Sustainability and Environmental Responsibility

Self-Study Report

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DALHOUSIE UNIVERSITY

Authors:

- **Rochelle Owen**, Executive Director, Office of Sustainability
- **Peter Tyedmers**, Professor, School for Resource and Environmental Studies
- **Brianna Maxwell,** Student Team Lead

Contributors

- **Sophie Boardman**, Environmental Science Student Intern:
  Equity, Diversity and Inclusion Literature Scan and campus interviews
- **Jingwen Bi**, Environmental Science Student Intern:
  Dalhousie comparison to U15 in the Sustainability Tracking Assessment Rating System (STARS)
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Introduction

Throughout our collective history, humanity has faced countless resource availability and environmental degradation challenges. The societies that have survived these trials and the way they dealt with them have shaped our cultures and informed our values in profound ways. In this corner of Turtle Island, what is now described as Nova Scotia, the Mi'kmaq cultural and spiritual relationship with nature is expressed through the concept of Netukulimk. Within wider society, in 1987, concern regarding threats posed by mounting regional and global-scale resource depletion, environmental degradation, and inequities led to reports such as "Our Common Future" by the World Commission on Environment and Development where the concept of *sustainable development* was first advanced.

Despite the global attention that sustainability challenges have received, 33 years later, human population coupled with rising per capita consumption has led to profound alterations of the biosphere. Most notably, this includes unprecedented levels and ongoing rates of biodiversity loss and disruption and critical global-scale biogeochemical cycles. With very few exceptions, rates of loss and degradation of critical life-support systems are *accelerating.* This has prompted leading scholars, institutions, and international organizations to highlight the need for dramatic and rapid change in the rates of environmental degradation to limit short to medium term destabilization of human societies. Without immediate action, the sheer forward momentum of consumption, population growth and social inequities will ensure unsustainable trajectories.

Though strong arguments are made that all major global-scale challenges (e.g. biodiversity loss, eutrophication, climate change, etc.) need to be addressed simultaneously, consensus has emerged that climate change presents the gravest threats, has serious implications for other global challenges, and demands immediate and unprecedented engagement across nations and all levels of society. Integrated climate action strategies need to address social, political and justice dimensions along with scientific and technical solutions.

Recent research from the Intergovernmental Panel on Climate Change (IPCC) has shown climate-related impacts to be more rapid in onset then originally projected. Current estimates suggest that human activities have raised global temperatures average of 1°C over the last century. Business-as-usual predict catastrophic impacts on the planet and global population through increased droughts, wildfires, sea level rise, flooding, and species loss. At best, given historic emissions and current rates of increase, it is anticipated that global warming might be limited to 1.5°C above pre-industrial levels by 2030-2052 if significant and persistent action is taken now. To limit the increase in average global temperatures to 1.5°C, anthropogenic emissions will need to fall by 45% from 2010 level by 2030 and reach net zero by 2050. Achieving this level of emission reduction will be extraordinarily challenging without concerted and sustained global efforts. Critically, however, responsibility though shared, is not borne

equally. Given the massive disparity between nations in historical contributions to emissions and their abilities to effect needed changes, it is incumbent upon countries like Canada to lead the way and, in so doing, strive to address historical and persistent environmental injustices.

In 2019, the Nova Scotia government set a 2030 goal to reduce the province's greenhouse gas emissions to 53% below 2005 levels and make Nova Scotia's carbon footprint net-zero emissions by 2050. HalifACT 2050 Climate Action Plan modelling suggests that community-scale emissions from the 2016 baseline across Halifax Regional Municipality, need to be reduced across all activities and sectors by 75% by 2030 and 100% by 2050 from the 2016 baseline.

Environmental degradation inequities and climate change impacts are exacerbated by social and cultural dimensions of environmental racism, poverty, and chronic disparities in economic wealth and power. In Canada and Nova Scotia this reality is exists in a number of cases in Mi'kmaq and African Nova Scotian communities and other marginalized groups. A social justice and equity lens needs must be applied to climate action.

At a time when leadership is required more than ever to effect the change necessary to address the climate crisis, it is essential that our own institution provides clear and unequivocal leadership in our own work and with the community. Dalhousie University has made some major strides in this area; however, there are still large gaps to be addressed. To this end, we propose to build on our strengths related to addressing environment and sustainability challenges and to further commit to aggressively addressing the climate crisis in our teaching, research, operations and governance. If not now, when?

Background

Dalhousie University has formally addressed environment and sustainability challenges through its curriculum, research, and operations for almost half a century, through departments such as the School for Resource and Environmental Studies (SRES); College of Sustainability (CoS), Environmental Engineering; International Development Studies; Environmental Science in the Faculties of Science and Agriculture, Office of Sustainability (OS), and various research Institutes. In addition other units, often in traditional disciplines (e.g. Law, Planning, Biology, etc.), have added courses and certificates to address environment and sustainability issues. As of 2020, 10% of total courses at Dalhousie offer a sustainability component. Importantly, however, many students complete their degrees without any formal exposure to sustainability-related content.

Dalhousie has signed numerous international and national sustainability declarations and participates every three years in an international campus sustainability reporting initiative — Sustainability Tracking Assessment Rating System (STARS). Through the STARS program, participating universities report on achievements related to 67 credits that span activities in academic programs, operations, engagement, planning and administration, and innovation. Results are publicly reported and discussed to continually evaluate and innovate.

Over 220 faculty members are involved in sustainability-related research across the University, representing close to 20% of Dalhousie's research community. Specific projects or areas of engagement are too numerous to describe. A number of key research centres address sustainability— or broader environment-related topics — including the Ocean Frontier Institute, Clean Technologies Research Institute, Centre for Water Resource Studies, Marine and Environmental Law Institute, Healthy Populations Institute, and the Organic Agriculture Centre of Canada.

Many operational campus sustainability plans and policies were developed in the last decade including the Sustainability Plan and Policy, Climate Change Plan, Natural Environment Plan and Green Building policy. Several initiatives have been developed and implemented with campus partners including energy, waste and water projects, green infrastructure, food, waste and energy research, residence Ecolympics competition, Employee Sustainability Leadership Program, and an Employee Bus Pass. Progress on many key operational indicators is tracked and reported including reductions in energy, carbon, water, and waste and student engagement. In the last decade, Dalhousie and partners have spent $97 million on sustainability-related initiatives. These efforts have resulted in an over 50% reduction in water use; a 13% reduction in energy use per square foot of building space; more local, third-party certified and plant-based food offerings; 20% absolute reduction in greenhouse gas emissions; increased planting of native and adapted species and vegetative systems to our greenspaces; and a 65% diversion of waste from landfills.

Both Halifax and Agricultural (AC) campuses have Master Campus Plans that articulate built and natural environment sustainability objectives and challenges and opportunities for campus planning. Key drivers of campus development include academic and research needs; student life and residences; ancillary services like housing and athletics; deferred maintenance; and sustainability objectives. To meet the next set of climate targets, investment will need to be stepped up. This will require continued investment from existing sources, (utility savings, facilities funding, and external grants) plus additional use of other financial instruments such as energy purchasing agreements for off-site renewable energy options and an examination of green bonds, a climate change revolving fund, and community-based action fund based on University travel offset.

In addition, many undergraduate and graduate student societies (including the DSU Sustainability Office) are active on sustainability issues, including on-campus gardening, addressing food security though initiatives like the Loaded Ladle and DSU Food Market, and sustainable transportation.

In terms of social sustainability, recent national and campus events day-lighted cultures of misogyny and racism. A series of campus reports, plans, and strategic directions, such as the Belong Report (2015) and the Lord Dalhousie's History on Slavery and Race (2019) were released as a response to the need for change.

The topic of fossil fuel divestment in university endowment investments has been a much debated and a divisive topic for the last decade at universities and colleges across the globe,

including Dalhousie. Four Board of Governor and Senate divestment reports have been released and divestment motions have been passed by the DSU. Although Dalhousie has not formally divested, several strategies have been implemented. Ongoing advocacy for divestment continues and is seen by many has an indicator of sustainability leadership.

Though the nature and extent of sustainability- and environment-related engagement at Dalhousie has been substantial, it is highly fragmented and uncoordinated. The one formal integrated entity, The President's Advisory Council on Sustainability (PACS), is an information sharing body that connects sustainability faculty, staff and students through quarterly meetings and shared initiatives. Over the last decade PACS has provided advice on policies and plans, organized collaborative events, and presentations. In recent years, the President has not formally or actively sought the Council's advice.

Efforts have been made in the past to work on integrated sustainability curriculum development (e.g. the creation of the College of Sustainability), organizational structural change, and the coordination of sustainability communications. More recent efforts were not effectively executed due to lack of central resources and strategic priority setting, clear responsibility, and leadership failures. No one Dalhousie department has the accountability, funding, or role to lead integrated sustainability efforts.

Study Methods

Two key questions and five subsidiary questions guided our research, focussing on the current and future state of sustainability activities at Dalhousie and topics of integration, leadership, and the incorporation of environmental justice, equity, and diversity (EDI) issues. Existing resources and data sets were used to ground and further inform this report and a variety of research methods were used to collect data including literature reviews, focus groups, a campus-wide survey, group and individual meetings, and solicitation of emailed/online information. In total over 1900 students, faculty, staff and alumni provided information.

Findings & Discussion

There are passionate and prominent sustainability professors at Dalhousie and the University draws students from across Canada to its sustainability programs. The general sentiment is that although Dalhousie is known locally for sustainability programming, (and somewhat nationally), it does not have a strong global presence.

There are many programs and courses across the University with sustainability and environmental content; however, this is not the case in every Faculty, and often available courses are not mandatory. In addition, many of the offerings lack core curriculum perspectives such as social anthropology, environmental justice and biophysical sciences. Our focus group sessions and online survey data suggests there is strong student interest across Faculties and programs in more sustainability and environment degrees, certificates and course options.

The College of Sustainability offers an Environment, Society and Sustainability (ESS) undergraduate major across several faculties. In addition, the College brings national and

international experts on multiple dimensions of sustainability to campus and the broader community through its Thursday evening ESS lecture series. The College's ESS major is available to students in several faculties but not others. In 2015/2016, a significant amount of time was invested in a proposal that would have integrated the College with International Development Studies, Environmental Science and the School for Resource and Environmental Studies. A diverse team developed this proposal which aimed to strengthen and expand program offerings, increase Dalhousie's sustainability visibility, develop research capability, review curriculum outcomes, and broaden and rejuvenate the intention of the integrative nature of the College. After much work and discussion, this "College 2.0" proposal was rejected.

More generally, persistent fragmentation, academic silos and organizational structures within the University were identified as barriers for internal and external communication, transparency and reporting, interdisciplinary research project development, and community engagement.

The lack of University commitment to the divestment of fossil fuel endowment fund assets remains a prominent challenge to the sustainability commitment and bona fides of the University and is seen as an issue of failed sustainability leadership.

Colonialism, racist practices, and patriarchy have shaped the relationship of different identity groups to the land, to the environment, and to the University. Similarly, cultural barriers and issues of access and affordability have shaped the higher education landscape and how sustainability is practiced within higher education.

Meaningful, respectful and mutually beneficial student and community experiential learning programs and projects that link the University with historically disadvantaged and marginalized communities were highlighted by many as an important way to advance our sustainability objectives. One suggestion is to provide incentives for sustainability and environmental learning through internships, event sponsorships, and research activities. Hiring more faculty in the sustainability and environment field (particularly those with EDI perspectives and knowledge) was also identified as an important priority to help contextualize and inform our existing strengths in science- and engineering-based environmental scholarship.

The University has strong research programs in areas like oceans, energy storage, and healthy populations and has adopted the United Nations Sustainable Development Goals (SDGs) as an overarching research framework. Research centres at Dalhousie draw together scholars from multiple Faculties from a variety of disciplines. There is an opportunity to create pan-University integration and focus through a Climate Change Research Accelerator program and Institute.

STARS data were used to compare the top five rated academic institutions against Dalhousie's scores in key categories. Dalhousie received fewer points in the "Academics" (curriculum and research) in comparison to other categories. Dalhousie's Gold rating (where Platinum represents the highest rating possible) was ranked 63rd out of 324 University and Colleges. Of the 25 Canadian institutions registered with STARS, Dalhousie was ranked 7th. Key strategies identified to improve ratings identified in the STARS review included: more academic courses

and research with sustainability content; broader employee sustainability engagement programs; higher level of certification standards achieved for purchases and new and existing buildings; more renewable energy production on and off campus; expanding sustainable waste management and food offerings; and additional supports to meet affordability, compensation, and diversity criteria.

Considerable operational progress has been made on several fronts such as green buildings, waste infrastructure, and climate change issues. Several comments focused on having more improvements made on food and lab waste, waste management in general, carbon reduction in transportation, and carbon neutrality. There is transparent reporting through programs like STARS but some would like to see increased transparency and data availability. Recommendations were made to incorporate EDI participation in PACS and EDI content in existing sustainability plans and policies.

