THE CANNABIS CONSERVANCY

Stewardship • Education • Certification

TCC works to empower and assure that the regulated Cannabis industry achieves environmental, economic, and social sustainability.

Sustainability

At the forefront of Canadian Cannabis Policy and Regulation

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Introduction

With the legalization of recreational Cannabis, Canada has a tremendous opportunity to develop regulations that set environmental sustainability baseline requirements for this emerging sector of the agricultural industry. Including environmental sustainability requirements in the Cannabis Act regulations, is in direct alignment with Canada's Federal Sustainable Development Strategy for Canada and is critical as Canada endeavors to meet our commitments to the Paris climate-change accord, ensure our water consumption is sustainable and divert waste from our landfills.

The environmental impacts of Cannabis cultivation exists on a spectrum. For instance, in regards to energy consumption, at one end of the spectrum, Cannabis is cultivated outdoor exclusively relying on the sun's energy for it's full life cycle. In this model there is no draw from the power grid. On the other end of the spectrum, Cannabis is cultivated exclusively indoors in a poorly designed facility using inefficient equipment, no scheduling optimization and is powered from coal. This type of facility's energy consumption is of major concern and contributes to climate change.

The Cannabis Conservancy does not advocate for over regulation but seeks baseline environmental sustainability criteria for cultivators to implement as part of the licensing requirements. The issuance of licenses under the Cannabis Act should be awarded to applicants who demonstrate the ability to meet baseline commitments to environmental sustainability. Our recommendations include a strategy for licensing based on environmental sustainability particular in the areas of facility type energy use, energy source, water use, water source, waste generation, resource management and land use.

Organization of our Recommendations

Our recommendations are organized under the appropriate heading of Consultation Paper (2.2, 2.3 and 2.3.7) and include in text recommendations indicated in **bold blue** (only relevant portions of the original text are included). A proposed regulation (2.3.8) is included in a blue text box. Examples of environmental sustainability licensing preference criteria are outlined and responses to the relevant Consultation Questions are addressed at the end of the document, presented in a table.

Including Environmental Sustainability in the Regulations

2.2 Licences, Permits, and Authorizations

The licensing and permitting framework established under the proposed Act and related regulations will strongly influence the type of legal cannabis industry that establishes itself in Canada. The regulatory proposals set out in this section are intended to achieve the following:

1. Enable a robust and responsible legal cannabis industry that is capable of outcompeting the entrenched illegal industry. To achieve this, the licensing and permitting framework is intended to:
    a. Enable a diverse, competitive legal industry that is comprised of a range of market participants, including both small and large players in regions across the country.
    b. Allow a range of different activities with cannabis, enabling innovation while at the same time **ensuring environmental sustainability,** protecting public health and public safety.

c. Reduce the risk that individuals associated with organized crime infiltrate the legal industry and use their position to benefit, financially or otherwise, criminal organizations.
d. Require that legal cannabis products meet high standards for quality, are produced in clean and sanitary environments and are tested for contaminants and the presence of unauthorized pesticides prior to sale to consumers.

2.3 Licence Requirements

It is proposed that the regulations set out specific requirements by class of licence. As discussed in section 1.3, these requirements would be designed to achieve the purposes of the proposed Cannabis Act based on an objective assessment of risk that considers the following three factors: (i) the activities authorized to be undertaken and the resulting forms of cannabis that would be present on-site; (ii) the scale of activities authorized to be undertaken and the resulting quantity of cannabis that would be present on-site; and (iii) the proximity of authorized activities to the consumer-end of the supply chain. For each class of licence, it is proposed that the regulations would set, among others, requirements related to:

1. Notice to Local Authorities
2. Validity Period
3. Location
4. Physical Security
5. Personnel Security
6. Good Production Practices
7. Record Keeping and Reporting
8. **Environmental Sustainability**

2.3.7 Record Keeping and Reporting

Record keeping and reporting requirements set out in the regulations would help enable licensed persons to quickly and efficiently demonstrate that they are in compliance with their legal obligations under the proposed Act and its regulations. As well, record keeping and reporting requirements would help the Minister of Health protect public health - through measures such as the requirement to report details of product recalls or serious adverse reactions to specific cannabis products. Finally, record keeping and reporting requirements would enable the Minister of Health to monitor the evolution of the cannabis industry and track developments - such as the development of new types of products - to ensure that the regulatory framework is working effectively to support the objectives of the proposed Act.

To these ends, it is proposed that the regulations set out specific record keeping and reporting obligations for each class of licence. Reporting requirements with respect to the tracking of cannabis and cannabis products, including information such as production levels, inventory amounts, and sales volumes would be captured under the Cannabis Tracking System that would be established under Part 6 of the proposed Act, and are covered separately in section 4 of this consultation paper.

