# Climate Engagement Assessment Report

## UBC Okanagan Campus

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## Disclaimer

This report was produced as part of the UBC Sustainability Scholars Program, a partnership between the University of British Columbia and various local governments and organisations in support of providing graduate students with opportunities to do applied research on projects that advance sustainability across the region.

This project was conducted under the mentorship of Climate Action Plan Engagement Working group (CAP-E) staff. The opinions and recommendations in this report and any errors are those of the author and do not necessarily reflect the views of the University of British Columbia.

## Acknowledgements

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# Executive Summary

Initiated under the Sustainability Scholar Program, the purpose of this project is to undertake the foundational research required to inform the development of an engagement strategy to support behavior change of campus community members (students, staff, faculty, and key partners) in three Scope 3 priority areas: food, waste, and transportation on the Okanagan Campus of the University of British Columbia.

As an institution, the University of British Columbia reaffirmed its commitment to build a sustainable community by formally announcing the Climate Emergency in 2019. Further developments and deliberations led to the creation of the Climate Action Plan 2030 which sets the targets and establishes the intention to curb the Green House Gas (GHGs) Emissions.

This report builds onto the existing studies and reports in place with respect to the UBC Okanagan campus, provides a brief review of the literature, an account of the current areas of engagement on campus, and an assessment what changes may be made to avert the adverse effects of climate change. The twelve stakeholder interviews conducted provided much context to the existing activities on campus along with advice, suggestions, and opinions in their area of operation or study.

Process fragmentation, the demographic heterogeneity on campus, the frequent and high turnover of students on campus around the year, and the gaps in institutional commitment to climate action and sustainability were raised to be the main areas of concern. The establishment of a dedicated office like the Climate Hub and the Sustainability Hub on the UBC Vancouver campus, and the availability of human resource and financial support can help improve the campus sustainability and engagement initiatives on the UBC Okanagan Campus.

# Introduction

The University of British Columbia first announced the climate emergency in December 2019, in recognition of the looming dangers of climate change and renewing its resolve to address the various facets of sustainability and climate justice as a leader, on campus and beyond in the local community. In accordance with the goal set by the Paris Climate Agreement, UBC reaffirmed its commitment to limiting global warming to 1.5 degrees per year. To achieve this goal, the overall reduction in emissions and mindful usage of resources remains at the center of the discussion (University of British Columbia, 2019).

Following the declaration, an extensive community consultation process of gathering inputs from a wide body of campus community members on both the Vancouver and Okanagan Campus was held, and the Climate Emergency Task Force (CETF) produced a public UBC climate emergency engagement report also known as the CETF Report (University of British Columbia, 2021). The CETF report identifies nine strategic priorities and 28 recommendations for effective climate action by UBC in the areas of climate justice, institutional leadership, inclusion of the voice of the marginalized and minority communities, climate research, climate advocacy and engagement, community wellbeing, climate education, strategic partnerships, and creation of the CAP 2030 plan directed at emissions reduction.

Concurrently, a Climate Action Plan 2030 (CAP 2030) was created separately for each campus (the Vancouver and the Okanagan campus), taking into consideration the unique demographics, surrounding environment, community, and scale of operations. The report is much narrower in scope in comparison to the CETF report and focuses singularly on reduction of GHG emissions and lays out the goals in the areas of food, waste, transport, and energy to support climate resiliency (University of British Columbia, 2021).

The Okanagan CAP 2030 report sets an overall target of reduction of GHGs by 65% from campus operational activities like optimizing energy usage in buildings, fleet, and employment of financial tools to work towards sustainability, otherwise known as Scope 1 and Scope 2 GHGs. Additionally, the aim is to bring an additional 45% reduction in GHG emissions system-wide by looking at business air travel, climate friendly food, embodied carbon, commuting, and waste and materials, otherwise known as Scope 3 GHGs. Whereas Scope 1 and 2 GHGs are reduced through approaches such as system efficiencies and procurement, reducing Scope 3 GHGs are primarily

targeted through community engagement and outreach programs. In line with UBCO's commitment to reducing greenhouse gas emissions (GHGs), the Climate Action Plan 2030 - Engagement (CAP-E) working group has been established as a multi-stakeholder group comprising of faculty, staff, and students to mobilize support and engage the campus community to achieve the enshrined goals.

With ~12000 students, ~1200 faculty and staff members and additional local community members present, the Okanagan campus experiences a high footfall daily (University of British Columbia, 2022). UBCO is in the Okanagan valley, in Kelowna, a rapidly developing city, which has experienced its share of calamities driven by climate change, e.g., the wildfires and drought in 2017 and 2018 due to the record high precipitation followed extreme heat (City of Kelowna, 2020). The Climate Projections for the Okanagan region 2020 report by the City of Kelowna calls for leaders across the local community to work together and adapt to the changes in the local climate to build a more resilient community.

## Project Purpose and Objectives

The purpose of this project is to undertake the foundational research required to inform the development of an engagement strategy to support behavior change of campus community members (students, staff, faculty, and key partners) in three Scope 3 priority areas: food, waste, and transportation. Foundational research includes understanding best practices in climate engagement, learning from other academic institutions about their approach to similar work, and finally, consulting with key stakeholders and students. The project objectives are:

- To conduct a literature, review of at least 20 articles on the subject of climate engagement strategies to influence human behavior;
- To conduct an environmental scan to understand climate engagement work completed and/or underway related to the Scope 3 areas of food, transportation, and waste;
- To conduct key stakeholder interviews to understand the key challenges surrounding engagement and climate action on campus.

# Project Process

Initiated under the Sustainability Scholar Program, the project was undertaken between the months of November 2022 to March 2023 over a span of 250 hours. The project was structured to incorporate the voices of faculty, staff, students, and local community members working in areas of climate engagement and advocacy, with the end goal of undertaking the foundational research to build an engagement strategy to drive behavioral change on campus in the areas of Scope 3 climate impact behaviors (food, waste, energy and transport).