A major theme that dominates ecological impacts and the minds and work of our community is climate change. To provide focus for the recommendations section of the report we have used a climate change mitigation and adaptation lens. The science is clear. We need to act now with concerted effort to prevent increasingly negative impacts of a rapidly changing climate.

Limitations

The Sustainability and Environmental Responsibility theme is vast in terms of scale, scope, and strategy. Team members and co-leads participated with existing workloads, hence time was a limiting factor. Existing data informs the study theme but is not directly tied to research questions.

Recommendations

Rapid, medium, and longer-term recommendations are summarized in Table 1. Additional detail on these recommendations are found in Section 6.

Conclusion

There are undeniable and significant changes happening in our biosphere. Dalhousie is poised to build on our foundational work and address major gaps. A number of concrete recommendations across teaching, research, and operations have been identified that will create better integration, performance, leadership and inclusiveness. There are clear and diverse voices that support these changes.

Table 1. Rapid, Medium- and Longer-Term Sustainability and Environmental Responsibility Recommendations.

Function	Rapid Action (1-2) years	Medium Term (3-5) years	Long Term (5+) years
Teaching and Research	• Senate to address academic excellence in sustainability and climate action through a transformational curriculum approach. Connections to EDI goals should be explicit. • Development of a Research Cluster or Accelerator centred on Climate Change Action. • University-wide agreement on a mandatory blended learning course (online and faculty sessions) offered in all Faculties (e.g. A Citizen Guide to Planet Earth) to include concepts of citizenship, environmental and social justice, biosphere processes, and strategy.	• Major investment in sustainability learning student research internships. Program objectives will include on and off campus projects for both students and the community at large through hiring and placements. EDI outcomes are a mandatory component of the program. • Reassess previous recommendations for an enhanced College or Institute of Environment, Development and Sustainability. • Create a collision space for integrated work.	• Full integration of experiential learning for students and communities at Dalhousie. • Climate Action Certificate program.
Operations	• Program plan for addressing carbon impacts of University travel through local carbon offset program with EDI co-benefits. • On and off-site renewable energy projects that substantially advance carbon emission reductions and community benefits. • Development of green labs and sustainable events program to reduce impact of resource consumption. • Board commitment to net-zero and green building for new construction and significant deep retrofit program for existing buildings.	• Move towards plant-based diets with a reduction in overall meat and dairy in food services and a shift away from ruminant sourced meat. • Acceleration of University Climate Change Plan V.2 greenhouse gas emission reductions. • Net zero ready buildings and sustainability goals articulated in new campus master plans. • Critical examination of single use materials in relational to sustainability impacts (e.g. waste and food). • Move to low and no emission transportation through supportive programs. • Enhance biodiversity goals and cultural values across campus. • More detailed modelling of emission scope investments and outcomes	• Exceed GHG emission reduction targets. • Use purchasing strategies to advance sustainability and EDI goals through directed programs.
Governance	• Annual Presidential Sustainability and Environmental Board Report. • Evaluation and, as appropriate, re-commissioning of the President's Advisory Council on Sustainability. • Communication of sustainable investment performance and asset divestment strategies. • Senior administration examination of roles and resources related to communicating and leading integrated university sustainability strategies and action.	• University–wide coordination of sustainability and environment activities (e.g. integrated research proposals, advancement, communications creating increased global stature and student recruitment). • Sustainability and Environmental Responsibility or Climate Change theme in new Advancement campaign. • Integrated and enhanced Sustainability Portal.	• Reach the STARS - Platinum level; SDG ranking increase in Higher Education.

1.0 INTRODUCTION & BACKGROUND

Under the leadership of Dr. Teri Balser, Provost, a four-phase process of broad consultation was initiated in May 2019 to elicit ideas and suggest priorities from the larger university community in the identification of new strategic priorities. At the conclusion of the Learning Circles (Phase II) activities in September 2019, eight themes were identified for further examination through parallel self-study consultation and reporting activities (Phase III). The themes identified were:

- Campus Health and Wellbeing;
- Culture and Climate;
- Dalhousie Purpose and Social Responsibility;
- Future of Teaching and Learning;
- Internationalization and Global Engagement;
- Research Future;
- Student Experience and Student Success; and
- Sustainability and Environmental Responsibility.

All self-study processes were launched in September of 2019 with a mandate to deliver reports on themes by March 31, 2020. Each self-study team was led by a pair of co-chairs drawn from staff and faculty, respectively, with team members drawn from throughout the university community, based largely on individual interest and willingness to contribute. Teams assembled and drew insight from a variety of sources depending on their theme and the nature and extent of resources available. All teams were guided by the overall strategic planning process principles of a) grassroots involvement b) process to be driven by lived experience, while being informed by expertise, and c) planning process outcomes to be goal defined in contrast to process defined.

The results and recommendations of the theme-specific self-study reports will then inform the fourth and final stage of the strategic planning process by which the President, in consultation with the Provost, will finalize the next phase of Dalhousie's strategic priorities.

This is the report of the Sustainability and Environmental Responsibility self-study team. This team effort was led by Rochelle Owen, Executive Director, Office of Sustainability, Peter Tyedmers, Professor, School for Resource and Environmental Studies, and Brianna Maxwell, undergraduate Planning and Sustainability student. Additional team members, (acknowledged on page one), contributed by providing ideas in meetings, sending resources, leading a focus group session (Nathan Rogers – Facilities Management), and providing editing support (Brenna Walsh and Debra Ross). The team's efforts were supported by many individuals but, in particular, by Kareina D'Souza, Office of Sustainability, Sophie Boardman, and Jingwen Bi, Environmental Science Student Interns.

1.1 Understanding of Sustainability and Environmental Responsibility Interpreted

The words sustainability and environment can both address a wide range of organizational or individual issues – often relating to the three pillars of environment, social and financial concerns. Within the university, one could understand sustainability to refer to the maintenance of Dalhousie enrollment or financial viability in future. Equally, sustainability is often invoked to address concerns related to the social or cultural challenges confronting society. Similarly, the word environment can be used in a variety of ways encompassing everything from the built environment, our social or intellectual environment, to the entirety of the biotic and abiotic components of the biosphere. Here, we explicitly adopt a focus on the state of the global biosphere that sustains humanity and all other life on the planet and our collective responsibility to reciprocally sustain it over an indefinite future. This focus on the biophysical reflects both its fundamental importance to all human activities, the ubiquitous evidence and highly elevated state of concern regarding a number of critical life support systems (Steffen et al., 2015) and the fact that many other important social, cultural, and wellbeing aspects of Dalhousie's environment will be addressed through parallel self-study themes. Importantly, the inclusion of the word responsibility in our theme's title informs our mission to not simply describe our role and impact on the biosphere but to identify ways that we, as an institution, are able to take responsibility in effecting positive change. Our focus on the role that Dalhousie can play in addressing global-scale biosphere degradation is intimately connected to engagement with social and cultural aspects of life. Any response on our part to address these challenges must be rooted in and reflective of our collective and diverse values and cultures.

Sustainability concepts have been woven through the culture of many Indigenous societies for thousands of years, including the Mi'kmaq, Maliseet, and Passamaquoddy in Atlantic Canada and Eastern Quebec. The Mi'kmaq cultural and spiritual connection to nature is expressed in the language through the concept of Netukulimk (Prosper et al., 2011). Contemporary definitions of sustainability became more popularized with the 1987 release of "Our Common Future" a report of the Brundtland Commission which highlighted sustainable development as "development that "meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987, p.16)". Since 1987, a variety of additional definitions have promoted more explicit connections with the natural environment such as one outlined by Futures Forum – "Sustainable development is a dynamic process which enables all people to realize their potential and to improve their quality of life in ways which simultaneously protect and enhance the Earth's life support system (Forum for the Future, 1996)". In Nova Scotia, Mi'kmaq elders and academics have developed and taught the concept of "Two-eyed seeing" which connects traditional environmental and cultural knowledge with western science approaches (Hatcher et al., 2009).

Although there are many definitions of sustainability, common principles include (Hargroves, 2015):

- planning for short and long-term consequences;
- appreciation and valuation of the natural world;
- integration of environmental, social, human and economic goals in policies and activities;
- the importance of public participation;

- inter-generational and global, regional and local equity;
- concept of continuous improvement; and
- the importance of good governance.

In 2015, the United Nations (UN) published an updated conceptual framework for sustainable development including the articulation of seventeen sustainable development goals (SDGs) that focus on "action for people, planet and prosperity" (United Nations, 2018). Consequences of unsustainable environmental actions can have negative ripple effects through many of these SDGs, and it is important to consider sustainable environmental planning approaches in a systemic way.

1.2 Global and Local Impacts

The escalating impacts of ecosystem change are more and more evident locally and globally. The Millennium Ecosystem Assessment (2005) identified that in the last half century human population growth and consumption has negatively impacted over 60% of world ecosystems. In the 15 years since this report, global systems change has rapidly increased.

The limits of the globe to withstand the quantity and range of pollutants from human use and habitation is a rapidly escalating issue. The fall-out from this trend includes increasingly elevated levels of air pollution, a rapidly changing and volatile climate, water and food insecurity, pervasive and persistent waste, increasing species extinction and reduced biodiversity, and the related impacts of hunger, poverty and inequity (World Watch Institute, 2015).

A rapidly changing climate, is creating climate impacts that are felt differently across the globe. Increases in temperatures are associated with heat stress, water shortages and an increase in vector-borne disease which in turn affects food production, human health and well-being. Particulate matter from burning fossil fuels is associated with poor air quality and respiratory health (Health Canada, 2014). Ocean acidity and warming will destroy and change delicate ecosystems (Bernier, et al., 2018), and sea-level rise will greatly impact coastal communities.

Recent research from the Intergovernmental Panel on Climate Change (IPCC) has shown the impacts of climate change to be more severe than originally projected. It is estimated that human activities have raised global temperatures on average of 1°C in the last century and that global warming will reach 1.5°C by 2030-2052. Severe impacts are forecasted if practices raise global temperatures by 2°C or higher. This level of warming is anticipated to result in 14% of the global population being exposed to severe heat events at least once every five years and an increase of 132 million exposed to severe droughts; mean sea level rise of 0.48m by 2100; a 17% increase in extreme rainfall events over land (resulting in increased flooding); and between 2 and 8% of species losing more than 50% of their habitat (depending on taxonomic group).

To limit warming to 1.5 °C above pre-industrial levels, global anthropomorphic emissions would need to fall by 45% from 2010 levels by 2030 and reach net zero at 2050 (IPCC, 2018a). Specific 2050 goals for urban and infrastructure transition outlined in the IPCC's Special Report of Warming of 1.5°C (2018a) suggest emission reductions within the current building stock by 80-90%; 30% within the transport sector and generating 75-85% of our electricity through renewables. In addition, all new buildings would need to be built with fossil-free and net-zero energy specifications. Other

recommendations and targets would need to be applied to sectors such as transportation and agriculture as significant climate change drivers. Springman et.al (2018) outline major actions for the food sector as moving towards plant-based diets, water and energy efficiency measures in production, and reducing nitrogen and phosphorus in food production.

Canada's current 2030 commitment is to reduce GHG emissions by 30% below 2005 levels by 2030 (Lemmen, 2019). A recent UNEP Emissions Gap Report (2019) suggests Canada is not on track to meet these commitments. In 2019, the Nova Scotia government announced The Sustainable Development Goals Act to reduce the province's greenhouse gas emissions by 53 %per cent below 2005 levels by 2030 and to achieve a net-zero carbon footprint by 2050 (Province of Nova Scotia, 2019a).

The Sustainable Solutions Group (Halifax Regional Municipality (HRM), 2020) provided community emissions reduction modelling for HRM based on the IPCC targets. Their modelling suggested that a required municipal emissions need to achieve a reduction of 75% by 2030 and 100% by 2050 from the 2016 baseline. "Recommendations for near term actions included: achieving net-zero energy for new residential and non-residential buildings; retrofitting existing buildings to net-zero; adding renewable energy on existing buildings; electrification of transportation, and large-scale renewable energy development. Other significant actions that need to be done simultaneously include transit improvements, district energy systems, and waste and wastewater reductions and energy capture" (HRM, 2020). A net zero carbon building is "a building that is highly energy efficient and fully powered from on-site and/or off-site renewable energy sources" (World GBC, 2020). This definition includes the ability for off-site connection as most pre-existing buildings will not be able to accomplish creating meet all of their energy needs through onsite generation.

Some headway has been made in the reduction of air borne pollutants [such as sulfur oxides (SO_x)] through national and regional agreements, though Canada still ranks fourth among OECD countries in terms of SO_x emissions (ECCC, 2019). In the last twenty years in Nova Scotia, more waste material has been diverted from landfill and reused than any other jurisdiction in Canada (Richter, 2017). Although Nova Scotia has seen a significant increase in renewable energy in its electricity mix, we currently have the fourth most carbon intensive electrical grid in Canada (Province of Nova Scotia, 2019b).

