



Blockchain: An Efficient, Accountable and Transparent Solution for Regulatory Oversight of the Supply Chain

“The Government’s principal interest should be to establish an efficient, accountable and transparent system for regulatory oversight of the supply chain, emphasizing the protection of health and safety and reducing diversion to the illicit market”

- Task Force on Cannabis Legalization and Regulation, Final Report, Chapter 3, 2016.

Greenstream’s Submission
to Health Canada’s Consultation on the
Proposed Approach to the Regulation of Cannabis

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Cannabis Legalization and Regulation Secretariat
Health Canada
Ottawa, ON
K1A 0K9

Subject: Greenstream's Submission to Health Canada's Consultation on the Proposed Approach to the Regulation of Cannabis

To the Director General:

Greenstream is a Montreal-based blockchain technology company that was founded to create a healthy and sustainable future for the legal cannabis market. In support of this mission, Greenstream invites the government to consider blockchain as the solution for the regulatory oversight of the cannabis supply chain.

As more fully described in its response to question twelve of this consultation, Greenstream has leveraged blockchain technology to develop a regulatory compliance platform that enables unprecedented oversight of the cannabis supply chain in real-time. The Greenstream platform is capable of recording and containing the complete history of cannabis transactions in a manner that is immutable, verifiable and accessible by regulators and stakeholders on a permission basis. The platform includes a new medium of exchange that is capable of internalizing the evolving federal, provincial, and territorial regulatory frameworks, ensuring that only tax remitting, regulatory compliant transactions are possible.

The benefits of adopting Greenstream's platform include guaranteeing provenance, traceability and auditability; ending the possibility for illegal cannabis to infiltrate the legal market through untraceable, cash transactions; preventing the sale of cannabis to youth; and, ensuring the conversion of legally produced cannabis into federal and provincial tax revenue. In short, Greenstream's platform advances the essential purposes of the *Cannabis Act*, to protect public health and safety while eliminating the black market.

Greenstream is grateful for the opportunity to provide feedback to Health Canada as part of the Consultation on the Proposed Approach to the Regulation of Cannabis, which it considers will substantially improve the government's capacity for regulatory oversight of the cannabis supply chain. Finally, Greenstream wishes to recognize the efforts and significant progress made by the Cannabis Legalization and Regulation Secretariat, and remains available to further discuss any aspect of its proposal, as well as the Proposed Approach, at the Secretariat's convenience.

Sincerely,



Doug Kukura
CEO, Greenstream

CONSULTATION QUESTIONS ON THE PROPOSED APPROACH TO THE REGULATION OF CANNABIS

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?

Greenstream considers the different types of proposed licences to be a reassuring step towards achieving the government's overall objectives for the legalization and regulation of cannabis. Greenstream has concerns, however, that certain gaps in regulatory oversight of supply chain activities may persist if regulatory minima for additional types of licences and/or requirements are not proposed by the federal government.

In this respect, Greenstream notes that cultivation and processing licences would also authorize associated or supplemental activities such as transportation and storage. While Greenstream recognizes the expedience of authorizing supplemental transportation and storage activities to be carried out by a holder of a cultivation or processing license, there may be cases in which separate licences for transportation and/or storage of cannabis should be required, for instance, for organizations that engage in the transportation and/or storage of significant amounts of cannabis, or where the transportation and storage of cannabis represents an organization's core activity. The licences should contain the requirement to report certain data related to the transaction in question, including the description, weight, and price of the product transported or stored. Comprehensive regulatory oversight is needed for the transportation and storage of cannabis if the government is to achieve its purpose of protecting public health and safety and reducing diversion to the illicit market.

Greenstream supports the proposal to proportionately reduce certain licencing requirements for micro-cultivators and micro-processors, in order to facilitate their participation in the legal industry. Greenstream is pleased to advise that its platform will also help small players enter the market. The Greenstream platform will provide industry participants with a means to publish verifiable data on supply chain and financial transactions in a permission-based, publicly accessible ledger. In this way, Greenstream's platform simplifies micro-cultivators' ability to demonstrate compliance, reducing the need for frequent and costly audits or inspections, thereby lowering the barrier to market entry.