Two staff members – Robyn Bunn, Student Experience Office, and Casey Hamilton, Campus Wellness & Education – were mentors throughout the project. The Climate Action Planning Engagement (CAP-E) working group was regularly updated and consulted throughout the duration of the project. The conversations prompted an improvement in the scope of the project to undertake an environmental scan of the ongoing and past initiatives on campus and to create a report as a resource providing information of various effective engagement strategies. The project report is the key deliverable; the environmental scan, literature review, and stakeholder interviews are the main areas of focus of the document. It is based on both primary data collected through stakeholder interviews and secondary data sourced from reports and subject literature.

With assistance and support from the subject librarian, the scholar was able to explore various databases and narrow down the search terms or keywords to "climate engagement", "behavior change", "educational institutions and sustainability." The literature review process entailed the collection and review of reports, and research from the fields of climate advocacy and engagement, the role of higher learning institutions as drivers of sustainability, and psychology. The International Journal of Sustainability in Higher Education proved to be a valuable resource as it enabled us to find prior and comparable studies providing successful engagement strategies utilized by universities from all around the world. The theoretical study conducted brought out the different themes in the engagement mechanisms which can be employed and are presented in categories in the document. An annotated bibliography of the sources used in this project is included in Appendix A.

At the onset, a list of prospective parties to be interviewed was determined. This list consisted of a mix of faculty, staff, individual students, as well as student groups and associations, to ensure fair representation. Off the original list of around 18 interviewees, 12 key stakeholder interviews were conducted. The interviews conducted provided much context to the existing activities on campus along with advice, suggestions, and opinions in their area of operation or study.

# Literature Review

In contrast to the traditional expectations set for higher learning institutions to be drivers of economic development in a society, in the current times there is a need for their role to evolve to cope with the changing complexity of the environment and to respond to changing social needs. Webster (2019) lays out seven dimensions of sustainability in higher education which include factors which can be addressed at the organizational level like: institutional framework, campus operations, on-campus experiences, and assessment and reporting and others like education, research, outreach and collaboration which can be worked on by faculty, staff and students on campus. It is important to recognize that while this report focuses on the engagement aspect of institutional sustainability, a holistic plan that addresses all aspects is required to drive material change. Formulation of an engagement strategy to cater to a demographically varied population like that at UBCO can be complex due to the heterogeneity of factors to be considered. Through relevant literature and understanding successful strategies implemented by other educational institutions around the world, the following themes arise: education as engagement, addressing eco-anxiety, collective action and safe spaces, messaging, and nudges.

## Education as Engagement

Embedding components of climate and sustainability in the curriculum remains to be the most effective method of increasing the knowledge of sustainable practices. By enabling teachers to incorporate climate and environmental education in the current curriculum and taking an interdisciplinary approach, investing in their professional development can help in building a conducive environment to engage students and address their climate concerns (Blanche, 2020). Mochizuki (2015) popularizes the need for educational institutions to have Climate Change Education (CCE) Curriculum which is approached from an interdisciplinary and systems perspective, so that the awareness of scientific, ecological, economic, political, ethical and social dimensions of climate change influence and bring about transformative shifts in the way induvial think and act.

Wall (2018, 2019) introduces *service learning* and *work integrated learning* as two practical approaches to sustainability education. Service learning can be defined as "a philosophy, pedagogy, and a program underpinned by learning through experience and reciprocity (mutual development)" and includes aspects like supporting community resilience, recycling, or local health promotion in sustainability education (p. 1). For example: literacy or numeracy tutoring in hospitals or delivering educational presentations about recycling to a community group. Work integrated learning is a form of pedagogy which is situated, experiential, and collaborative with

industry or community partners. Such engagements allow the integration of student voice and manifest into community driven form of alternative education.

## Dealing with Eco-emotions

The unpredictability, uncontrollability and severity of the impact of climate change in the lives of individuals in the present and in the projected future has caused an increase in the prevalence of mental health issues, especially for youth, in the educational institutional setting (Sharman, 2019). Several new terms describing "eco-emotions" like "eco-depression", "eco-anxiety" and "eco-anger" have been coined in recent literature. While depression is considered a deactivating emotion and inhibits climate action, anxiety often motivates active avoidance and anger prompts action and reactions (Samantha et.al, 2021).

Literature speaks of how educators can respond to address these concerns by advancing knowledge in the areas of the cognitive and socio-emotional processes which drive the choices people make. Embedding or integrating reflective practices for sustainable development in higher education, therefore, can act as a catalyst for deeper self-awareness and responsibility (Burns, 2015). Engagement communications which are directed towards taking actions must be tangible, short term, and specific as the understanding that something can help contribute to make improvements (Webster & Marshall, 2019).

With reference to the Climate Book by Greta Thunberg (2023), at a personal level, one must look at the positive steps they have incorporated in their lives and the impact that they are generating than focusing on the negatives and what is unattainable to help with the feeling of uneasiness regarding climate matters.

## Collective Action and Dialogue

The university setting provides sufficient opportunity to foster a spirit of community and create a setting conducive to establishing a relationship between faculty, staff and students. Facilitating conversations between community members helps individuals share their concerns and bond over collective climate concerns. It further helps narrow the psychological distance from climate issues by associating to the problems closer to home and inculcates the values of necessity of action, and intergenerational duty towards the climate. (Corner et. al, 2020).

Clark (2016) promotes the need for coordination between campus sustainability practitioners (staff) and researchers to capitalize on in-house knowledge and build bridges for

authentic collaboration in the university setting. This can facilitate the development and implementation of more effective and equitable climate solutions which are informed by diverse perspectives. The concept of "collective action competence" which is the utilization of a common skillset or shared experience by a group to achieve a particular goal driven by collective literacy or knowledge is also popularized to achieve solution and outcome driven action.