The inequities of environmental degradation and the impacts of climate change are driven by social and cultural dimensions of environmental racism, poverty, economic wealth and power. In Canada and Nova Scotia this reality is documented in a number of cases in several Mi'kmaq and African Nova Scotian communities (Waldron, 2019). Social movements and political strife in Canada are seen as a result from fossil fuel project developments, industrial pollution, forestry health and use, land use planning and development, and other social and environmental justice issues.

Thus it can be seen there is certainly much to be done across many sectors and all levels of society. In the last five years (and particularly the last 18 months) however, there has seemingly been a much greater societal focus placed on bold actions to disrupt the status quo and address the climate crisis. Large-scale, peaceful civic disobedience movements, such as the #fridaysforfuture's Global Youth Climate Strikes and the recent nation-wide rail blockades in solidarity with the Wet'suwet'su'en First Nations have elevated this issue in recent months. More attention has been paid lately to sustainability and environmental responsibility issues such as accountability and tracking, conflict minerals, supply chains, net zero buildings, circular and shared economy, the decarbonisation of

energy sources, increased social justice, safeguarding and attempts to save biodiversity and reducing consumption and waste in particular.

1.3 Dalhousie's Current Initiatives and Engagement:

People, Programs and Governance

Dalhousie University has formally addressed sustainability challenges through its curriculum, research, and operations for almost half a century. Established in 1973, Dalhousie's Institute for Environmental Studies provided an early locus for environmental and international development research. The Institute became the School for Resource and Environmental Studies shortly after establishing the first environment-focused program at Dalhousie in 1978 (Master of Environmental Studies). Responding to increased societal demand for environmental and more generalized sustainability-related learning opportunities, a diverse constellation of programs joined the School or were established across the university that address environment and sustainability issues explicitly. This includes:

- the addition of Environmental Engineering programing when the Technical University of NS (TUNS) joined Dalhousie in 1997,
- the establishment of the International Development Studies program in 2000 with offerings at the undergraduate and graduate level,
- launching undergraduate focused Environmental Science programming in the Faculty of Science in 2001 (now combined as Department of Earth and Environmental Science),
- establishing the College of Sustainability in 2009 to offer sustainability related major and minor undergraduate education in seven programs across five Faculties along with a Sustainability Leadership certificate, and
- the addition of Environmental Science programming when the Nova Scotia Agricultural College became the Faculty of Agriculture at Dalhousie in 2012.

At the same time, many other programs, often in very traditional disciplines across Dalhousie (e.g. Law, Planning, Biology, etc.), have added courses and certificates that address environment and sustainability issues.

As of 2020, thousands of undergraduate and graduate students at Dalhousie are enrolled in programs that include access to one of more of the approximately 250 courses with sustainability content, representing ~10% of total courses offered at Dalhousie. Importantly, however, many students complete programs without any formal exposure to sustainability-related content. The constellation of environment and sustainability-related program opportunities at Dalhousie remains just that – a scattered collection of individual bright lights without any clear centre or coordination.

Dalhousie has signed numerous international and national sustainability declarations including the Halifax Declaration, the Talloires Declaration, the UNEP International Declaration on Cleaner Production and the University and College's Climate Change Statement for Canada. In 2008, the Office of Sustainability, and the Dalhousie Student Union Sustainability Office were formed and the President's Advisory Council on Sustainability was created. In 2011, Dalhousie joined the Association for the Advancement of Sustainability in Higher Education (AASHE) and participates every three years in an international campus sustainability reporting initiative through the Sustainability Tracking Assessment Rating System (STARS). Through the STARS program participating universities report on achievements related to 67 credits that span activities in academic programs, operations,

engagement, planning and administration, and innovation. Results are publicly reported on and discussed to continually evaluate and innovate. In 2018, Dalhousie received a GOLD rating from AASHE STARS (Version 2.1).

Over 220 faculty members are involved in sustainability-related research across the University, representing close to 20% of Dalhousie's research community. Specific projects or areas of engagement are too numerous to describe here but key research centres that address sustainability- or more broadly environment-related topics include the Ocean Frontier Institute, Clean Technologies Research Institute, Centre for Water Resource Studies, Marine and Environmental Law Institute, Healthy Populations Institute, and the Organic Agriculture Centre of Canada. As of 2018, Dalhousie's signature research clusters are organized for impact around the UN Sustainable Development Goals. Clusters include Sustainable Ocean, Healthy People, Healthy Communities, Healthy Populations, Clean Tech, Energy, the Environment, Culture, Society, Community Development, and Food Security.

Though an imperfect window on the collective scholarship of the Dalhousie research community's environment and sustainability-related knowledge creation, use of Scival's field-weighted citation index (FWCI - a measure of the relative rate that research is cited normalized to average rates of citation in different fields or across fields) can be used as an indicator of relative impact of our scholarship. For example, research that Scival aligns with Scival's 'Environmental Science' indicator (based on the journals the research is published in) and that was published over the past decade, indicates that Dalhousie's research contributions in this area are cited over 50% more frequently that the average paper published globally in the field of 'Environmental Science' over the same period. Within Canada, Dalhousie's FWCI for 'Environmental Science' related research was third highest amongst the U15 group of research-intensive universities in Canada.

In operations, several Dalhousie's units including Facilities Management, Finance, and Ancillary Services along with the Office of Sustainability have made headway on university sustainability operations objectives, including:

- The Office of Sustainability has developed and spearheaded a variety of campus sustainability plans and policies including: the Climate Change Plan (Office of Sustainability, 2019); Transportation Demand Management Plan (Office of Sustainability, 2015); Natural Environment Plan (Office of Sustainability, 2014); and Green Building policy (Office of Sustainability, 2011).
- A number of initiatives have been developed and implemented with campus partners including numerous energy, waste and water projects, campus greenings, food, waste and energy research, residence Ecolympics competition, an Employee Sustainability Leadership Program, and an Employee Bus Pass (Office of Sustainability Website, 2020).
- Progress on many key operational indicators is tracked and reported including reductions in energy, carbon, water, and waste and student engagement (Office of Sustainability, 2018). In the last decade, Dalhousie and partners have spent $97 million on sustainability-related initiatives. Most indicators to date have been achieved; however, the next sets of targets will be increasingly more challenging and will require new strategies and investment approaches.

In parallel, the Dalhousie Student Union Sustainability Office (DSUSO) promotes awareness and behaviour change on campus through the provision of "green grants" to assist new and existing initiatives, highlighting success on campus through 'stories of sustainability', and the promotion of

sustainability collaboration through society meetings and several annual "green" events. At the same time, many other undergraduate and graduate student societies are also active on sustainability issues, including on-campus gardening, and food security initiatives like the Loaded Ladle and DSU Food Market.

Natural and Built Environment

Both the Halifax (Studley, Carleton and Sexton) and Agricultural (AC) campuses have Campus Master Plans that articulate built and natural environment and sustainability objectives, as well as challenges and opportunities for campus planning (IBI, 2010; 2017). Key drivers of campus development include academic and research needs; student life and residences; ancillary services like housing, athletics, and performance space; deferred maintenance; and specific sustainability objectives. Factors impacting campus spaces include student demographics and numbers; increased role of information technology in teaching, building systems, and student use; sustainability targets and directives, safety and security, and space usage (Kaiser and Klein, 2010). Dalhousie, like most public institutions, has a significant deferred maintenance back log. Impacts include more shutdowns, negative occupant experience, safety concerns, poor sustainability performance, and work and reputational issues (CAUBO, 2014). Over the last decade, Dalhousie's population and gross square footage of space has grown by about 1.5% per annum.

Dalhousie University's Halifax campuses (approx. 32 hectares in total), consist of many landscape types including: tree-lined streets and paths, open greenspace, tree stands, expanses of impervious surfaces, and naturalized areas. The AC in Bible Hill, NS, is comprised of about 200 hectares and includes many different landscape types: ornamental gardens, food gardens, agricultural fields, tree lined paths, and naturalized areas. A smaller area (32 hectares) makes up the more actively managed campus. The AC campus has growing conditions that are different from the other three campuses, especially with respect to soil type and underlying geology, plant hardiness, and topography.

To guide the management of campus landscapes, Dalhousie has approved a Natural Environment Guideline Document and a Natural Environment Plan that outline standards for the management of the campus natural environment, including a diameter tree replacement policy, approved plant lists, and standards for stormwater management.

The Office of Sustainability and Facilities Management work together to fund and implement natural vegetation initiatives around campus including the installation of three rain gardens at the Halifax campuses, a vegetative swale at the Agricultural campus, and not mowing areas to create meadows. Green roofs have been added to some of the new buildings and research is being conducted on the biodiversity benefits of these systems. Dalhousie requires that new infrastructure projects preserve existing trees.

Dalhousie owns and operates 150+ buildings comprising close to six million square feet of building space. Dalhousie's buildings and houses date from 1850 to the present. The University has two district heating systems that connect over 95% of building spaces at both the Halifax and Agricultural campuses and some neighbouring properties in Halifax. Dalhousie passed a Green Building Policy in 2010 that recommended all new buildings to be built to LEED® Gold Certified standards or higher and that existing building upgrades follow a green building standard modelled on best practices. Over 50 energy, water, waste, food and climate related projects have been implemented ranging from multi-million dollar full-building retrofits and district heating upgrades to waste bin standardization throughout all campuses. These efforts have resulted in an over 50% reduction in water usage and

a 13% reduction in energy use per square foot of building space; more local, third-party certified and plant-based food offerings; 20% absolute reduction in greenhouse gases; addition of native and adapted species and vegetative systems; and 65% diversion of waste from the landfill (Office of Sustainability, 2018).

The 2010 University Operational Sustainability Plan outlined targets until 2020. Progress reports are issued by the Office of Sustainability every four years. The final report for this plan is due in 2021. This plan was created before the development of STARS. The University adopted STARS in 2011 and in 2019 also reported on some of the UN Sustainable Development Goals in the Times Higher Education Rankings.

With the release of the 2nd version of the University Climate Change Plan in 2019, targets have been identified for the next decade and beyond. From the Plan –

> *"Dalhousie's updated targets for scope 1 and 2 emissions include 30% reduction by 2025, 55% reduction by 2030, 80% reduction by 2040, and carbon neutrality by 2050. In addition, Scope 3 emissions (indirect emissions that occur in the value chain) will be reported on and action will be taken to influence reductions. Campus related climate modelling identifies warmer, wetter, and wilder climatic conditions. Key vulnerabilities on campus include buildings and energy infrastructure, hardscapes, storm-water systems, and trees and agricultural areas".*

A number of strategies are outlined in the plan such as on-site and off-site renewable energy, district energy efficiency upgrades, net-zero ready buildings, major efficiency upgrades, travel carbon off-set program with EDI outcomes, back-up power resiliency, and natural environment and biodiversity plantings. To meet the next set of climate targets, investment will need to be stepped up. This will require continued allocation from existing sources of utility savings, life cycle facilities funding and external grants, plus additional use of other financial instruments such as renewable energy purchasing agreements.

Integration and Leadership

Recent national and campus events revealed and reaffirmed historic cultures of misogyny and racism. A series of reports, plans, and strategic directions, such as the Belong Report (2015) and the Lord Dalhousie's History on Slavery and Race (2019a) were released as a response to the need for change.

Currently there are some deliberate connections made between sustainability programming and equity, diversity and inclusion topics, although neither with a comprehensive nor integrated approach. Examples include specific lectures through faculties, the College of Sustainability, and student societies. Researchers such as Ingrid Waldron focus their work on topics such as environmental racism. The Faculty of Science is leading the development of an outdoor eco-lab which will highlight Mi'kmaq culture and plant species. Art installations as part of capital projects highlight cultural connections such as recent installations at the IDEA and Design building. An annual

student sustainability internship for Mi'kmaq/Maliseet and African Nova Scotia students was created in 2016 in the Office of Sustainability. The DSU Sustainability office supports environmental justice advocacy work and events.

The topic of fossil fuel divestment in University endowment investments has been a much debated and divisive topic for the last decade at Universities and Colleges across the globe, including Dalhousie. There have been several recent University divestment related announcements [(University of Laval, 2019); (Concordia University, 2019); (University of Liverpool, 2019); (UBC, 2019); University of California (Bachher and Sherman, 2019); University of Victoria (CBC, 2020); (Georgetown University, 2020)]. Some announcements outline future commitments related to a portion of investments while others, like UBC, offer a broader suite of encompassing climate change commitments including teaching, operations, and investments. The breadth and depth of commitments to sustainability varies across the international higher education landscape.

In 2013, the DSU adopted a motion for fossil fuel divestment and has been, along with other groups like Divest Dalhousie, advocating for this position since then. The Board of Governors Investment committee has released three reports on the topic of Dalhousie's Environment, Social and Government (ESG) investment practices (Dalhousie University, October and November 2014, 2019). Strategies implemented include analyzing investment using an ESG and a climate lens; investing more in clean tech and renewable energy; becoming a signatory to the Principles for Responsible Investing; publicly disclosing information on investments, reviewing best practices, and communicating change. The Dalhousie senate in 2016, also released a report on the topic of Fossil Fuel Divestment in response to faculty and student declarations for fossil fuel divestment from University endowment funds. Recently a letter signed by 65 Dalhousie faculty, staff, and alumni requested a clear vision on divestment from fossil-fuel industries from the University. Despite the many recent initiatives to consider divestment at Dalhousie, along with the substantial real emission reduction work that has occurred, the lack of a clear divestment declaration means that the issue continues to remain front of mind for many.