In general, it is proposed that the regulations require the following records be maintained by licensed persons, along with setting out the manner in which they must be maintained, and their retention period:

- Records required to demonstrate compliance with required good production practices. These records would include, for example:
    I. documents demonstrating that each batch or lot of product sold was produced, packaged and labeled in accordance with the requirements of the proposed Act and its regulations;
    II. copies of standard operating procedures and the sanitation program;

    III. the results of any required analytical testing and the methods used in the testing;
    IV. qualifications of the quality assurance person; or
    V. copies of complaints received, investigations undertaken and any resulting corrective action;
- Information respecting research and development undertaken by the licensed person, including information such as the purpose and description of the research and development activity, the type and amount of cannabis used, and the product or compound made as a result of the activity;
- Information respecting the system or controls established to enable the recall of cannabis, as well as information about recalls;
- Information respecting adverse reactions to any cannabis product that the licensed person becomes aware of, the maintenance of an annual summary report, as well as the reporting of serious adverse reactions to Health Canada within 15 days;
- Records related to physical and personnel security, including, for example, records of employees accessing areas where cannabis is present;
- Notices and communications sent to local authorities;
- Copies of import and export declarations and permits;
- Information respecting promotional activities; and
- **Information respecting the environmental sustainability of the facility. This information is to be used with production data to determine both kilowatt hour and cubic meter of water per kilogram of Cannabis cultivated. Having different types of waste classified (compostables, recyclables, waste) enables the calculation of kilograms of specific waste types produced per kilogram of Cannabis cultivated. This data will be used to create baselines for the industry. The information collected will include:**
    I. facility type;
    II. energy use;
    III. energy source,
    IV. water use;
    V. water source;
    VI. types of waste generated and management methodology.

2.3.8 Environmental Sustainability

Environmental sustainability requirements set out in the regulations would comprise an element of the overall approach to assure the Cannabis industry is in direct alignment with Canada's Federal Sustainable Development Strategy for Canada.

All applications must include a description of the environmental sustainability of the proposed facility. Specifically, information relating to type of facility, energy use, energy source, water use, water source, waste generation, resource management and land use should be included.

Once baselines have been established through the data reported by facilities as detailed in Section 2.3.7, organizations will be required to meet the baseline sustainability requirements. Licensing preference will be given to organizations that show a demonstrable commitment to environmental sustainability.

Environmental Sustainability Licensing Preference

The recommendations described below are of particular importance for Standard Cultivation Facilities as those classified in the Micro class will have significantly smaller footprint, however environmentally sustainable practices should be encouraged at all levels.

Facility Type

Indoor cannabis cultivation is a resource-intensive process, with energy demands the highest contributor to the industry's large environmental footprint. Greenhouse and outdoor Cannabis operations require a fraction of the energy required to cultivate Cannabis in comparison to indoor facilities. By giving preference to sun grown Cannabis facilities, the demand on utilities will be reduced. This is particularly important in areas where fossil fuels are the predominant source of energy. In Greenhouses lights are only used to supplement the energy from the sun. By wiring a quantum meter to the lights in the greenhouse, the lights are only activating when the meter dips below the minimum micromole target, allowing for the most efficient use of electricity.

Energy Sources

Energy production is not created equal. There have been great developments in the renewable energy sector and Canada should seek to provide preference to Cannabis producers who use energy from a renewable source. Where renewable energy is not an option, licensing preference should be given to cultivators who are committed to paying for energy offsets. Boulder County requires all Cannabis cultivators to report on their energy usage and to either offset their electricity use with local renewable energy, or pay a 2.16 cent charge per kWh charge. The Boulder County Energy Impact Offset Fund used the money generated by this program to educate and encourage best Cannabis cultivation and fund other carbon offset projects such as the development of more renewable energy.

Energy Consumption

Lighting

Lighting is the most energy-intensive component of Cannabis cultivation and plays a significant role in the overall sustainability of the facility. The design of a facility's lighting system and the types of lights utilized impact both crop yield and quality. Standard Cultivation indoor facilities should be encouraged or be given preference for working with an engineer who is able to determined the target PPFD and to design the lighting system around the target. A poorly designed system can waste light which increases cooling requirements and puts further strain on the grid. There are many methods to increase efficiency:

- Type of lamps
- Adjustable lamps
- Racks
- Trellising
- Pruning
- Maintenance of lamps

Light Scheduling

In indoor facilities where artificial lights are utilized, light scheduling can have significant impacts on peak demand or the actual cost of energy. By staggering lighting schedules the cultivators can significantly reduce their peak demand which provides less pressure on the grid without compromising the health of the plants. In areas where 'peaker plants' are utilized the environmental benefits are compounded as many 'peaker plants' are less efficient and have higher fossil fuel emission rates. By giving preference to facilities that have the capacity and have shown a commitment to light staggering Canada could help to reduce peak electricity demand. This is particularly critical for large scale Standard Cultivation facilities.

Climate Control

Climate Control is the second most-energy intensive component of Cannabis cultivation. Climate control consists of multiple components of heating, ventilation, air conditioning (HVAC) and dehumidification. While purpose-built cannabis cultivation facilities allow for optimal climate design, repurposed facilities add a layer of complexity to the HVAC optimization equation. Where Cannabis is being cultivated indoors, preference should

be given to operations that were designed by engineering firms with specific sustainability credentials such as a Certified Energy Manager® or LEED® accreditations.