## Messaging Approach

Corner and Clarke (2017) in their book Talking Climate lay out fundamental principles to drive public engagement and moving past the pervasive challenges related to climate communication. They draw attention to shifting the narrative of climate change being a scientific to a social reality, engaging with the community by using a "values-up" approach than simply relying on numbers and statistics to draw attention and getting people to critically think to build active climate citizenship in the community. They highlight the inherent difficulty in communicating about climate change which persists to be a complex and multi-faceted problem despite the extensive efforts over the past two decades to raise awareness. The primary and secondary effects of climate change cascade through social and environmental systems and are multi-disciplinary in nature. Hence, it is important to take into consideration various surrounding social, political and economic factors while developing an engagement strategy. Climate fatigue which is caused by excessive exposure and engagement is also a prevalent barrier to the successful implementation of campaigns. They recognize the inherent abstractness and vagueness of the usual climate awareness campaigns and promotes the need for simplifying the mainstream media communication which in the form of editorials, research papers or statistical reports into translated and interpreted forms.

## Nudges to Encourage Behavior Change

Reinforcing positive behavior change and discouraging negative habits can be a challenging task to communicate to a wide audience. Instead, nudges which are positive and gentle persuasions are a cost effective and efficient method to drive change. Taking advantage of the psychology of decision making, it harnesses the power of ingrained routines or involuntary choices. United Nations Environment Programme, GRIDArendal and Behavioural Insights Team (2020), share some of the commonly used nudge strategies are:

1. Defaults

The most sustainable option is presented as the default option available. This can be used in the areas of food sustainability to encourage the consumption of sustainable and plant-based

foods by setting it as the default choice with meat products being served on request. This contrasts with the current norms where plant-based meals are required to be pre-ordered or requested.

## 2. Frictions

Interventions like removing small barriers in the way of sustainable options and adding small barriers in the path of unsustainable options is how such nudges can be incorporated in the existing infrastructure. Adding a friction, the University of St. Andrews tried to tackle the issue of food waste by reducing the size of plates and bowls as it ensures portion control while also leaving the option for people to get more food.

Similarly, by removing friction, the University of Winchester has found success with its campaign *Bag it Up* set up to manage waste stream and promote reuse and thrifting and facilitating easy repurposing of items. The holistic program was set up to let students donate unwanted clothing, accessories and goods to the local vulnerable communities by providing collection bags and stickers to sort the contents.

## 3. Make it attractive and social

Visual cues creating awareness about sustainable infrastructure can help attract attention which reinforces the message. It also includes using positive messaging to highlight the benefits of the green option. Case study from Tongji University evidenced the use of this strategy where their campaign of installing a gamified claw machine set up of garbage sorting to create awareness about various waste streams was successful. The University of Mahidol, Thailand brings a similar example where they set up a "Recyclable Waste Bank" as an interactive and engaging program to mimic the working of a bank by allowing students to collect points for every recycling submission. The school IT system joined the effort to develop software to efficiently track the points which could later be used on campus.

Tapping into the power of social perception and community spirit, the University of California, Davis, with an intention of promoting faculty and staff to incorporate sustainable practices within classrooms and lab set-ups, set up a "green workplace certification program" to publicly recognize the efforts to run sustainable spaces. Similarly, Karatina University, Kenya, which brands itself as a "Green University" organizes a "Green Innovations Competition Week" to drive students and faculty to engage and develop social and technological innovation to address questions of sustainability.

# Results

Conversations with key stakeholders which included faculty members, staff, and student groups on and off campus brought out some key themes regarding the current initiatives on campus and recommendations to guide and improve the creation of an engagement strategy to promote more environmentally friendly behavior on campus. The stakeholders interviews repetitively spoke of the demographic heterogeneity and the continuous influx of new students through the year on campus comes with the challenges of making a new set of individuals aware about the sustainability initiatives, waste management systems in place and inculcating the right values and habits.

## Waste

In the area of waste, there are two key actors who often work in association with each other to synchronize their actions on campus. The Custodial and Waste Services Department oversees the large-scale waste management, disposal and composting on campus. The Campus Waste Initiative (CWI), a project under UBCO's only sustainability-oriented club: Innovate Design Sustain (IDS), is student-led and is very active in the areas of student engagement and awareness.

The manager of the Custodial and Waste Services states that waste stream management is a particularly difficult task due to the large volume and the varied sources of waste. Currently, 28 streams of waste, which includes laboratory and dangerous waste, are generated on campus. Waste stream contamination is highlighted as a very pervasive issue, taking into consideration the premise that one individual can undo the right action of the large majority. To counter this issue, over the years, various educational campaigns, pop-up booths and social media campaigns have been organized to create awareness.

With the intention of improving the signage around waste bins and disposal around campus, the Innovate Design Sustain (IDS) club got the student community involved by organizing a Re-design competition in December 2022. The winning designs which are now being tested in selected locations are more intuitive and understandable. The confusing and non-relevant images, excessive fine print and multiple tranches of waste segregation has now been replaced with easy-to-read designs which use images instead of icons. The existing four waste streams have been narrowed down and streamlined into three: mixed recycling, compost and garbage. Incorporating suggestions received from the "Inclusivity in Action" organized by the Campus Waste Initiative (CWI) in collaboration with the Disability Resource Center (DRC), the signage now incorporates QR codes to facilitate ease in sorting and accessing information about disposal of various items.

The Campus Waste Initiative (CWI) has also found success in capturing attention and engaging around 1000 students on campus by tabling events at the farmer's market and periodically at various buildings on campus and getting the students involved through sorting games and challenges. The co-lead of the student group believes that behavior change is a long-term solution. The first step is to make it easier for students to make a positive impact. Hence, their team works on reducing the friction in segregating waste properly. What works is breaking down the problem into an understandable analogy or system that can impact the students. Their sorting game is an excellent example which involves segregating waste articles into 4 different baskets: recyclable, compost, garbage and returnable.

Project based initiatives also enable students to bring in their expertise and engage in an area of sustainability they are interested in.  The technical projects initiated under the Innovate Design and Sustain (IDS) club; Solar Bench Project and the Solar Decathlon, has seen voluntary and active engagement by engineering and science students due to its academic and hands-on applicability.