At Dalhousie, there are number of Faculty offerings, research programs and projects, schools, a college and office working on sustainability issues. As the one formal integrated entity, The President's Advisory Council on Sustainability (PACS), is presently more of an information sharing body connecting a segment of faculty, staff and students. There has been little connection to research to date, although this has recently changed with the new Chair (AVP of Research Services). Currently there is no integrated sustainability and environmental communications, branding, planning, student experiential learning or collision space for proposal development and synergies.

Efforts have been made in the past to work on an integrated sustainability and environmental responsibility branding and communications approach. A proposal for a university-wide sustainability communications plan and portal was developed with the direction of the President's Advisory Council on Sustainability. These efforts were not effectively executed due to lack of central resources and responsibility. No one department has the accountability, funding, or role to be the central communications hub or to lead integrated sustainability efforts.

The President's Advisory Council on Sustainability provides a forum for students, faculty, administration, and community members to provide advice on campus sustainability programs and policies. Specific functions as articulated in the Terms of Reference includes:

- provides advice on University sustainability goals, plans, reports, and products;
- discusses and creates options for pan-university sustainability approaches;
- enhances understanding and synergy of different groups working on sustainability issues on campus;
- fulfills an ambassador role in promoting sustainability initiatives on campus; and
- disseminates ideas and proposed directions to representative organizations and the President.

Presently, the Council is largely a communication vehicle for Council members. Advice is provided on operationally plans. The role, function and composition of the Council should be examined with the induction of a new President and the kick-off of a new strategic plan.

An enhanced and coordinated sustainability curriculum initiative was developed over a number of years by handful of faculty members. A substantial amount of work was completed. In the end the initiative was not approved; however, much of the substance is relevant and accessible for future coordinated efforts. With the lack of a coordinated voice for sustainability efforts, distributed scholarship and teaching efforts can be invisible.

2.0 Purpose and Importance

2.1 Study Questions

Key Questions to Consider:

- *In 2020, what is the state of teaching, research, and operational engagement with sustainability and environmental responsibility at Dalhousie*?
  - To what extent are these domains of engagement interacting?
  - Are we leaders in any domains locally or globally?
- *In 2030, what should be the state of our teaching, research, and operational engagement with sustainability and environmental responsibility at Dalhousie*? Sub-questions to address include, but are not limited to:
  - To what extent should these domains of engagement be more interactive?
  - How do we see our leadership related to sustainability and environmental responsibility changing by 2030 (locally and globally)?
  - How should social dimensions (EDI) be more effectively incorporated into the sustainability agenda (across teaching, research and operations) at Dalhousie?

Refined study questions (as listed below) were used to elicit feedback from campus community members. Questions were also used as method for analyzing multiple data sources across the functions of teaching and research, operations, and governance. Small modifications to the questions were made throughout the data collection period to enhance clarity.

Consider this statement: Dalhousie teaching, research, and operations are known locally and globally for making substantial positive change on Sustainability and Environmental Responsibility issues.

- What rings true about this statement today?
- In what ways are we currently not meeting this statement?
- What could we be doing in the next decade to fully realize this statement?

- How can the social dimensions of sustainability (including environmental justice, equity and diversity, social change, cultural difference, and diverse knowledge systems) be more effectively incorporated into advancing sustainability?
- What does progress look like?

3.0 Study Methods

Various sources of existing and new data were used to ground this report including:

1. A review of Dalhousie's performance in the 2018 STARS submission.
2. Literature scan of Dalhousie's STARS rating compared to the: Canadian universities and colleges; U15 group of Canadian research universities, and top five rated STARS universities.
3. Literature scan and interviews regarding strategies for more integrated incorporation of EDI in campus sustainability teaching, research and operational work.
4. Seven focus groups.
    a. Five focus groups were run to elicit information from students, though one focus group at the Agricultural campus also included staff and faculty. A total of 39 students, seven faculty members and staff participated. A focus group script including key questions was used to guide the discussions.
    b. One focus group with facilities management staff (facilitated by Nathan Rogers).
    c. One focus group with the Senate Planning and Governance Committee.
5. Campus-wide Survey. Three study questions were inserted into the Office of Sustainability's Annual Sustainability and Commuter Survey. This annual survey reaches a representative sample of the campus population. Several strategies were used to boost participation, including direct emails to faculty and staff along with email notification to all students. On average over 1790 people provided responses to the three questions.
6. Group meetings. As part of the strategic planning process, study co-leads, teams, champions, and resource people were identified through appointment or through a sign-up process. Several team meetings and facilitated sessions were hosted by the Dalhousie Planning and Analytics department. In addition, information and resources were provided by many people through Microsoft Teams from early May 2019 to March 2020.
7. Individual meetings. Five individuals were interviewed to gather specific historical institutional knowledge and/or expertise.
8. President's Advisory Council on Sustainability. Two meetings were held to gather feedback from Council members.
9. Email and online information was solicited and received from faculty and staff.

In total, over 1900 students, faculty, staff, alumni participated through survey, meetings, online discussions (Brightspace/Microsoft teams), focus groups, workshops, and internships.

Data from existing and new sources were organized by study questions and key sustainability STARS framework classification including research and teaching; engagement; operations; and planning and administration, and innovation and leadership.

4.1 FINDINGS

Strategic Planning Phase 1 & 11: Meetings, Brightspace comments and workshops (May –Sept. 2019):

Key themes from sustainability meetings and Brightspace comments from Phase 1 & 11 were presented at the September 2019 strategic planning workshop along with twelve other learning cluster topics (Figure 1). Phase 111 of the planning process reduced topics to eight clusters, removed financial sustainability from the sustainability topic area and added environmental responsibility to the final theme of Sustainability and Environmental Responsibility.

Figure 1. Key sustainability mentions from Phase 1 & 11 engagement

Few	Some	Many	Most

Themes	Financial Sustainable Budget Model	Process & System Efficiency	Sustainability Eco, Social, Cultural, Financial	Sustainable Campuses	Streamlining Operations
Communications: Telling the story more: sustainability at Dal (research, student activity, academics, operations, community). Central university-level effort – enhanced website, *Dal News*, visual items (signs, dashboards, infrastructure)….					
Nature: Indigenous Permaculture and gardens, Biophilla, natural environment importance, curriculum, air, climate, wellbeing					
Natural Resource Use: Waste, Energy & Climate, Water. Reducing waste, energy and water use. Ex. plastics reduction, tackling energy and water reduction in existing buildings					
Food: plant-based diets, local, affordability (ex. catering app-Loaded Ladle), less waste, multiple considerations including food safety					
Climate Change: Making headway towards operational carbon neutrality, innovative internal carbon offset programs to fund community service objectives, investment – divesting/responsible investment, adaptation built and natural					
Participation: Sustainability Teams, Community of Practice- carrying on this group, student associations					
Green Building and Transportation: Reaching for carbon neutrality, new and existing building programs. Car share, cycling, parking (remove subsidy)					
Sustainability in the Curriculum: Cross discipline core content, principles, support passionate faculty…					
Integrated Governance and Support: Senior leadership, cohesive planning					
International Role: Importance of University in International Sustainability Efforts					
***Financial Sustainability and Process Efficiency:** Incentive systems, performance requirements, managing debt, redundancy, fragmentation, asset assessment and realignment, more efficient and less resource intensive processes.					

*Group session members felt that the Process Efficiency theme was being worked on under the current Strategic Direction and that those with more expert knowledge would be best to discuss and strategize opportunities for financial sustainability. Other data available on topics such as OS annual survey – 3000+ campus members

Group and Individual Meetings (October 2019 – March 2020): Senior Leaders workshop and a large planning workshop open to faculty and staff; Sustainability Team meetings and discussion (three sessions, online dialogue); individual meetings, and faculty emails. Below, key themes are organized by main study questions for comparison with other data sets.

In 2020, what is the state of teaching, research, and operational engagement with sustainability and environmental responsibility at Dalhousie?

- The College of Sustainability offers programming to campus and community that has been successful in integrating sustainability and EDI goals (e.g. ESS Lecture series and RBC Sustainability Leadership Certificate). There are ESS offerings available to undergraduate students across several faculties. The initial concept of the College stressed integrative team teaching, engaged curriculum review, and an interdisciplinary connection across faculties. There have been challenges engaging Dalhousie's professional schools due to their credit requirements.
- A significant amount of time was invested in a proposal (referred to casually at the time as "College 2.0") to address alignment with other programs, develop research capability, review curriculum outcomes, and broaden and rejuvenate the original intention of the integrative nature of the College. After much work and discussion, it was not approved by senior administration.
- There are programs and courses across campus that offer some sustainability and environmental content. These current offerings, however, are not available in every faculty, are not mandatory, may lack different voices and knowledge systems (e.g. Indigenous and African Nova Scotian, etc.), and lack core curriculum content on topics such as social anthropology, environmental justice and biophysical sciences. Professional schools were identified as areas where there may be limited sustainability content in program offerings.
- Fragmentation and academic silos and disconnected organizational structures were identified as barriers for internal and external communication; interdisciplinary research project development, and community engagement.
- There is no formal shared space, structure, roles or responsibility that brings together Sustainability and Environmental Responsibility groups in either teaching, research or operations roles. The President's Advisory Council on Sustainability brings together a select group in more of an information sharing role.
- The lack of University commitment to divestment of fossil fuels in the endowment funds is seen as an issue of leadership.
- The University has strong research programs in areas such as oceans, energy storage, and healthy populations and uses SDGs as a framework for research activities. Dalhousie has a Clean Technology Research Centre (CTRI) whose membership includes a number of faculty from a variety of disciplines working on topics such as renewable energy and energy storage; clean water, clean soil, clean air; clean materials, data streams, and social and biophysical dimensions of resource and environmental sustainability.
- Dalhousie has received recognition through awards (e.g. Green Building, Energy Efficiency, College of Sustainability), certification (e.g. STARS – Gold, LEED ratings), Chairs, research funding, citations, and press. The University is seen as a leader in the Atlantic region and provinces, and somewhat in Canada, but not globally.
- Several felt that we need to recognize the Universities' historical role in perpetuating elitism and racism. We do work within an academic community which at times can be fragmented, unfocussed, privileged, and distanced from what local community priorities.
- Operationally, progress has been made on many fronts such as green buildings and climate change mitigation. Several comments focused on increasing the improvements made on food waste, waste management in general, carbon emission reduction in transportation, and carbon neutrality in operations.

In 2030, what should be the state of our teaching, research, and operational engagement with sustainability and environmental responsibility at Dalhousie?

- Coordinate academic and research efforts through an Institute, research accelerator, and/or realignment efforts.
- Hired Faculty that have expertise in the social political and cultural dimensions of sustainability and environmental topics.
- Ensure that all Dalhousie students graduate with sustainability and environmental responsibility competencies, including civics/citizenship, biosphere processes, social-cultural impacts and perspectives (e.g. Indigenous knowledge systems, environmental racism). The mechanism could be a blended learning model of online course and faculty teaching sessions where the funding remains in the departments.
- Sustainability or climate change certificate to be offered as an additional degree option.
- Meaningful, respectful and mutually beneficial student and community experiential learning programs and projects. Look at building trust and supports with communities that have experienced injustice. To make meaningful connections and support students to enrol, programming efforts may need to start before high school.
- Coordinate collaboration with research, teaching and operations (e.g. focused student projects like SEEDS at UBC, buildings that are net zero and support teaching and research).
- Global leader for climate change related research such as energy storage.
- Support and promote the activities of sustainability groups at Dalhousie (particularly student groups).
- More knowledge mobilization, industry engagement and the development of core facilities that support Clean Tech research and development.
- Campuses carbon neutral and/or have accelerated current climate targets and actions including sustainable travel (low to zero emissions).
- Dalhousie divested from fossil fuels.
- Less natural resource consumption per person in waste, food, energy, and greenhouse gases.
- Sustainability and Environmental Responsibility focus area in University Strategic Plan.

<u>Student Focussed Focus Groups (Phase 111: January 2020 – February 2020).</u> A call for students to attend focus groups was promoted through direct emails to departments, via social media, and online sources. Four student focus groups were held in Halifax along with a mixed focus group of staff, faculty and students at the AC. A summary report is available in Appendix A. Key themes are organized according to each study question.

In 2020, what is the state of teaching, research, and operational engagement with sustainability and environmental responsibility at Dalhousie?

- *Academics*: Students viewed some Dalhousie departments (e.g. the marine and environmental law program, ocean science) as making positive contributions. There was recognition that there are passionate and prominent sustainability professors at Dalhousie and that the University attracts students from across Canada for its sustainability programs. Students are keen to learn more about sustainability, but sustainability course offerings are currently limited, and, in some cases, environmental curriculum content has been removed

from some programs (e.g. Bachelor of Management) or is inaccessible (e.g. renewable energy training in engineering).

