented to increase energy use efficiency.	Energy use is calculated (e.g. kilowatt hour per kilogram of beef produced).	Innovative options to increase energy use efficiency are considered, and where not cost prohibitive, are utilized. Energy used is tracked over time and opportunities for improvement are identified and implemented, where feasible.

3. *Innovation and technology are used in a responsible manner[17].*		
Objective:	New technologies and innovations are explored and utilized to continuously improve the sustainability of the product (e.g. food safety, efficiency, productivity).	
Examples of measure:	Investments in research; new technologies identified, explored, assessed.	
Yes		**Not applicable**
New technologies and innovations are explored and utilized where appropriate and feasible.		N/A

[17] This indicator is binary (assessed as 'yes' or 'not applicable'). It is for information collection purposes only; it will not be scored in the audit.

4. *Continuous learning and collaboration regarding sustainability is pursued.*			
Objective:	Continuous learning about sustainability is undertaken and efforts are made to collaborate with other stakeholders in the supply chain.		
Examples of measures:	Meetings with supply chain stakeholders; e-mail correspondence with stakeholders; attendance at workshops, webinars, etc.		
Barrier to Entry	**Level 1**	**Level 2**	**Level 3**
No participation in supply-chain learning (e.g. forums, workshops) at the provincial or national level.	There is a management commitment to learning and collaboration.	Operation engages in learning, collaboration and/or networking opportunities with stakeholders outside the operation (e.g. attends conferences, workshops). Participation in these opportunities is tracked.	Collaborative projects are documented and tracked over time. There is a documented plan for learning and collaboration regarding sustainability.

4. CHALLENGES TO IMPLEMENTATION

The CRSB recognizes that there may be challenges associated with implementing the indicators. Some of these challenges broadly include:

i. increased costs and time;
ii. balancing efficiency and quality (e.g. increasing water use efficiency while maintaining food safety);
iii. balancing employment, labour risks and automation of processes at the plant (e.g. leads to loss of jobs, reduced community linkages);
iv. driving improvement while at the same time maintaining economic sustainability (e.g. having expectations that are not feasible);
v. shortage of labour and trained personnel;
vi. tradeoffs between implementation of some indicators and economic sustainability; and
vii. potential conflicts between implementation of indicators.

Figure 3: The CRSB's three pillars of work

The CRSB is working to address some of these challenges through its three pillars of work: 1. Sustainability Benchmarking; 2. Verification Framework; 3. Sustainability Projects (Figure 3). Under the first pillar, the NBSA and Strategy set national benchmarks in various areas and also identified goals, key performance indicators, baselines and action items to help the CRSB address some of the challenges listed above. This can also be used to guide the efforts of other stakeholders who wish to address the challenges and/or help advance sustainability in the beef industry. The verification framework will help provide assurances and credible information about beef production and processing; the committees currently working on this framework are committed to creating a framework that is realistic, feasible and credible. The CRSB is also pursuing projects that align with the Sustainability Strategy[18].

5. CONCLUSION

The CRSB is committed to the continuous improvement and sustainability of the beef value chain through science, multi-stakeholder engagement, communication and collaboration. The CRSB encourages all stakeholders to participate in the public consultation process. The CRSB would like to thank everyone who takes the time to review this document and provides constructive comments. All comments will be reviewed and addressed in a public report that will be posted on www.crsb.ca.

[18] Canadian Roundtable for Sustainable Beef (CRSB). (2016). National Beef Sustainability Strategy. Calgary, AB: Available online: http://crsb.ca/wp-content/uploads/resources/CRSB_NationalBeefSustainabilityStrategy1.pdf