The Waste Audit, last conducted in 2019 by Greenstep: an independent external auditor, identified single use cups as one of the largest waste streams generated on campus. The Sustainability Office and the Food Services are looking at countering this problem by incentivizing behavior change through initiatives which provide financial savings on the use of reusable cups and are currently trying to quantify the amount of discount which would be substantial enough to get people to consciously choose the environmentally friendly option.

Despite various attempts at creating awareness and educating the campus community, the lack of standardization of waste regulations across cities in Canada, ever-changing local guidelines and the high turnover of students over the year, makes it difficult to educate community members about waste disposal. The Manager of the Custodian and Waste Services suggests that the implementation of a well-structured sorting program on the backend managed by a dedicated team will prove to be a cost efficient and effective strategy to generate material change.

**Food**

Very closely related to waste stream regulation, food and food waste is another source of scope 3 emissions (University of British Columbia, 2021) and an area of action repeatedly brought up in discussion by various stakeholders. The staggering volume of this organic waste stream is expensive to process and a prime source of human generated methane emissions.

In conversation with staff from Food Services, it was highlighted that the Pritchard dining hall, which is in its second year of operation, is one of the major sources of food waste on campus. Conscious efforts are being made to track the amount of waste generated and try to understand and forecast consumption patterns to limit the amount of food wasted. The Custodian and Waste Services work together with the Food Services to manage the composting of this waste in addition to the other compostable material discarded on campus. Currently, due to infrastructural constraints, composting is outsourced to an independent company (Spa Hills) which collects and processes the waste to be sold as manure in the market. The manager of the Custodial and Waste Services foresees setting up an inhouse food dehydrator and composting facility which can eventually be a large-scale operation on campus where the output is used for landscaping on campus hence promoting sustainability on dual fronts.

Even when a lot of us try to live a more environmentally conscious life, food is usually not an area where we consciously think about sustainability. More than values, it is the accessibility, convenience, budget and palate which drives our purchasing choices. Viewing the situation from the lens of climate justice, sourcing of food can be an area where we can be increasingly sustainable. Food security majorly impacts the campus community with the increase in the cost of living and food prices. To address this growing area of concern, the Local Food Procurement Pilot Project was initiated in 2021 to bring more Okanagan-grown food to the campus community and share the multitude of benefits associated with buying and consuming local food. The project first started when Land to Table (a north Okanagan non-profit committed to strengthening the local food system), local farmers, Dr. Mary Stockdale from the Institute for Community Engaged Research (ICER), Gary Hartung and Chef Brad from UBCO Food Services, collaborated on a pilot project to examine the possibility of UBCO Food Services procuring more food grown by small farmers/producers in the Okanagan Bio-region with a goal of developing relationships of trust between all of the participants as the first step in creating an effective and functioning supply chain from local farmers to UBC Okanagan Food Services. They currently report that 40% of the food is procured from local farmers.

Other small scale but noteworthy developments have been in the promotion of climate friendly food, which also is an important aspect of food sustainability. In 2022, one of the directors of the UBCO Student Union enabled the distribution of free plant based/vegan food at on campus dining options for a week in an attempt to popularize and raise awareness of the availability of climate friendly food on campus. They report that the initiative was not continued over the next year due to short term impact creation and shortcomings in implementation which led to a wastage of food. Similarly, UBCO Food Services has curated the menu at Pritchard dining hall to

include more vegan options with Nourish being a station dedicated to vegetarian food. The consumption patterns are being actively tracked to help inform future decisions.

**Transport**

Commuting and the use of private vehicles account for 64% of the current Scope 3 emissions (University of British Columbia, 2021). The increased reliance on personal vehicles, especially in North America, is not an environmentally and economically sustainable practice. Giving this problem due recognition, three faculty members and a student group strongly advocate for the promotion of the active use of public transit and support the popularization of the U-Pass to reduce single vehicle use. An efficient, effective, and affordable transit system can positively contribute towards increasing air quality and reducing emission levels in a city by allowing commuters to choose more carbon friendly options.

At the onset, it is important to acknowledge the flaws in the current transit system in place which make it difficult to rely solely on it to move across the city. On campus, we have seen this area receive attention by student groups like Friday's for Future, supported by the UBCO Student Union, to advocate for the improvement of the current transit system and drive a systemic change to make it inclusive to cater to the needs of community members living across the city. They have so far organized two town halls to get everyone involved and brainstorm and to hear the different perspectives and build a more nuanced approach to the transit experience in Kelowna. There are a lot of intersections between what the climate group stands for and the transit situation in Kelowna as they believe that environmental and social issues are so close to each other that it is important we collaborate with each other.

**Climate Advocacy and Dialogue**

2023 has seen an increase in voluntary student action and involvement in sustainability and climate action events on campus. At the forefront, the Climate Networking Event organized by the Fridays for Future in collaboration with Student Wellness, the Sustainability Industry Night organized by the Innovate, Design, Sustain (IDS) backed by the Engineering society and the Climate Justice Teach-In organized by the CAP-E working group were successful in engaging with the climate conscious community by providing a platform for conversation.

The Fridays for Future group have been on the forefront challenging the presence of the Royal Bank of Canada (RBC), which provides banking services to students on campus, due to its involvement in funding fossil fuel pipelines on indigenous land. A student member asserts that it is imperative that the SUO and the University address their concerns and formally condemn the

banks unsustainable and unethical practices. They further added that while UBC as an institution has strategic plans in place, it is of crucial importance to stand by the values enshrined in all their undertaking and partnerships. Lack of adequate institutional support and action has a detrimental effect on student morale.

## Challenges and Recommendations

As we work towards building an engagement strategy to drive behavior change on campus in the areas of food, waste and transport on campus, we work under the premises that there is a general resistance toward anything new due to the inherent complexity of the topic and the deep-rooted reluctance to anything new. There is still a long way to go before our vision for small changes is widespread, but our intention is to make a dent in some critical ways. These small changes may seem insignificant at first glance but taken together their impact is just revolutionary enough in this community to have far-reaching implications. It is important for an organization to embody the values it stands for. Our goal should be to bring change by becoming a true extension of our community. This is, of course, easier said than done. This isn't a matter of disruption for the sake of disruption. It's about driving authentic, lasting change in the community we are a part of.