- *Engagement*: Students reported significant student interest in sustainability and point to events such as Ecolympics in the residence halls and green conferences as positive embodiments of this. Dalhousie is seen to have a positive online reputation and professionals are reported to have remarked on successful alumni in the field. Dalhousie was said to support students locally to participate in sustainability events in the larger community (for example, academic permission to attend climate marches). Other students said they don't see concrete action from Dalhousie on sustainability. Dalhousie's lack of student engagement on sustainability issues and lack of investment transparency were also highlighted as issues.
- *Operations*: Students identified a number of positive sustainability initiatives around campus including bike rentals through the Dalhousie's bike centre, compostable utensils in catering, lighting control systems, locally-sourced food in meal halls, rainwater collecting systems, standardized waste bin sets, and water fountains. One student also noted ongoing changes to individual operations such as reusable food containers in the Tupper building. Students feel that Dalhousie's aging infrastructure is not energy efficient and that Dalhousie currently wastes a lot of food in residence and on campus. The widespread use of disposables on campus through food services (e.g. cups, bottled water) and labs (e.g. In health, science and engineering) was also noted. Students also discussed food security (particularly on Sexton campus) and issues of cost and convenience as impediments to sustainability.
- *Planning and administration*: Students remarked positively on Dalhousie's UPass, LEED certification of some buildings and participation in the AASHE STARS program. Students felt that we have great programs and ideas but may not have the money or resources to sustain them. One student also considered Dalhousie's administrative processes as inefficient (e.g. using too much paper) and another student questioned Dalhousie's commitment to sustainability standards when the focus seems to be on publications.
- *Innovation and leadership*: Dalhousie was recognized as the largest research institute in Atlantic Canada and students considered it well known locally and regionally as a strong research institute (though not for sustainability). There is media recognition of Dalhousie's ocean science expertise, and Dalhousie has received a number of international awards (e.g. Bright Star award for energy efficiency) relating to sustainability and had features in mainstream media. Several students felt that Dalhousie continues to ""cherry pick" bits and pieces of traditional Indigenous knowledge as they see fit and the institution but has not accepted fully integrated Indigenous knowledge in its entirety course curricula. Students felt that social justice is an important part of sustainability. Students consistently stressed the need for further actions on climate change by making rapid and unprecedented changes, divesting from fossil fuels, and increasing action on the Sustainable Development Goals (SDG). Multiple students were skeptical of Dalhousie's ability to lead in relation to sustainability while we cotinine to accept funding from fossil fuel companies.

In 2030, what should be the state of our teaching, research, and operational engagement with sustainability and environmental responsibility at Dalhousie?

- For future action, participants want actions on climate change and sustainability to reflect the urgency of the issues. Divestment was discussed frequently by students.
- Clear goals should be stated, and honest, transparent progress reports shared in terms of sustainability and environmental responsibility.
- Sustainability should be a core guiding principle of Dalhousie University's decisions and a core part of the University curriculum.
- Students feel that there should be more sustainability and environment degrees, including certificate and course options.
- More education and campus-wide understanding of the impacts of our actions coupled with a strong focus on the climate crisis and tracking carbon emissions.
- There is a strong interest in greater transparency and increased student involvement from the University regarding board and administrative decisions and operations.
- Students want to be involved in interdisciplinary conversations around sustainability and social justice that transcend race, culture, departmental and community boundaries.
- Students want more courses, programs and events that include Indigenous and African Nova Scotia perspectives and legacies.

Session with Senate Programs and Governance Committee; President Advisory Council on Sustainability Sessions (two sessions); Facilities Management focussed session facilitated by Nathan Rogers (Appendix C), and Architecture and Planning student focus group (Phase 111: January – March 2020). Key themes from these meetings include:

- College of Sustainability initiatives like the ESS Lecture series, classes, and RBC SLC (Sustainability Leadership Certificate) offer content to both campus and community members.
- Many student groups and student societies are involved in sustainability issues.
- There are more innovative programs like the IDEA sandbox initiatives and leading research on issues such as battery storage and oceans.
- Operationally progress has been made with LEED buildings, Transit passes, move to electronic textbooks, energy and water programs and investments, partnerships, sustainability action at facilities, surplus goods programs, waste management signage and diversion, and awards received.
- There is some reporting and accountability with programs like STARS, however; more is needed.
- University demonstrates a lack of commitment by not divesting its fossil fuel investments.
- Lack of core courses on sustainability and environment; academic silos across disciplines, and underuse of existing resources like the College of Sustainability ESS lecture series.
- Waste management is still a prevalent issue with waste generated through functions like catering. University community members still do not sort waste properly.
- The University should push to decarbonize operations.
- Reduce waste through more education, user pay programs for waste generators, and reduce packaging and disposables.
- Continue to reduce consumptive energy use in operations and equipment.

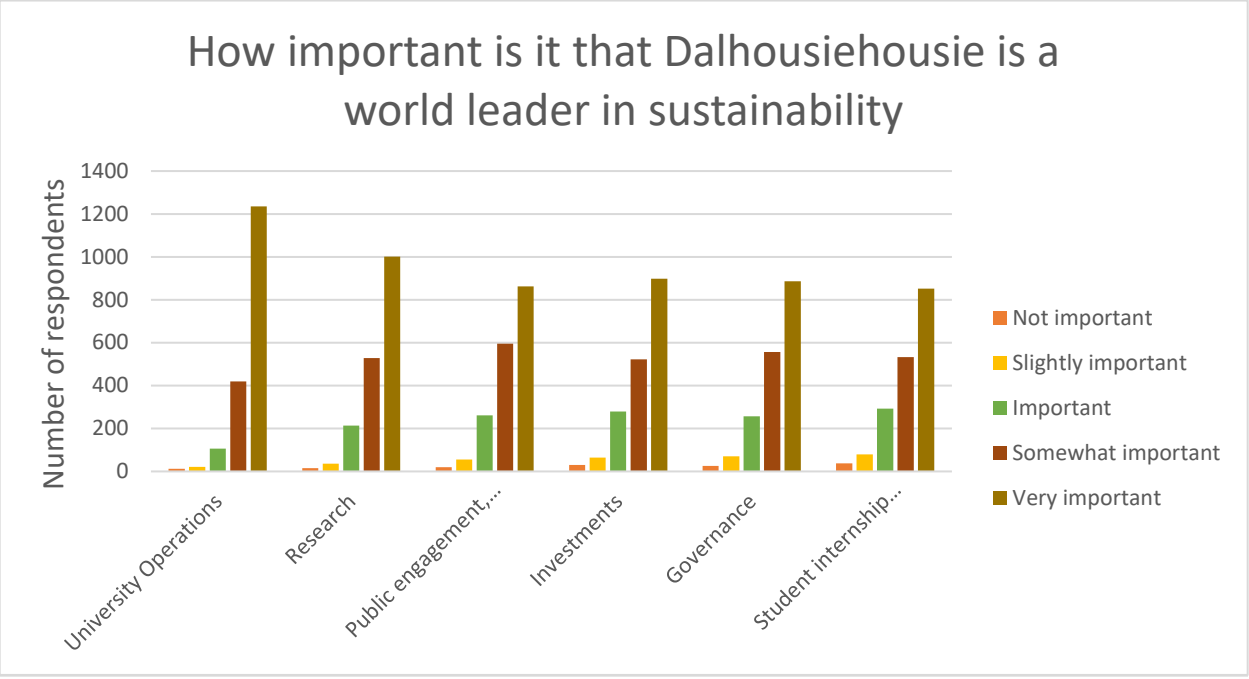
- Provide incentives for sustainability and environmental learning through internships, event sponsorship, and research activity.
- Create an anchor institution that is responsible for more integrative functions such as a university-wide sustainability communications role.
- Use building and outdoor spaces wisely to minimize natural resource consumption and optimize biodiversity and social spaces.
- Amplify Indigenous and African Nova Scotian perspectives and community connections. We should support community development aims.
- Hire more faculty in the sustainability and environment field including those with EDI perspectives and knowledge.
- Divest University fossil fuels holdings in endowment funding.

<u>Annual Sustainability and Commuter Survey. Three questions were asked (Phase 111: January 24, 2020 – February 14, 2020).</u>

Three study questions were posed as part of the Office of Sustainability's Annual Sustainability and Commuter Survey. The first question asked respondents to rate the importance of Dalhousie as a world leader in sustainability relative to topic areas. Respondents also could add additional comments. The second question asked for ratings on strategies in terms of their ability to improve communications and integration of sustainability activities. Respondents could also add comments. The final open-ended question asked how social dimensions (EDI) should be more effectively incorporated into the sustainability agenda. Detailed graphs and a summary of themes from the qualitative comments are provided in Appendix B.

Most respondents identified that sustainability and environmental responsibility action has global importance to them, with operational activities rating slightly higher than other functions (Figure 2).

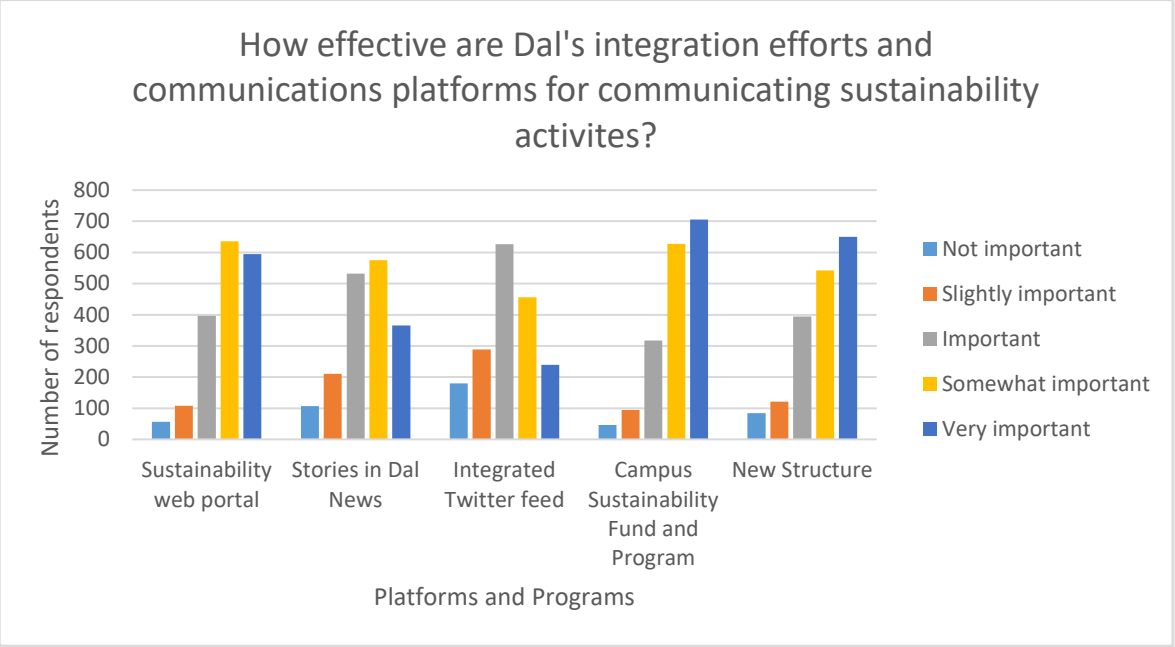
Figure 2. Importance of a global sustainability leadership role



Ranking	University Operations	Research	Public engagement, communications and outreach	Investments	Governance	Student internship opportunities
Not important	12	15	20	30	25	38
Slightly important	21	36	55	64	70	79
Important	106	214	262	280	257	293
Somewhat important	420	529	596	523	557	533
Very important	1236	1001	862	898	886	852

The rating of communications and integration strategies differed slightly between students and faculty and staff. Students rated a sustainability web portal, campus sustainability fund and program and new structure as being more important than faculty and staff. Stories in Dal News were rated relatively higher by faculty and staff than students. Overall, all respondents rated a Campus Sustainability Fund and Program as the highest importance followed by a Sustainability web portal, a new structure (e.g. Institute), stories in Dal News and integrated Twitter feeds (Figure 3).

Figure 3. Communication and integration strategies rated by importance



Ranking	Sustainability web portal	Stories in Dal News	Integrated Twitter feed	Campus Sustainability Fund and Program	New Structure
Not important	56	107	180	46	84
Slightly important	108	211	289	94	121
Important	396	532	627	317	394
Somewhat important	636	575	456	628	542
Very important	595	366	239	706	650

Key themes from the qualitative question about the incorporation of EDI and sustainability:

- consistent support from most staff, students, faculty, alumni and others for discussing social justice issues in relation to sustainability; and
- each group had respondents (17%- 32%) who either did not understand the question or did not agree with linking these topics together.

Overall, most respondents supported further awareness and education on social dimensions of sustainability, and engagement with the communities most affected by these issues. Linking social justice and sustainability and incorporating them into the way Dalhousie operates were consistent themes, as was the need for action.