Finally, Greenstream urges the federal government to apply greater resources to the processing of the proposed licences in order to meet the expected demand for legal cannabis. Failure to meet the demand for legal cannabis will significantly exacerbate the risk of illegal cannabis infiltrating the legal market through cash transactions, with significant negative consequences for public health and safety.

- 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?**

At the outset of legalization, Greenstream considers that the Minister of Health should introduce lower thresholds for micro-cultivators, given the proposed reduction in physical security requirements. Such thresholds may be increased in time once micro-cultivators have demonstrated an ability to comply with regulatory requirements, and once public health and safety risks, including the influence of the black market, have been adequately controlled. Greenstream's notes that its platform simplifies a micro-cultivator's ability to demonstrate its level of compliance, facilitating regulatory oversight of an appropriate threshold.

Greenstream is of the view that the threshold should be based on the number of plants, which will be tracked throughout the supply chain with greater precision than total production or growing area. Greenstream is also of the view that gross revenue cannot be used to reflect a precise threshold of plants, as different strains of cannabis will have different monetary values. If the number of plants is used as the threshold, moreover, data collected through the Cannabis Tracking System will eventually reveal the safest, most productive threshold for distinguishing between micro and standard cultivators.

In addition, if the threshold is based on the number of plants, the Greenstream platform would make it impossible for a micro-cultivator to bypass licensing thresholds through tampering. Unlike conventional cloud-based or on premise supply chain solutions, Greenstream's platform guarantees data integrity by preventing the unauthorized use and alteration of data that can lead to supply chain obfuscation. In this way, Greenstream would ensure that the threshold of plants for micro-cultivators is respected and auditable in real-time.

- 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?**

At the outset of legalization, Greenstream considers that the Minister of Health should introduce lower thresholds for micro-processors, given the proposed reduction in physical security requirements. Such thresholds may be increased in time once micro-processors have demonstrated an ability to comply with regulatory requirements, and once public health and safety risks, including the influence of the black market, have been adequately controlled. Greenstream notes that its platform simplifies a micro-processor's ability to demonstrate its level of compliance, facilitating regulatory oversight of the appropriate threshold.

Greenstream is of the view that the threshold should be based on on-site inventory, which will be tracked throughout the supply chain with greater precision than total production. Greenstream is also of the view that gross revenue cannot reflect the precise volume of inventory, as different cannabis product forms will have different processing costs. If on-site

inventory is used as the threshold, data collected through the Cannabis Tracking System will eventually reveal the safest, most productive threshold for distinguishing between micro and standard processors.

In addition, if the threshold is based on on-site inventory, the Greenstream platform would make it impossible for a micro-processor to bypass licensing thresholds through inventory tampering. Unlike conventional cloud-based or on premise supply chain solutions, Greenstream's platform guarantees data integrity by preventing the unauthorized use and alteration of data that can lead to supply chain obfuscation. Accordingly, Greenstream would ensure that the on-site inventory threshold for micro-processors is respected and auditable in real-time.

4. What do you think of the proposed rules and requirements (i.e., physical security, good production practices, etc.) for the different categories of authorized activity? Do you think that the requirements are proportional to the public health and safety risks posed by each category of activity?

Greenstream supports the proposed rules and requirements for the different categories of authorized activity. Greenstream notes that its tamper proof chain of custody solution further promotes transparency in good production practices, by guaranteeing provenance, traceability and facilitating product recall, from seed to sale.

As noted above, however, Greenstream recommends that the Minister of Health consider establishing regulatory minima for additional categories of licences, rules and reporting requirements for the transportation and storage of cannabis, to reinforce regulatory oversight of the supply chain.

Furthermore, given the serious risk of a grey market developing at the outset of legalization, Greenstream is of the opinion that the proposed regulations should include greater discretion for the Minister of Health to introduce stricter requirements, particularly with respect to physical and personnel security. Such requirements may be relaxed in time once public health and safety risks have been adequately controlled.

5. What do you think about the proposed requirements for certain individuals associated with a licensed organization to hold a security clearance issued by the Minister of Health? Do you think the proposal appropriately addresses positions of greatest risk?