The last few decades have seen the focus of the world turning towards climate change as one of the most pressing political and ecological areas of concern. While each region is faced with a unique set of socio-economic, political and environmental conditions, the issue at hand requires collective action at various national and international levels to generate material change. The role of universities hence is highlighted as community members and research leaders to be pioneers in addressing the climate concerns of the faculty, staff and students. Interactions with the stakeholders and review of associated literature provides some perspectives on the current challenges and potential solutions to address the same:

### *Climate Justice*

At the onset, it is important to recognize climate justice to be a key area of focus to be embedded in sustainability initiatives and messaging. The history of the land provided the testimony of the fact that the climate crisis is a culmination of the historical and ongoing exploitation of the marginalized and indigenous communities. It is therefore imperative for the

university to position itself to advocate for broader social change by leveraging its intellectual and moral outlook to drive its procurement decisions. These ambitious goals call for leadership by the organization as well as campus community members, responsible resourcing, financial mechanisms to promote investment in low carbon solutions, in addition to establishment of an impactful engagement strategy to drive behavior change on campus and create collective impact.

### *Timely Action*

The academic calendar and the cyclical nature of activities on campus provides an opportunity to establish a permanent set of engagement events to ensure continuity in practice. Orientation and onboarding week are a good place to provide information to incoming students, faculty and staff about the initiatives of UBCO's Sustainability office, UBCO's commitments to climate action, promotion of the use of Pro-pass to encourage usage of public transit and creating awareness of the waste sorting system on campus.

Term end and move out days on campus have presented the generation of a large volume and a varied stream of waste. Items ranging from furniture, textbooks, winter gear and clothes are discarded often because it is more convenient to discard than repurpose or move it. This provides a similar opportunity to organize a thrift store event on campus or perhaps get into an agreement with local recycling companies and thrift stores to ensure everything discarded does not end up in the dump yard. Setting out expectations and best practices at the onset proves to be more effective compared to changing behavior at later stages.

### *Time Constraints and Messaging*

Students and both faculty and staff have equally busy schedules and often struggle to take out extensive amount of time to get involved or devote time to other activities and initiatives apart from routine work on campus. It is hence important to ensure that the target audience has the bandwidth to participate given their pre-existing commitments and lack of time.

Messaging is another important area to be focused on. It is helpful to create an elevator pitch of the message to be conveyed and keep the campaign concise, clear on the ask and attractive. It is ideal to integrate the strategy with the existing and ongoing initiatives on campus to efficiently get across the required message. Personalization of messaging and curation of content addressing a specific group of individuals, e.g. students living in campus residences,

students eating at the campus dining halls etc, can help drive change by addressing specific environmental and habitual issues.

### *Preference to Hybrid*

The last three years have brought about major disruptions in the functioning of the world, affecting almost every aspect of life. While we consider the world to have returned to normal, things haven't reached the same scale, and we are navigating the new reality. It is important to recognize, accommodate and incorporate some permanent changes like the popularization and continued utilization of the hybrid model: In-person and virtual in all organizational activities in the post covid world. This preference of the hybrid structure helps reduce unnecessary transit emissions and facilitates individuals to manage their time better and get involved in organized events. Recent trends show large scale conferences and events also preferring to alternate between in person and online events to further reinforce the message of avoiding unnecessary travel. As we go forward and develop an engagement strategy for the UBCO campus community, we should strive to accommodate online attendance options wherever possible to both increase the reach and also curb air pollution.

### *Address Action Fragmentation and Competing Goals*

Environmental scan of activities on campus brought to light the various formats the campus community is engaged in to convey the message of sustainability. This multiplicity of action areas leads to the lack of cohesiveness to generate material change. Do away with competing goals and strategy to prevent overwhelming the audience and find common ground. Conversation with student groups on campus hints at a delayed response or lack of interest from university departments or the lack of funding / rejection as it is considered a duplication of their services(departments). There is a need for the expansion of the role of the Sustainability Office to coordinate with various departments on campus and have a centrally regulated approach and a dedicated team to work on the sustainability issue. The Student Union also perhaps has the capacity to establish a set of permanent over the years and ensure continued action across each incoming group in the office.

*Collective Action*

United Nations Environment Programme, GRIDArendal and Behavioural Insights Team (2020) promotes the utilization of social connectivity networks and peer pressure to help catalyze movements and get people to make commitments to sustainability. Eg: Public pledges towards sustainable goals. In the areas of food sustainability, the use of local community and social dynamics can be used for the development of a solid food-sharing network to counter the dual issue of food wastage and food insecurity. This is evidenced from the Aalto University, Finland who with mentoring support from the Aalto Ventures program, founded a startup which helped analyze the patterns and trends in the kind of food being wasted. Without any formal funding, the food sharing group was marketed through word of mouth and despite the initial challenges, were able to grow the membership to over 1000 people with savings of 7000 kg (about 15432.34 lb) of food. Local supermarkets, restaurants, campus dining halls are crucial members of the network.

*Role of CAP-E Going Forward*

The Climate Action Plan Engagement Working group, convened for the UBC Okanagan campus post the release of the CAP 2030 plan, currently comprises of faculty, staff and student members and has been at the forefront in driving the conversation surrounding climate and sustainability. By working at the grassroots, they have an opportunity to include/consult/plan alongside the community when and where possible to foster partnership and collaboration and act like allies' work closely with them.

Giving more structure to this group, the stakeholder interviews suggest the need for the formulation of a governance or reporting structure that ties back to leadership, accountability and implementation. Factoring in equity, indigeneity, inclusion, and accessibility, representatives from all stakeholder groups: faculty, staff, SUO, students be consulted on an ongoing basis to have a holistic approach and overarching view to climate action. They must continue to have on going conversations and provide guidance and support in the advisory capacity to the leadership.