Literature Scan and campus meetings: Equity, Diversity and Inclusion and Sustainability Scan and on-campus meetings (Phase 3: January, 2020 – March, 2020).

Sophie Boardman, student intern from Environmental Science, conducted a literature scan and met with a handful of people on campus to discuss EDI issues within the sustainability space. Her complete report is attached in Appendix D. Key highlights from the report are as follows:

- Inclusivity: Inclusion of underrepresented communities on campus, such as Indigenous students, Black and African Nova Scotians, and international students is important. Inclusivity occurs when diverse socio-cultural approaches and lived experiences of impacted communities are included and are given the same level of respect as other views and experts on campus.
- Transparency: Reporting and providing access to how well Dalhousie is doing was brought up many times as something that should be done more. We need to be clear about our failings and what to do next.
- Structure and deployment: Creating teams to facilitate and manage sustainability across university operations. There should be executive commitment and diversity at governing tables.
- Hiring Process: Set aggressive hiring and retention goals so that the University reflects society's actual racial, ethnic and gender diversity. Include gender and equity training for new and existing employees and improve interaction. A living wage with good benefits is paid to all University employees.
- Multi-disciplinary Curriculum: Break down silos and require mandatory curriculum with interdisciplinary teaching that includes multi-faceted sustainability perspectives.
- Ethical Purchasing: Investing in companies with environmental, social, and good governance records for goods and services on campus (e.g. fair trade coffee, local food), divesting from companies (e.g. fossil fuel, prisons).
- Epistemological Integration: Sustainability is intersectional and diverse. Expansion beyond the standard curriculum should include teachings from other knowledge systems like traditional, Indigenous ecological knowledge.
- Eco-Racial Narrative: Eco social justice and sustainability should be looked at through a variety of cultural and historical lenses. Racist practices have shaped the relationship of different identity groups to the land and to the environment. Access and affordability has

shaped the higher education landscape and thereby also shaped how sustainability is practiced and understood within higher education.

- Stereotypes & Colonial Systems: A dominant group in society (white settlers) set the norms and the rest of groups are considered "other." Creating spaces to talk about race and colonialism and incorporating social justice is important.
- Strategies:
    - Establish Service-Learning and Internship Courses.
    - A Sustainability Internship Program (SIP).
    - Continued communication, workshops and working groups on the topic of EDI.
    - Allocating funds to support students, employees, and programs to integrate concepts into work and research. For example – the University of Minnesota has an Equity and Diversity Certificate Program available for all students, staff and faculty on campus.
    - Redefining the sustainability definition to ensure recognition of social justice aspects. Have this reflected in policies and programs (e.g. pursuing a Fair Trade campus).
    - Insuring committees like PACS have EDI perspectives and representation.

<u>Literature Scan: Dalhousie Sustainability ratings versus the U15 and top AASHE STARS performers. (Phase 3: January, 2020 – March, 2020).</u>

STARS is a transparent, voluntary, self-reporting tool for Colleges and Universities to measure sustainability progress. The STARS score is based on applicable points earned across all five categories: Academics (Teaching & Research); Operations; Engagement; Planning and Administration, and Innovation and Leadership. Universities and Colleges around the globe participate in STARS though participation is primarily in the US and Canada. It is useful to note that on average 7% of US and Canadian institutions are reporting to STARS. In Canada, at the time of this analysis, 23 Canadian Universities and Colleges were registered with STARS.

The program includes reporting on over 67 credits. All reports are available online. AASHE staff review sample credits in postings. Some credits have changed over the years as different versions are released. There is some flexibility in interpretation of some credits by data providers and there are local contextual elements that drive differences therefore comparisons of scores across years and institutions should be evaluated with this context in mind. However, STARS provides a general guide for comparing campus sustainability actions.

The most recent STARS Gold rating for Dalhousie (April 2018) identified successes and areas of improvement across University functions. Some key areas for improvement identified include:

- More academic courses to have sustainability content;
- More academic courses to have sustainability related learning outcomes;
- Open access of published research;
- Broader employee sustainability engagement programs;
- Certification standards for Dalhousie logo apparel and more local and third-party certified purchases;
- More renewable energy production on and off campus;
- Applying for green building certification/standards for existing buildings and continuing growing energy efficiency and waste programs;
- More sustainable investments and food offerings; and

- Additional supports to meet affordability, compensation, and diversity criteria.

STARS data was used to compare the top five rated institutions versus Dalhousie's scores in key categories (Figures 4. to 8. and Table 2.). Academics (curriculum and research) is the section were Dalhousie differed most significantly from top institutions.

Figure 4. Dalhousie STARS rating for Academics (curriculum & research) compared to top scoring Institutions.

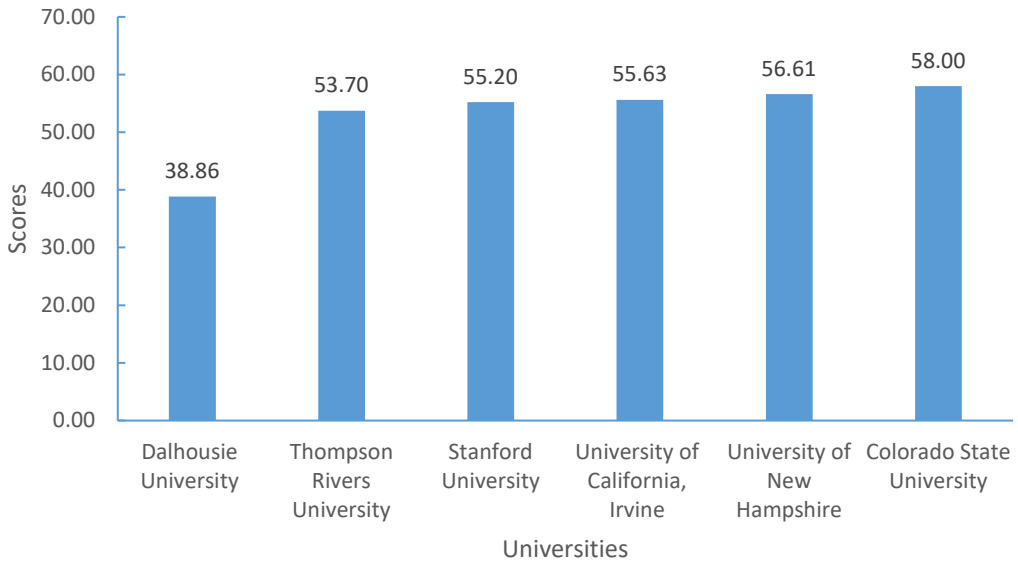


Figure 5. Dalhousie STARS rating for Engagement compared to top scoring Institutions.

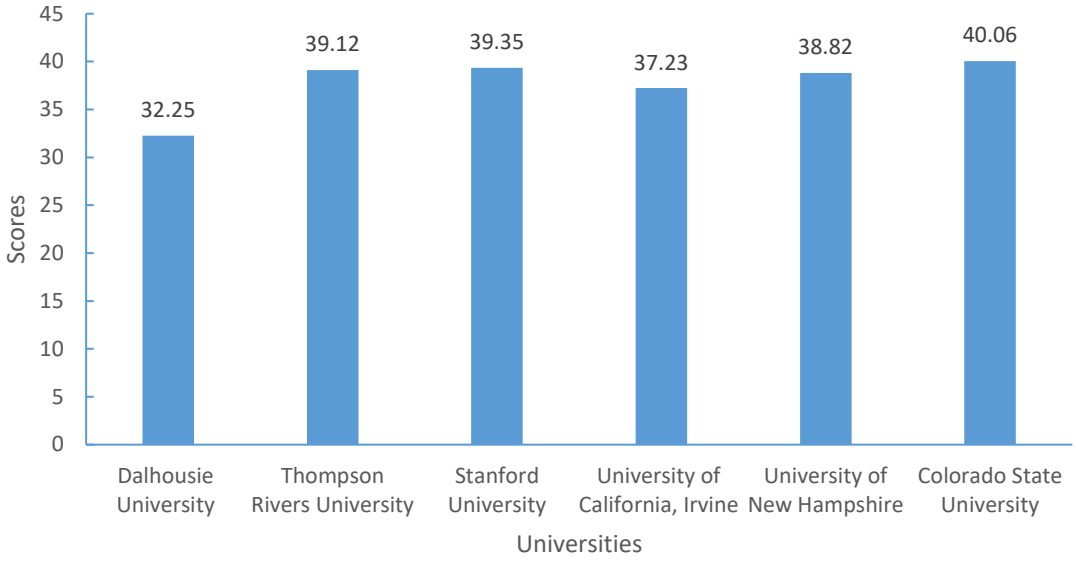


Figure 6. Dalhousie STARS rating for Operations compared to top scoring Institutions.

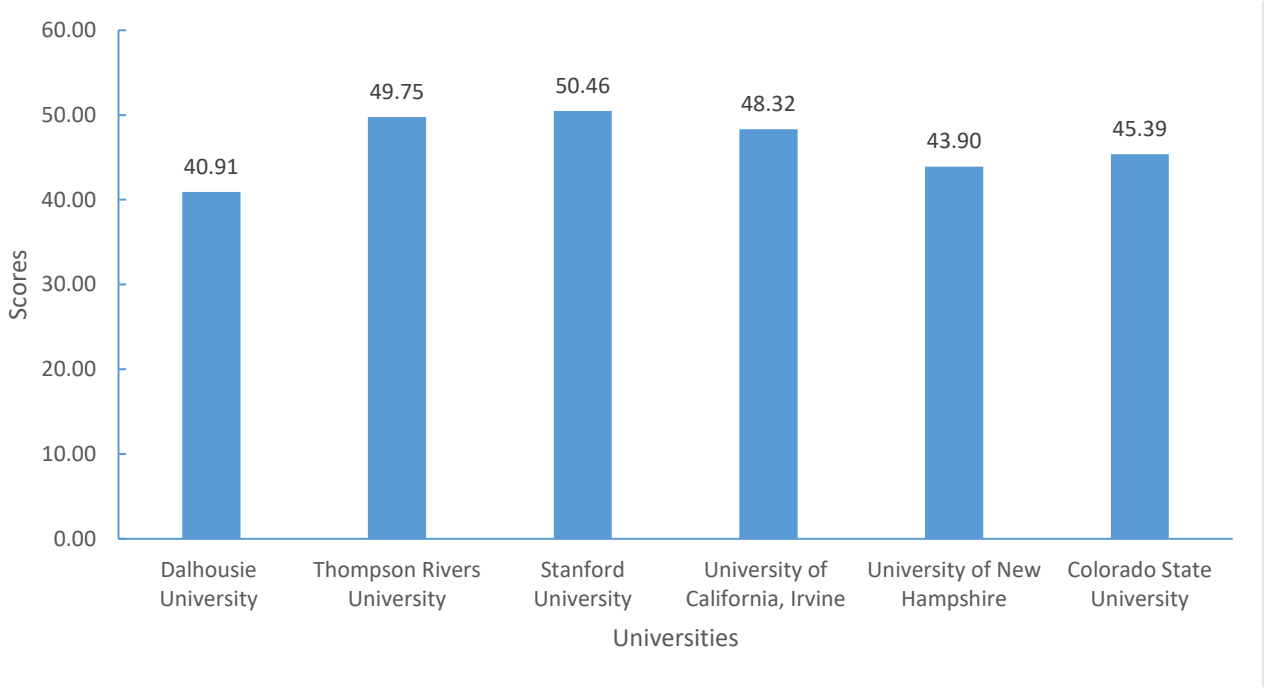


Figure 7. Dalhousie STARS rating for Planning and Administration compared to top scoring Institutions.