Greenstream supports the proposed requirements for certain individuals associated with licensed organizations to hold a security clearance issued by the Minister of Health. Greenstream recommends that the Minister of Health consider requiring additional personnel, such as those engaged in the transportation and storage of cannabis on behalf of a licensed organization, to hold a security clearance. Key personnel engaged in the movement of cannabis through each stage of the supply chain should be required to hold a security clearance issued by the Minister of Health.

By providing an immutable chain of custody as well as a digital identity solution, Greenstream's platform ensures supply chain participants are authenticated and authorized to perform the activity in question, e.g. transportation or possession of cannabis. Thus, Greenstream's platform reinforces the government's oversight of personnel that have been

authorized to undertake cannabis-related activities, including personnel required to obtain security clearances.

- 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 security clearance and participate in the legal cannabis industry?**

Greenstream supports the proposed risk-based criteria for determining whether or not an individual is eligible to hold a security clearance. Individuals with associations to organized crime, or with past convictions for, or an association with, drug trafficking, corruption or violent offences represent an inadmissible risk to the legal market for cannabis.

Individuals with a history of non-violent, lower-risk activity (such as small possession or small-scale cultivation) represent a different conundrum: on the one hand, they may have acquired expertise that could be valuable to the growth of the legal industry; on the other hand, they have done so while demonstrating a persistent disregard for government legislation and maintaining contacts in the black market.

While Greenstream considers that in certain cases individuals with a history of non-violent, lower-risk activity could be permitted to obtain a security clearance without risk to public health and safety, Greenstream strongly urges the government to postpone consideration of this approach to a later date, once a legalized and controlled regime is in place. At present, the risk of illegal cannabis being used as a source of supply in the legal market is too high.

- 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?**

Greenstream considers that offering as many product forms as possible will be critical to helping the legal industry displace the black market, in which all such products may be obtained. Accordingly, Greenstream is in favour of the proposed approach not to restrict the types of product forms that industry will be able to manufacture and sell, provided good production practices and product quality can be maintained at the highest level.

Greenstream is pleased to report that its blockchain-enabled regulatory compliance platform would make it impossible to process transactions involving product forms not expressly contained in government regulations. Furthermore, Greenstream's platform is capable of tracking and storing data on all product forms that industry has been authorized to manufacture and sell to the public, yielding potential for greater regulatory oversight, research into effects on youth and public health, and analyses of trends in consumption.

8. What do you think about the proposed THC limits based on how a product is represented to be consumed (i.e., by inhalation or by ingestion)? What do you think about the proposed limits on a unit or serving basis?

Greenstream supports the proposed approach to assign THC limits per unit based on how the product is represented to be consumed. Moreover, Greenstream encourages the government to adopt a flexible regulatory framework that is capable of adapting swiftly to emerging evidence on the effects of THC and CBD concentrations, and their relationship with various product forms. Finally, and as recommended by the Task Force on Cannabis Legalization and Regulation, Greenstream encourages the government to develop and implement public education strategies to inform Canadians, particularly youth, about the risks of problematic use and to provide guidance on lower-risk use.

Greenstream notes that its blockchain-enabled regulatory compliance platform would also make it possible to track and store data on the different types of cannabis of varying THC limits that have been sold to the public. The Greenstream platform would yield potential for greater regulatory oversight, research into effects on youth and public health, and analyses of trends in consumption.

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?

Greenstream is of the opinion that the proposed rules for packaging and labelling fulfill the intended purposes, notably, to promote informed consumer choice and allow for the safe handling and transportation of cannabis. Greenstream notes that its platform is capable of immutably registering the identity of product packaging and labelling, preventing tampering at the processing stage and facilitating recall.

To encourage transparency, Greenstream recommends that personnel responsible for ensuring regulatory compliance with packaging and labelling requirements be subject to monthly reporting obligations regarding product description, lot number, weight or volume, price and packaging date, as part of the online Cannabis Tracking System.

10. What do you think about the proposed approach to providing cannabis for medical purposes? Do you think there should be any specific additional changes?

Greenstream recommends that the government begin exploring ways to link the online Cannabis Tracking System for non-medical cannabis to the reporting system currently in place for the sale of cannabis for medical purposes. While the respective industries have different markets, data collected in one industry may nonetheless be useful in the other, for example, for research and development, or, for sharing best practices common to both industries.