Water Consumption

Clean, pure water to cultivate Cannabis is essential to cultivate Cannabis and many local and provincial governments have goals to reduce water consumption. To meet these water consumption targets it is critical that the Cannabis industry be required to ensure responsible and sustainable water consumption and prevent downstream impacts.

Water Treatment

There are several water treatment methods that are utilized by Cannabis producers. Reverse osmosis is a popular water treatment method but they produce a significant amount of waste water; some efficient models advertise a 1:1 ratio (producing one liter of usable water for every liter of wastewater), however many systems flush three to twenty liters of water to waste for every liter of treated, usable water. By giving preference to producers who choose alternative water treatment methods, Canada can decrease the quantity of water consumed by Cannabis cultivation facilities.

Irrigation

Hand watering can use more water than necessary and result in nutrient rich runoff. By utilizing irrigation systems that provide water to the plants automatically and directly based on soil moisture content it can help to ensure responsible water use. Tensiometers measure soil water tension and indicate soil water conditions experienced by plants' roots. They can be incorporated into automated irrigation systems. Automated soil water sensor-based irrigation maintains a desired soil water range in the root zone that is optimal for plant growth. For outdoor and greenhouse cultivators, watering during cooler temperatures (early morning or in the later evening) is preferable as evaporation rates are slower. By giving preference to facilities that are committed to using technology and scheduling that optimizes water use, Canada can help to reduce the demand on our watersheds.

Waste

The Cannabis industry has the capacity to generate a significant amount of waste. The includes but is not limited to:

- Excess Cannabis plant material (from pruning and post harvest)
- Soil or substrate
- Packaging of Cannabis
- Packaging of inputs

The three areas where Canada can have an immediate and direct impact on waste is by focusing on the first three mentioned above. By requiring excess plant material and soil to be composted and giving preference to onsite composting, Canada prevents plant material from ending up in landfills and reduces the costs for local governments to dispose of these materials. Cannabis packaging should be required to be derived from sustainable sources, be recyclable and possibly require a deposit, like beverage containers in many provinces. This will further reduce waste while setting an example for other industries to follow.

Sustainability Certification

People want to purchase and consume products they can trust and that adhere to their personal values. ENERGY STAR is a voluntary energy efficiency certification program that identifies products which are energy efficient so consumers can make educated choices. By giving preference to license applications that are committed to going above and beyond the governmental sustainability requirements Canada is helping to drive the Cannabis to be one of the most sustainable in Canada.

Responses to Consultation Questions

#	Question	Response
1	What do you think about the different types of proposed licences (i.e., cultivation, processing, etc.)? Will they achieve the objective of enabling a diverse, competitive legal industry that is comprised of both large and small players in regions across the country?	Micro licensing is critical. It would be advantageous for the regulations to recognize micro-cultivator cooperatives or grower groups. The Cannabis Conservancy supports the different types of proposed licences and would like to add micro licenses that allow sale to the public.
2	What do you think would be an appropriate threshold to distinguish between a micro-cultivator and a standard cultivator, taking into account the reduced physical security requirements for a micro-cultivator? Should the threshold be based on the number of plants, size of growing area, total production, gross revenue, or some other criteria? What should the threshold be?	The threshold should be based on growing area as it is a constant that is simple for prospective licensees to plan for and it is easy to regulate. The Cannabis Conservancy supports the area specifications designated by the Craft Cannabis Association.
3	What do you think would be an appropriate threshold to distinguish between a micro-processor and a standard processor, taking into account the reduced physical security requirements for a micro-processor? Should the threshold be based on total production, on-site inventory, gross revenue, or some other criteria? What should the threshold be?	Considering a micro-processor may seek to be the same entity as a micro-cultivator and the micro cultivator's threshold should be based on growing area, it is important to ensure that a micro-processor have the capacity to process **at least** a single batch from a micro-cultivation site. It might be advantageous to allow for several micro-cultivators to provide for a single micro-processor.
6	What do you think of the proposed criteria for determining whether or not an individual is eligible to hold a security clearance? Do you think that the proposed approach should permit individuals with a history of non-violent, lower-risk activity (such as simple possession or small-scale cultivation of cannabis plants) to obtain a	Individuals with a history of non-violent, lower-risk activity should be able to obtain a security clearance and participate in the legal cannabis industry?

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7	What do you think about the proposal not to restrict the types of product forms that industry will be able to manufacture and sell (for example, pre-rolled dried cannabis, or cannabis oil capsules and oral sprays)? Are there any specific product forms that you think should be prohibited?	Edibles should be included as a permitted produced as soon as possible as many consumers are accustomed to ingesting cannabis orally and prefer it as it provides a much healthier method of consumption. Failure to permit edibles will only encourage grey market activity.
9	What do you think about the proposed rules for the packaging and labelling of cannabis products? Do you think additional information should be provided on the label?	Third party Certification logos should be permitted to inform consumers of products that adhere to more stringent standards than the baseline established by the government.
12	What do you think about the overall regulatory proposal? Is there any additional feedback that you would like to share on the proposed approach to the regulation of cannabis?	As described above, adherence to baseline environmental sustainability criteria should be incorporated as part of the licensing requirements.