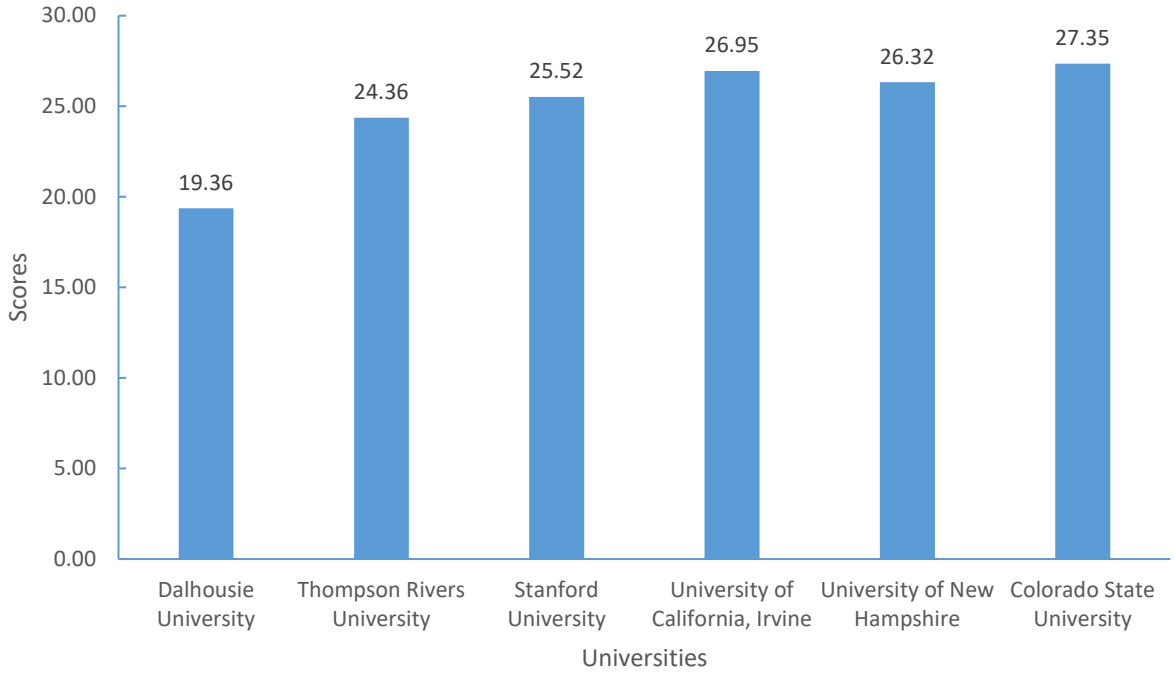
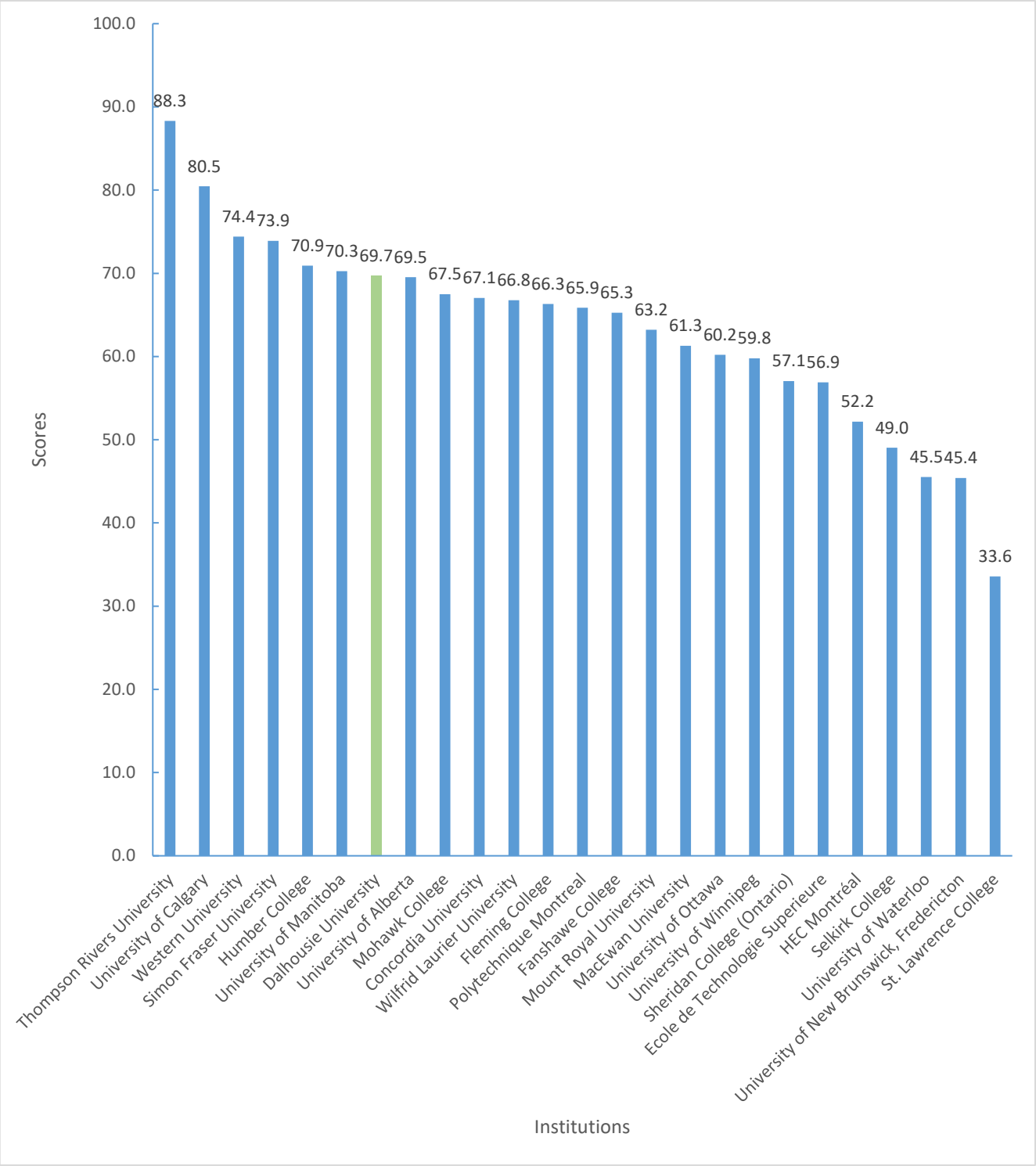


Table 2. Comparison of Top Five Rated STARS score with Dalhousie University

Universities	**Dalhousie University**	**Thompson Rivers University**	**Stanford University**	**University of California, Irvine**	**University of New Hampshire**	**Colorado State University**
Overall Scores	**69.69**	**88.31**	**88.00**	**86.82**	**86.00**	**88.14**
Academics	38.86	53.70	55.20	55.63	56.61	58.00
Curriculum	25.46/40.00	37.70/40.00	38.20/40.00	37.63/40.00	38.61/40.00	40.00/40.00
Research	13.40/18.00	16.00/18.00	17.00/18.00	18.00/18.00	18.00/18.00	18.00/18.00
Engagement	32.25	39.12	39.35	37.23	38.82	40.06
Campus Engagement	16.96/21.00	20.85/21.00	20.50/21.00	19.24/21.00	20.25/21.00	20.75/21.00
Public Engagement	15.29/20.00	18.27/20.00	18.85/20.00	17.99/20.00	18.57/20.00	19.31/20.00
Operations	40.91	49.75	50.46	48.32	43.90	45.39
Air & Climate	6.03/11.00	10.58/11.00	9.02/11.00	7.36/11.00	9.56/11.00	7.06/11.00
Buildings	3.70/8.00	2.00/5.00	3.73/8.00	5.06/8.00	3.83/8.00	4.03/8.00
Energy	3.91/10.00	8.35/10.00	7.37/10.00	4.49/10.00	6.97/10.00	4.14/10.00
Food & Dining	2.84/8.00	2.95/8.00	3.67/8.00	2.98/8.00	2.47/8.00	2.42/8.00
Grounds	2.24/3.00	3.38/4.00	3.00/4.00	3.00/4.00	3.34/4.00	3.66/4.00
Purchasing	5.94/6.00	5.14/6.00	4.71/6.00	5.27/6.00	4.60/6.00	5.21/6.00
Transportation	5.12/7.00	5.28/7.00	5.21/7.00	5.46/7.00	4.26/7.00	4.08/7.00
Waste	6.13/10.00	8.76/10.00	5.75/10.00	6.98/10.00	5.29/10.00	6.99/10.00
Water	5.00/6.00	3.31/6.00	8.00/8.00	7.72/8.00	3.58/7.00	7.80/8.00
Planning & Administration	19.36	24.36	25.52	26.95	26.32	27.35
Coordination & Planning	7.50/8.00	8.00/8.00	7.25/8.00	8.00/8.00	7.50/8.00	7.75/8.00
Diversity & Affordability	5.39/10.00	9.54/10.00	9.87/10.00	9.53/10.00	9.36/10.00	8.98/10.00
Investment & Finance	4.14/7.00	2.00/7.00	2.33/7.00	4.84/7.00	4.81/7.00	4.90/7.00
Wellbeing & Work	2.33/7.00	4.82/7.00	6.07/7.00	4.58/7.00	4.65/7.00	5.72/7.00
Innovation & Leadership	4.50	5.50	4.50	6.50	5.00	4.00
Exemplary Practice	0.50	1.50	2.50	2.50	1.00	2.00
Innovation	4	4.00	2	4.00	4.00	2.00

Dalhousie's Gold rating was ranked 63 out of the 324 University and Colleges in the STARS database by score. The lowest score was 26.1 (University of Wyoming). Dalhousie's score was 69.69 and the highest score was 88.31 (Thompson Rivers University). Of the 25 Canadian institutions registered with STARS, Dalhousie was ranked 7th (Figure 8).

Figure 8. Dalhousie's STARS ranking compared to other Canadian institutions enrolled in STARS.



Some of Canada's group of U15 research Universities participate in the STARS program while several whose rating (renewed every three years) has lapsed or do not register to report under the STARS framework (Table 3).

Table 3. Comparison of U15 Universities and STARS reporting

U15 Universities	Scores	Ratings	STARS Report Version	Year of the Report
1. Université Laval	82.53	Gold	Expired. STARS v2.1	2016
2. University of Calgary	80.45	Gold	STARS v 2.1	2018
3. Western University	74.42	Gold	STARS v 2.1	2018
4. McGil University	72.63	Gold	Expired. STARS v 2.1	2016
5. University of Manitoba	70.27	Gold	STARS v2.1	2018
6. Dalhousie University	69.69	Gold	STARS v2.1	2018
7. University of Alberta	69.54	Gold	STARS v2.1	2017
8. University of Ottawa	60.20	Silver	STARS v2.1	2018
9. University of Saskatchewan	54.90	Silver	Expired. STARS v 2.1	2017
10. University of Waterloo	45.51	Silver	STARS v2.1	2018
11. Université de Montréal	45.40	Silver	STARS v2.1	2016
12. The University of British Columbia	N/A	N/A	Expired. STARS v2.0	2015
13. McMaster University	N/A	N/A	Do not have reports	N/A
14. Queen's University	N/A	N/A	Do not have reports	N/A
15. University of Toronto	N/A	N/A	Do not have reports	N/A

Some of the universities that do not report to STARS have a wide variety of sustainability and environmental activity on campus. As an example, UBC has sustainability embedded in its University Vision and Strategic Planning elements, has an integrated communications portal, offers experiential and applied learning programs (SEEDS), is a leader in sustainable operations, has an Institute that is housed in a cutting-edge green building (Centre for Interactive Research on Sustainability).

4.2 Discussion

There were a number of common themes expressed by all campus community members in meetings, focus groups and the online surveys. Dalhousie is seen as a local leader but not a global one. We have recognized programs in areas like clean energy and oceans. There is a recognition of sustainability programs and faculty across departments, Schools and in spaces such as the College of Sustainability. Operationally advancements have been made in several areas such as energy, green buildings, sustainable transport and waste. There is some reporting through programs like STARS but for some not enough. Communications and collaboration are fragmented, with no clear roles for plans or integration. Lack of divestment is seen as a leadership issue.

The following were identified as continued needs:

- sustainability and environmental responsibility course content, certificates, internships and research funding across programs and Faculties;
- better grassroots collaboration with community across Nova Scotia; and
- enhanced understanding, respect of and inclusion of social equity, environmental justice, and indigenous knowledge in teaching, research, hiring, and delivery of programs.

In comparison to other universities and colleges, our ratings put us above the middle of the pack, as moderate leaders. Several strategies and suggestions were elicited from the Dalhousie community and through literature review to raise us beyond mediocrity and position us as leaders in this space.

5.0 Limitations

The Sustainability and Environmental Responsibility theme is vast in terms of scale, scope, and strategy. Existing and new data sets were examined in a ten-month period with most of the efforts focussed in the last four months. Team members and co-leads participated with existing workloads, hence time was a limiting factor. Existing data utilized as evidence was not specifically tied to the study objectives but informs the study theme. There is the challenge and reality of diverse and sometimes conflicting priorities when addressing sustainability and environmental responsibility issues. However, the breadth, depth, and strength of data provides further evidence this topic should be of high priority within Dalhousie's Strategic Priorities.

6.0 Recommendations

6.1 Rapid Action (1-2 years):

Teaching & Research:

- Senate committee struck to address academic excellence in Sustainability and Environmental responsibility opportunities in teaching. More connections to EDI goals.
- Development of a Research cluster centred on Climate Change.

Operations:

- Program plan and policy development for carbon impacts of University travel which includes EDI outcomes.
- Renewable energy installations and/or development agreements for on-site and off-site electricity that significantly impacts (reduces) carbon emissions and provides community benefits.
- Reduction of carbon emissions and single use items through green labs and sustainable events programs to reduce impact of resource consumption (food, waste, energy, water, carbon, transportation).
- Life cycle costing principles and approval for enhancing sustainability goals, facilities renewal, and functionality in built and natural infrastructure. This includes a Board commitment to net-zero ready and green building for new construction and significant deep retrofit programs for existing buildings.