Process fragmentation being the key shortcoming regarding engagement on the UBCO campus, the CAP-E working group should look at leveraging the collective voice to advocate for the establishment of a dedicated department like the Sustainability Hub and Climate Hub on the UBC Vancouver Campus. Adequate funding and human resource support will facilitate the initiation of a formal asset mapping process and synchronized action to support climate action and advocacy.

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# Appendix A: Annotated Bibliography

The foundational research for the project entailed a detailed review of literature in the themes of engagement, awareness, dialogue and institutional sustainability. Below is an extract of the referred academic papers, reports and books which guide the discussions.

1. Clark, C. R. (2016). *Collective action competence: An asset to campus sustainability* Emerald Group Publishing Limited. doi:10.1108/IJSHE-04-2015-0073

    - The purpose of the paper is to establish the concept of "collective action competence" as a practical tool of driving behavior change in the Institutions of Higher Learning (IHEs) and apply the theories of "social learning and collective action".
    - The author advocates the usage of voluntary collective action by relying on the concepts of "social learning" and "free-choice learning".
    - Social change and learning can be more effective and optimized when it is collaborative and accompanied by activities which foster a relationship between students, staff and faculty through personal interaction and in-person communication.
    - The term free-choice learning encompasses the "what", "how", "when" and "where" of learning, all of which are under the control of the learner.

2. Cogut, Gregory & Webster, Noah & Marans, Robert & Callewaert, John. (2019). Links between sustainability-related awareness and behavior: The moderating role of engagement. International. *Journal of Sustainability in Higher Education.* ahead-of-print. 10.1108/IJSHE-09-2018-0161.

    - The author of the paper lays out seven dimensions of sustainability in higher education including, namely: "institutional framework, campus operations, education, research, outreach and collaboration, on-campus experiences and assessment and reporting".
    - The paper hints at the increase in interest and morale of students towards the topic of sustainability when operational approaches like increasing the green pastures on campus, investment in energy efficient technology and implementation of large scale recycling programs are implemented by the management.
    - The findings of the study established that there is a positive correlation between the awareness about campus efforts regarding waste-prevention and sustainable

travel/transportation options and active involvement and visible change in student behaviors.

- Embedding components of climate and sustainability in the curriculum remains to be the most effective method of increasing the knowledge of sustainable practices.

3. Corner, A., Clarke, J. (2017). *The Building Blocks of Public Engagement*. In: Talking Climate. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-46744-3_3

The author popularizes the need for driving the narrative of climate action relying on the community and collective action angle as opposed to using numbers and statistics to influence behavior. He comes up with five principles which guide the discussions through the study.

- Principle 1: Learn lessons from previous campaigns and be prepared to test assumptions.
- Principle 2: Public engagement should start from the 'values-up' not from the 'numbers-down'.
- Principle 3: Tell new stories to shift climate change from a scientific to a social reality.
- Principle 4: Shift from 'nudge' to 'think' to build climate citizenship.
- Principle 5: Promote new voices to reach beyond the usual suspects.

4. United Nations Environment Programme, GRIDArendal and Behavioural Insights Team (2020). *The Little Book of Green Nudges: 40 Nudges to Spark Sustainable Behaviour on Campus.* Nairobi and Arendal: UNEP and GRID-Arendal. *l, 2020.* https://www.unep.org/explore-topics/education-environment/what-we-do/little-book-green-nudges

- With an increased focus of students towards sustainability and the need for organizations to reflect the values they carry; educational institutions are required to drive change and promote a sustainable lifestyle and practices.
- Nudges: Positive and gentle persuasions are a cost effective and efficient method of encouraging new behaviors.
- The author, advice to Go EAST while answering the question: "How to Nudge?". It is important that the nudges are Easy, Attractive, Social and Easy.
  a.      Easy: Make the most sustainable option the default choice to encourage usage while also removing small barriers in the way of these options and adding small barriers in the path of unsustainable options.

b.      Attractive: Make sustainable actions or infrastructure stand out with visual cues

c.      Use positive messages that will resonate with your target audience and make them feel good about themselves. Use smart incentives which involve financial rewards and savings including gamified initiatives.

d.      Social: Encourage people to make public commitments to sustainability and reach out to others in their social networks. Public recognition can also encourage individuals.

5. Shaw, C., Chiari, S., Doyle, J. Völler, S., Hezel, B & Pearl, P. (2019): *Recommendations for engaging young people with climate change campaigns.* https://talk.eco/?ec_resource=recommendations-for-engaging-young-people-with-climate-change-campaigns   https://talk.eco/?ec_resource=recommendations-for-engaging-young-people-with-climate-change-campaigns

- Directed towards individuals hoping to increase engagement and participation of young adults and expanding the appeal and outreach of campaigns in the area of climate action beyond the individuals who are personally invested in environmentalism, the paper talks about giving voice and utilizing the power of collective action.

- It is important to position the campaign as something organized by individuals of a similar age group than traditional NGO led events.

- The transitional phases in a youth's life like moving away from home for university etc, should be utilized as these disruptive moments provide an opportunity to shape their identity and engage with new peer groups

- The campaigners must engage with the emotions and feeling of the participants instead of relying on just numbers and facts. Climate concerns are a personal topic and can help participants connect better with the vision and message of the campaigns. Story telling as a strategy has the potential of mobilizing support as it makes the narrative compelling and resonate with the morals of the participants.