Furthermore, Greenstream notes that the proposed approach limits the issuance of import and export permits to cannabis for medical purposes, consistent with the *Cannabis Act*. Greenstream recommends that the government continue studying the potential for a legislative and regulatory framework that would enable the importation and exportation of cannabis for non-medical purposes in a manner that protects public health and safety. Such

an initiative would further capitalize on Canada's emerging position as a global leader in the responsible production, distribution and sale of legal cannabis.

11. What do you think about the proposed restrictions on the sale of health products containing cannabis authorized by Health Canada? Do they strike an appropriate balance between facilitating access to safe, effective and high quality health products, and deterring illegal activities and youth access?

Greenstream approves of the government's scientific, evidence-based approach for the oversight of health products with cannabis. In particular, Greenstream supports the requirement for health product manufacturers to comply with certain licensing requirements under the proposed *Cannabis Act*, including with respect to security, good production practices, record keeping and reporting.

Greenstream is of the opinion that the market for health products containing cannabis is vulnerable to abuse and product diversion. Rigorous regulatory oversight of supply chain participants and transactions will be essential. Consequently, Greenstream urges the government to implement a blockchain-enabled Cannabis Tracking System that guarantees data integrity, product provenance and traceability, while enabling real-time auditability.

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?

Greenstream proposes that the government consider using a blockchain network for the implementation of the Cannabis Tracking System described in Part 4 of the Proposed Approach. As noted above, Greenstream has leveraged blockchain technology to develop a regulatory compliance platform that would enable unprecedented oversight of supply chain transactions.

Greenstream's platform is capable of recording and containing the complete history of cannabis transactions and inventory in a manner that is immutable, auditable and accessible in real-time. The integrity of the tracking is ensured through an identity management system that is interoperable with existing supply chain management solutions. Through this identity management system, all changes in the custody of goods are attributable to a single entity or individual, allowing for a single repository of all transactions, or, a single source of truth for value and product transfers. By uniting the data collected by conventional supply chain management solutions, Greenstream greatly simplifies the administrative burden of regulatory oversight. Unlike conventional cloud-based or on premise supply chain solutions, moreover, Greenstream's platform guarantees data integrity by preventing the unauthorized use and alteration of data that can lead to supply chain obfuscation. In this way, Greenstream's platform also guarantees provenance and traceability.

Furthermore, through a cryptographically secure medium of exchange, the Greenstream platform is capable of internalizing federal, provincial and territorial regulatory frameworks as they evolve, ensuring that only tax remitting, regulatory compliant transactions are possible. Standardization of this new medium of exchange across the cannabis supply chain

would effectively eliminate the possibility for cannabis to be sold to youth or for illegal cannabis to infiltrate the legal market through untraceable, cash transactions. In light of the increasing risk that illegal cannabis will be used to make up for shortfalls in supply at the outset of legalization, Greenstream strongly urges the government to consider including this blockchain-enabled medium of exchange in its regulatory approach.

The Greenstream platform enables the recording of all the transaction details (such as amounts by lot/batch/weight) proposed for inclusion in the ministerial order cited on page 41 of the Proposed Approach, notably, on: cannabis sown propagated and harvested; cannabis obtained, returned, ordered, delivered, sent and sold; cannabis destroyed; cannabis used at each stage of production; cannabis used in research and development; and, loss and theft. Greenstream supports the inclusion of this information as part of the monthly reporting requirements for license holders at each stage of the supply chain.

In addition, Greenstream's platform meets all of the objectives and requirements described in Part 4 of the Proposed Approach: it is capable of tracking the movement of cannabis throughout the supply chain and may be used by various government authorities to verify compliance or prevent non-compliance with other federal, provincial, or territorial laws respecting cannabis; it may be used as a data collection tool that would show both inventory and production levels, as well as high-level movements of cannabis (e.g. from cultivator to processor, from processor to a provincial distributor, etc.) across the supply chain; it may also be used to facilitate inspections, audits and enforcement actions in real-time, saving countless tax dollars.

In short, Greenstream's platform is an unprecedented solution for storing trusted supply chain data that enhances regulatory oversight while empowering the government to make evidenced-based cannabis policy that prioritizes public health and safety.