

## UBC Sustainability Scholars Program 2019

The UBC Sustainability Initiative (USI) is pleased to offer current UBC graduate students the opportunity to work on funded sustainability internship projects. Successful candidates work under the mentorship of a partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing organizational sustainability goals.

For more information about the Sustainability Scholars Program and to apply to work on this project, please visit the [Student Opportunities](#) page.

Please review the application guide (PDF) before applying.

Applications close **midnight Monday February 25, 2019.**

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**Title of Research Project:** [Assessment of Impact of Emissions from Cannabis Production](#)

**1. The purpose of the project is:**

The purpose of this project is to assess the multi-media environmental impacts of cannabis production including air emissions, water effluents and waste generation.

The starting point for this is to estimate the releases to the environment from these facilities. Metro Vancouver has identified the potential for releases to air, water and land, and water utilization. Currently, there is limited and variable information available to estimate these releases and Metro Vancouver needs to improve the quality and reliability of information through the review of emerging research in this field. It is expected that the majority of work will be associated with air emissions, but releases of water effluent, water utilization, and solid waste have also been flagged as potential issues of concern to various groups within Metro Vancouver.

**2. How will this project make a contribution to regional sustainability?**

Metro Vancouver's *Board Strategic Plan* provides direction to "Identify the key threats to the region's air quality and their sources, and pursue appropriate means for reducing or eliminating identified threats". Action 1.2.1 of the *Integrated Air Quality and Greenhouse Gas Management Plan* is to "Deliver a fair, effective and efficient regulatory program and follow the guideline of continuous improvement to minimize emissions, adverse health impacts and environmental degradation." and Action 1.2.3 states "Investigate and implement additional targeted measures to address emissions of contaminants (e.g., volatile organic compounds, ammonia, nitrogen oxides and sulphur oxides) that contribute to ground-level ozone and secondary fine particulate matter concentrations".

There are thirty-one licenses issued under the *Cannabis Act* by Health Canada to cultivators, processors and sellers located in BC. It is unknown how many of these are located within Metro Vancouver, but Metro Vancouver staff have identified about twenty cannabis production facilities, and major new facilities are being announced as recently as November of 2018. Many odour complaints have been received by Metro Vancouver regarding certain of these facilities and Metro Vancouver is aware of other potential impacts to air, water and land. The magnitude of the impact of these facilities on air quality, wastewater and water treatment plants and

solid waste treatment and disposal facilities is not clear and better information is needed to allow for planning and regulation of these facilities.

**3. Outline the scope of project including how the scholar's work will be used by Metro Vancouver:**

The scholar will research existing methods for estimating emissions from cannabis production facilities including the analytical methodologies used to measure emissions from cannabis. Metro Vancouver is aware of some information from regulators and academics in Canada and the US and this can be used as a starting point. Metro Vancouver also has a modest list of contacts within the regulatory and industry community. The scholar will search existing academic and other publications for information on emissions and contact regulatory agencies and industry to fill information gaps.

Metro Vancouver will use air emission information to predict potential secondary effects of organic emissions, such as formation of ground-level ozone and secondary organic aerosols. Information on liquid and solid waste discharge will help Metro Vancouver estimate the potential additional loading on wastewater treatment plants and solid waste treatment and disposal facilities.

**4. Project Deliverables:**

Ideally, the project will provide four estimates of emissions from the growing and processing of cannabis:

1. Organic emissions to air,
2. Liquid effluents to Metro Vancouver sewer,
3. Waste generation, especially organic waste,
4. Water utilization, and
5. Energy usage and direct and indirect GHG emissions.

The achievement of these deliverables implies many sub-steps, particularly the development of methodologies for estimating these releases from broadly available information, such as the area of the production facilities.

**5. Identify the required/preferred skill set and knowledge base for the ideal Scholar.**

**Required skills:**

- Excellent research and writing skills
- Strong analytical skills
- Ability to work independently
- Demonstrated time management skills
- Deadline oriented
- Familiarity with research methodologies and survey techniques
- Good spreadsheet skills, able to use multiple sheets in calculation formulas.

**Preferred Skills:**

- Demonstrated experience in estimating emission inventories
- A good understanding of organic emissions from vegetation
- Educational background or specific training in agriculture (especially greenhouse operations), chemistry, and/or environmental science/engineering with specialization in air quality.

**6. Identify specific requirements required for completing this project (if any)**

- Must be able to occasionally travel to Metro Vancouver's head office in Burnaby to complete a portion of the work
- Access to own laptop and Word and Excel software

Applications close **midnight Monday February 25.**

Apply here:

<https://sustain.ubc.ca/student-opportunities>

To learn more about the program here:

<https://sustain.ubc.ca/ubc-sustainability-scholars-program>

Read the application guidelines to confirm your eligibility to participate in the program here:

<https://sustain.ubc.ca/student-opportunities>

Contact Karen Taylor at [sustainability.scholars@ubc.ca](mailto:sustainability.scholars@ubc.ca) if you have questions.