6.  Webster & Marshall (2019). *The #talkingclimate handbook- How to have conversations about climate change in your daily life. EIT- Climate KIC* file:///C:/Users/admin/Downloads/Climate-Outreach-Talking-Climate-Handbook-How-to-have-conversations-about-climate-change-in-your-daily-life.pdf

- Climate change is one of the most important areas of focus in the current times which requires active engagement and constructive conversations which can help drive wider social and political.
- Constructive conversations on climate need not be extensive but can brief exchanges of sharing climate concerns which helps in building the momentum for change, breaks the silence on climate issues and gets individuals to be more involved in the collective efforts of climate change mitigation.
- While targeting the demographic comprising of young adults, it is crucial to not assume their unawareness on topics of importance. Climate outreach campaigners must approach the topic from the moral and justice dimension which has proved to be an area which motivates youth engagement.
- "Eco anxiety" amongst the young generation is on the rise as reported by psychologists. Engagement communications which are directed towards taking actions must specify tangible, short term, specific as the understanding that something can help contribute to make improvements and improve the situation is reassuring.

7. Corner, A., Demski, C., Steentjes, K. and Pidgeon, N. (2020) *Engaging the public on climate risks and adaptation: A briefing for UK communicators.* Oxford: Climate Outreach.https://www.ukclimateresilience.org/wp-content/uploads/2020/03/resilrisk-briefing-ONLINE.pdf

- Initiating conversation by referencing the personally experienced extreme climate conditions in the local setting, especially the events of extreme heat waves and heat-stress, helps the audience relate and engage as they have an increasing concern about droughts. Shared experiences help in both raising adaptation measures but also policy in carbon mitigation. By removing the perception of the psychological distance of the climate issue and understanding that it is getting closer to home, the values of necessity of action, and intergenerational duty towards the climate can be inculcated.
- Mitigation of climate change and adaptation must be framed as two sides of the same coin.

8. Capstick, Stuart & Wang, Susie & Khosla, Radhika. (2020*). Bridging the gap -- the role of equitable low-carbon lifestyles* (UNEP Emissions Gap Report 2020).

- Establishes a positive correlation between income and increased emissions.

- Stern (2000) states that environmental citizenship can be exercised in various forms and points of interaction with the near society like as consumers, getting engaged with environmental organizations and groups or by being conscious while investing or purchasing assets.

9. Leichenko, R., Gram-Hanssen, I. & O'Brien, K. *Teaching the "how" of transformation*. *Sustain Sci* 17, 573–584 (2022). https://doi.org/10.1007/s11625-021-00964-5

- The paper addresses the important question: How do we change the world? While working under the premises that the students attending university and colleges are increasingly conscious of the climate crisis and often struggle to find initiatives which aligns with their values and which can create the necessary impact.
- Awareness of one's ability to generate change – a sense of agency – is critical for engaging with transformative change".
- Establishes a positive correlation between feelings of agency and control and the levels of engagement in climate action initiatives.
- "Piggybacking" can prove to be a strategy to increase climate awareness by incorporating new modules into existing curriculum to ensure a smooth transition.

10. Verlie, B., Clark, E., Jarrett, T., & Supriyono, E. (2021). Educators' experiences and strategies for responding to ecological distress. *Australian Journal of Environmental Education, 37*(2), 132-146. doi:10.1017/aee.2020.34

- The article recognizes the rise in eco-anxiety and climate grief in the educational institutional setting and speaks of how educators can respond to address these concerns.
- By enabling teachers to incorporate climate and environmental education in the current curriculum and taking an interdisciplinary approach, investing in their professional development can help in building a conducive environment to engage students and address their climate concerns.

12. Wamsler, Christine. (2020). Education for sustainability: Fostering a more conscious society and transformation towards sustainability. *International Journal of Sustainability in Higher Education.* 21. 112-130. 10.1108/IJSHE-04-2019-0152.

- While mainstream scientific endeavors and educational practices focusing only on the wider socio-economic structures and technologies, this research paper attempts to

advance the knowledge in the areas of the cognitive and socio- emotional processes which drive the choices people make.

- The findings of this study highlight the importance of sustainability education in driving inner transformation and behavior change to act sustainably.
- The importance of institutional and inter-institutional support networks is established in driving collective action.

13. Burns, H., Diamond-Vaught, H., and Bauman, C. (2015). Leadership for sustainability: theoretical foundations and pedagogical practices that foster change. *International Journal of Leadership Studies*, Vol. 9 Iss. 1

- Highlighting the role of leadership theory in driving sustainable behavior and fostering change, this article stresses on the use of observation and self-awareness, reflection, the exploration of ecological and diverse perspectives, and learning experientially and in community.
- Positioning students in leadership roles fostering change can help drive engagement on campus

14. Shyh-ming Lin (2016) Reducing students' carbon footprints using personal carbon footprint management system based on environmental behavioural theory and persuasive technology, *Environmental Education Research*, 22:5, 658-682, DOI: 10.1080/13504622.2015.1018142

- The study draws on the environmental behavior theory and aims to influence the personal carbon footprint management system.
- If people are aware of their personal carbon footprints and accordingly self-manage their behaviors, significant carbon reduction will be made.
- Establishes Theory of reasoned action (TRA) and Theory of planned behavior (TPB) as important investigation strategies which can be used in assessing behavior.
- BI=A +SN
  - o BI= Behavioral Intention
  - o A= Attitude (consequences and evaluation of consequences of a particular behavior)
  - o SN= Subjective Norms (societal pressures supporting or opposing a particular behavior).

- Persuasive Technology: Persuasion is an interactive process by which people affect others through communication. Persuasion has been viewed as a major strategy for influencing people to change their attitude or behaviors.

15. Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In: J. Kuhl, J. Beckmann (eds.) *Action Control. SSSP Springer Series in Social Psychology*. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-69746-3_2

- The author states that historical literature by foundational social-scientists establish that humans tend to majorly engage in goal-directed behavior. Focusing on daily, repetitive and routine activities, and integration of the sustainable alternative and projecting it as a goal to achieve helps individuals plan and map the steps involved to meet the required end easily. The theory of reasoned action (Fishbein & Ajzen, 1975) helps us understand the psychological determinants of behavior change.

16. Carver, C.S., Scheier, M.F. (1985). A control-systems approach to the self-regulation of action. In: J.Kuhl, J.Beckmann, (eds) *Action Control. SSSP Springer Series in Social Psychology.* Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-69746-3_11

- Self-regulation of behavior depends in part upon the person's focus of attention. Just as self-focus leads to greater initial attempts to conform to salient standards, self-focus when an interruption has led to favorable expectancies leads to a more pronounced renewal of effort. If expectancies are unfavorable, self-focus leads to a more complete disengagement.

17. Gollwitzer, P.M & Wicklund, R.A. (1985). The pursuit of self-defining goals. In: J. Kuhl, J. Beckmann, (eds) Action Control. *SSSP Springer Series in Social Psychology.* Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-69746-3_4

- "With the term self-definition we refer to a conception of oneself as having a readiness to enact certain classes of behavior. If the self-definition is being a "jogger," for instance, then the activities deal with actual running, wearing appropriate clothes, associating with runners, and so forth . It is not necessary that these activities are actually carried out; rather, the individual claims to have the potential to carry them out. Accordingly, a self-definition is to be construed as an ideal, or goal. Commitment to a self-definition means

that the individual aspires to this "ideal" condition, wherein all of the qualities appropriate to the self-definition are embodied." Chapter 4

18. **Mochizuki, Yoko & Bryan, Audrey. (2015). Climate Change Education in the Context of Education for Sustainable Development: Rationale and Principles. Journal of Education for Sustainable Development. 9. 4-26. 10.1177/0973408215569109.**

- The article popularizes the need for educational institutions to have a Climate Change Education (CCE) Curriculum and stresses on the underutilization of it as a tool in influencing behavioral change.
- Climate change education is portrayed as interdisciplinarity and one having a multi focal perspective.
- Highlights the need to make up an overall strategy to reduce greenhouse gas emissions which addresses both climate change mitigation and climate adaptation as a holistic
- "Mainstreaming CC throughout the entire education system is one of the most effective as well as financially efficient means of tackling the climate crisis through its multiplier effect. Education has the potential to play a significant role in enhancing 'bottom-up' solutions to CC that cannot be addressed by 'elites.(UNESCO/UNEP, 2011).

19. Eta, H.C., Angba, A.O. (2017). Climate Change Adaptation in Yam and Cassava Production, Cross River State, Nigeria: The Role of Higher Educational Institutions. In: Leal Filho, W. (eds) Climate Change Research at Universities. Springer, Cham. https://doi.org/10.1007/978-3-319-58214-6_17

- This case study based paper discusses the role of higher educational institutions in climate change adaptation as a member of the local community. Leveraging technologically backed techniques to drive the cultivation of yam and cassava root, a prominent role was played by faculty teaching multidisciplinary subjects and students on climate change issues in providing opportunities for skill development and training on climate change issues in the agricultural sector in the Sub-Saharan region.

20. **Lundberg, Heléne & Andresen, Edith. (2012). Cooperation among companies, universities and local government in a Swedish context.** *Industrial Marketing Management*- IND MARKET MANAG. 41. 10.1016/j.indmarman.2011.06.017.

- The author establishes and maps out the interaction, the similarity in goals and possibilities of collective action among three actor categories: universities, local governments and businesses, to explore the benefits of synchronized development work.
- The role of universities is increasingly expanded as knowledge centers and have been called upon by businesses and city governments to engage in R&D.

21. Wall, T. (2019). Service-learning and sustainability education. In: Leal Filho,(eds). *Encyclopedia of Sustainability in Higher Education.* Springer, Cham. https://doi.org/10.1007/978-3-319-63951-2_227-1

- Service learning as an approach to sustainability education adopts these ideas toward aspects of sustainable development (e.g., supporting community resilience, recycling, or local health promotion). The author promotes engaging in activities which lead to mutual development through experience and reciprocity.
- *Direct service-learning* involves immediate interaction the learner. Eg: educational presentations about recycling to a community group. *Indirect service-learning*: the learner work on broader issues which will deliver mutual impact and value. For example, working on a recycling project or an environmental cleanup project for a community.

22. Wall, Tony & Hindley, Ann. (2018). Work integrated learning for sustainability education. *Encyclopedia of Sustainability in Higher Education.* Springer, Cham. https://doi.org/10.1007/978-3-319-63951-2_362-1

- Work-integrated learning is a form of pedagogy which is situated, experiential, and collaborative with industry or community partners.
- The author talks of three broad possibilities: Using workplace as a means for providing sustainability education and knowledge, classroom teaching followed by practical workplace application and/ or a holistically integrated workplace- based learning set up.

23. Wall, T., Meakin, D. (2019). Reflective Practice for Sustainable Development. In: Leal Filho,(eds) *Encyclopedia of Sustainability in Higher Education*. Springer, Cham. https://doi.org/10.1007/978-3-319-63951-2_362-1

- Reflective practices are a form of learning through experience which can be transactional (e.g., making sense of an experience), transformative (e.g., challenging thinking or wider

influential structures), or transcendental (engaging with a higher plane of experience related to life purpose).

- Embedding or integrating reflective practices for sustainable development in higher education, therefore, can act as a catalyst for deeper self-awareness and responsibility even among complex and contradictory emotions, that is, circumstances which are immediately relevant to sustainable development (Burns 2015).

24. Maina-Okori, N.M. (2019). Sustainability Domains in Higher Education. In: Leal Filho, (eds) *Encyclopedia of Sustainability in Higher Education.* Springer, Cham. https://doi.org/10.1007/978-3-319-63951-2_489-1

- The author establishes the importance of the various facets and domains of sustainability in higher education which extends to the overall institutional governance structure, curriculum, research, operations, and active community engagement. Synchronized action and importance to all these areas can enable an effective sustainability strategy.

25. Allen, A.S. (2019). Aesthetics and Sustainability. In: Leal Filho, (eds*) Encyclopedia of Sustainability in Higher Education.* Springer, Cham. https://doi.org/10.1007/978-3-319-63951-2_403-1

- The study goes beyond the number driven or action focused aspects of climate action and incorporates a multisensorial approach. It draws on the importance of aesthetics and establishes the importance of optics and sustainable surrounding in the context of institutions of higher education.