Governance:

- Annual Presidential Sustainability and Environmental Report to the Board covering research, teaching and operations.
- Re-examination of the structure and role of the President's Advisory Council on Sustainability. Possible transformation into a Sustainability and Environmental Responsibility Task Force responsible for advancing agreed upon University-wide Sustainability and Environmental goals from the new Strategic plan.
- In consideration of recent announcements by other Canadian Universities and continued demands for fossil fuel divestments; assess and communicate next steps.
- Examination of roles and resources related to communicating and leading integrated university sustainability strategies and action.

6.2 Medium Term (3-5 years)

Teaching & Research:

- Major investment in student experiential sustainability and environment learning program that expands existing offerings. Funding will support student internships and research focuses. Program objectives to consider EDI outcomes related to hiring and placements.
- Reassess previous recommendations regarding an enhanced College or Institute of Environment, Development and Sustainability. Create a collision space for integrated work.
- Faculty-wide agreement upon a new mandatory blended learning course offered in all Faculties (e.g. A Citizen Guide to Planetary Earth). Concepts include biophysical elements, social and governance including components of environmental and social justice. This endeavour is not meant to have negative budget implications to faculties.

Operations:

- Move towards plant-based diets with a reduction in meat and dairy consumption levels in line with scientific research and Canada Food Guide recommendations.
- Advancement on all greenhouse gas reduction scopes in the University Climate Change Plan – meeting and creating more ambitious targets.
- Net zero ready buildings and Sustainability Goals articulated in new campus master plans (Halifax and Truro).
- Critical examination of single use materials in relational to sustainability impacts.
- Advancements of low to zero emissions in transportation programs through supportive initiatives like EV fleet, enhanced end of trip facilities for active transportation (e.g. covered bike shelters and campus bike loans).
- Enhancing biodiversity goals and cultural values through campus spaces.
- Ongoing modelling of emission scope investments and outcomes.

Governance:

- University-wide coordination of sustainability and environment activities (E.g. integrated research proposals, advancement efforts, communications campaigns, and student recruitment).
- Sustainability and Environmental Responsibility or Climate Change theme in new Advancement campaign.

- Integrate and enhance the sustainability@Dal webportal and increase reach to students, faculty and staff.

6.3 Longer Term (5+ years)

Teaching and Research

- Full integration of experiential learning for student and community at Dalhousie with sustainability and climate change as a central focus.

Operations

- Exceed climate targets and commit to more ambitious targets to speed up action to net-zero.
- Advance EDI and sustainability objectives in procurement, recognizing that purchasing take a best value approach versus lowest capital cost.

Governance

STARS - Platinum level; SDG ranking increase in Higher Education

7.0 Conclusion

Humanity's actions is causing significant and rapid changes in the biosphere. Dalhousie is poised to build on our foundational work and address major gaps. A number of concrete recommendations across teaching, research, and operations have been identified that will create better integration, performance, leadership and inclusiveness. There are clear and diverse voices that support these changes. We will need will and determination to break silos and implement new ideas.

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APPENDIX A. STUDENT FOCUSSED FOCUS GROUP REPORT

Student Focus Group Findings

Prepared by Brianna Maxwell, 20 March 2020

Context: Five focus groups were conducted with members of the Dalhousie community in January and February 2020 to explore sustainability and environment themes across the curriculum, University operations and research (as part of the University Strategic Planning Process). The four focus groups held on Halifax campuses engaged students while Truro group included faculty, staff and students. During all focus groups, a statement about Dalhousie (below) was provided to participants along with a two-page brief of Dalhousie's sustainability progress to date (for context). Participants were then asked to respond to five questions. The following document amalgamates the findings of these five focus groups, with a special focus on the student voice. The report is organized first by question, then by ASSHE STARS category (academics, engagement, operations, planning and administration, innovation and leadership). In some cases, a third level of analysis was created based on a sub-theme.

Executive summary: The Dalhousie community wants the University's actions on climate change and sustainability to reflect the urgency of the issues. Students want clear goal statements and honest progress reports made on what is and is not being achieved by the university in terms of sustainability and environmental responsibility. Students expect sustainability to be a core guiding principle of university decisions and a core part of the university curriculum. Students feel there should be more options for sustainability and environment degrees, and a campus-wide understanding of the impacts of human actions coupled with a strong focus on climate change and tracking carbon emissions. Students are consistent demand transparency and increased student involvement from the University regarding Board and administrative decisions and University operations. Students want to be involved in interdisciplinary conversations around sustainability and social justice that transcend race, culture, departmental and community boundaries. Students want more courses, programs and events to include Indigenous and African NS perspectives and legacies.

Findings

Focus group statement: Dalhousie graduates, research, and operations are known locally, regionally and globally for making substantial positive change on Sustainability and Environmental Responsibility issues.

1. **What rings true about this statement today?**
    a. Academics: professors, courses and departments. Students viewed some Dalhousie departments (e.g. the marine and environmental law program, ocean science) as making positive change for sustainability and they recognized there are passionate and prominent sustainability professors at Dalhousie. Dalhousie was recognized as offering more sustainability courses (including online content), and students are coming from across Canada for Dal's sustainability programs.
    b. Engagement: student engagement and alumni. Students considered there to be significant student interest in sustainability and pointed to events and programs (e.g. Ecolympics in the

residences, green conferences, World's Challenge Challenge, Sustainability Leadership Certificate) as positive embodiments of this. They said Dalhousie has a positive online reputation and professionals that they have interacted with had remarked on successful alumni in the field. Dalhousie was said to support students locally to participate in sustainability events in the larger community (for example, academic permission to attend climate marches).

c. Operations: sustainability initiatives and individual action. Students identified a number of sustainability initiatives around campus including: bike rentals through the Dalhousie bike centre, compostable utensils in catering, lighting control systems, locally sourced food in meal halls, rainwater collecting systems, standardized waste bin sets, and water fountains. One student also noted ongoing changes to individual operations (such as reusing containers in the Tupper building).

d. Planning and administration: UPass, LEED certification and participation in the ASSHE STARS program.

e. Innovation and leadership: research and recognition. Dalhousie was recognized as the largest research institute in Atlantic Canada and students considered it well known locally and regionally as a strong research institute (though not for sustainability). There is media recognition of Dal's ocean science, and Dalhousie has received a number of awards and publications.

2. **In what ways are we currently not meeting this statement?**

a. Academics: course offerings. Students are keen to learn more about sustainability and climate change impacts locally, but sustainability course offerings are currently limited or under promoted (e.g. College of Sustainability), and, in some cases, environmental curriculum content has been removed from programs (e.g. Faculty of Management) or is inaccessible (e.g. Renewable energy training in engineering). Students are also interested in working more with instructors on sustainability research and incorporating other perspectives (e.g. Indigenous) into the curriculum. Students want to learn sustainability skills and theory which are directly applicable to their program (e.g. green building techniques).

b. Engagement: action, awareness and transparency. Some students said they aren't seeing concrete action from Dalhousie on the climate crisis. Dal's lack of student engagement on sustainability issues and lack of investment transparency were also highlighted as issues.

c. Operations: infrastructure, food and waste. Students recognized that Dal's aging infrastructure (even updated buildings like O'Brian) are not energy efficient and that Dalhousie currently wastes a lot of food in residence and on campus. The widespread use of disposables on campus through food services (e.g. Cups, water bottles) and labs (e.g. In health, science and engineering) was also recognized as an unsustainable issue. Students also discussed food security (particularly on Sexton campus) and issues of cost and convenience as impediments to sustainability.

d. Planning and administration: resource use. Students recognized that we have great programs and ideas but may not have the money or resources to sustain them. One student also considered Dal's administrative processes as inefficient (e.g. Using too much paper) and another student questioned Dal's commitment to sustainability standards when the focus seems to be on publications.

e. Innovation and leadership: divestment, climate change and social responsibility. A couple students recognized that Dalhousie continues to pick bits and pieces of traditional Indigenous knowledge as they see fit and the institution has not accepted Indigenous knowledge in its entirety. Students recognized that social justice is an important part of sustainability. Students consistently stressed the need for further action on climate change by making rapid and unprecedented changes, divesting from fossil fuels, and increasing action on the Sustainable Development Goals (SDG). Multiple students were skeptical of Dal's ability to be sustainable when they continue to accept funding from fossil fuel companies.

3. **What could we be doing in the next decade to fully realize this statement?**

a. Academics: increase course offerings and degree options for

i. All students. Students recommended creating a minor or certificate in sustainability which would be open to all faculties and having a mandatory course or module for all Dalhousie students on sustainability and environmental responsibility. Students are also interested in having a sustainability advisor for helping them navigate courses and continue their sustainability education.

ii. Specific disciplines. Participants in Truro also expressed interest in re-visiting the idea of a sustainability and agriculture double major which would include field courses. Students also spoke about adding an environmental competency to law, updating the architecture, planning and engineering curriculums to better reflect green building and carbon sequestration strategies, and adding renewable energy training to engineering.

Dalhousie students are interested in learning more about sustainability and increasing dialog and research on climate change and sustainability at Dalhousie and within the broader community. Students are also interested in increasing student knowledge of sustainability operations by introducing students to sustainability early (e.g. In their information packages before they arrive on campus and at orientation week) and incorporating waste management education into course work (e.g. how to sort waste properly)

b. Engagement:

i. Awareness: To get more people involved in sustainability, students suggested going into 1st and 2nd year classes to announce sustainability related programs and offerings. Students also recognized that more awareness and engagement activities around campus and in the community may help build support for projects.

ii. Student engagement: to increase student dialog around sustainability, students recommended using "interesting" methods (e.g. Poster contest, prizes) to engage students and to consider year-long environmental programming (like Ecolympics). Students were interested in encouraging individual sustainability actions and awareness, and it was recommended that Dalhousie encourage staff, faculty and students to make sustainable choices by exemplifying sustainability best practices.

iii. Interdisciplinarity: Students recommended increasing interdisciplinary work within Dalhousie to address global issues related to environmental sustainability. Students would like to see a higher profile annual sustainability conference with a greater

number of faculties and workshops being promoted widely at Dalhousie and in the community.

iv. Community engagement: students stressed the importance of engaging with people outside of Dalhousie on social and environmental issues like environmental racism and climate change. Students want to have conversations with diverse groups of people and increased opportunities to work and volunteer with community groups.

c. Operations: students presented many operational changes they would like to see, and many stated that bold action (in the form of structural changes) was needed to address the issue of climate change.

i. Infrastructure and carbon emissions: students want new and existing buildings to be LEED certified, for Dalhousie to aim for carbon neutral construction on campus, to have more bike lanes (in particular between Studley and Sexton campuses), to purchase carbon offsets for conference travel, to increase campus greenspace and to manage greenspace to enhance carbon sequestration, to improve infrastructure resiliency (e.g. to prevent power outages), and to designate a specific space or building for sustainability programs and events that is accessible to all Halifax Dalhousie students

ii. Transportation: students want to have a bike centre on Sexton campus (and to have all cycling support centres open more often), support a social platform for carpooling

iii. Energy: students recommend Dalhousie invest in renewable energy

iv. Food and waste: students want Dalhousie to reduce food waste and food packaging, establish recycling for lab gloves, increase food options on Sexton campus (improve food security), change food offerings to support plant based diets and plant based curriculum movement, support more programming and events that are waste free, support students to bring their own mugs and plates as reusable options, increase and improve reusable container incentives, create and raise awareness of more mug libraries, increase transparency of food service contracts, and establish sustainability criteria for food services.

v. Daily operations: make sustainability an established part of daily operations (e.g. Sustainable orientation week packages, reducing paper handouts, etc), and provide grant money to student societies to promote sustainability.

d. Planning and administration:

i. Transparency: students want more transparent decision-making structures at the board level, and for the student voice to be part of, and reflected in, University decisions

ii. Promotion: students encouraged Dalhousie to promote existing research and conferences on sustainability and environment to the broader community, and generally encouraged more promotional activities online and through social media (ook to other universities like Trent for tips). Students also want to see the College of Sustainability get more exposure and promotion nationally and globally.

iii. Hiring: students recommended that when hiring professors, Dalhousie should engage them in sustainability conversations to get fresh ideas and perspectives, and to instill

a sense of responsibility for these issues in new faculty. Sustainability knowledge should be an important requirement for faculty.

iv. Research: students want Dalhousie to research ways to become more sustainable and how to take action on that knowledge.

v. Funding: students want the university to divest from fossil fuels, and to focus investment on the larger carbon impact if we need to prioritize strategies. Students recognized that we need to make change quickly, so it is important to focus on projects with the biggest impacts

e. Innovation and leadership:

i. Financial responsibility: again, students want the university to divest from fossil fuels.

ii. Social responsibility: students want Dalhousie to connect social responsibility to sustainability, in part by embracing more fully indigenous knowledge.

iii. Global engagement: students want to see Dalhousie faculty, staff and students involved in the SDG, and for Dalhousie to advocate more in society on key global and policy issues like climate change.

4. **How should social dimensions (environmental justice, equity, diversity) be more effectively incorporated into the sustainability agenda?**

a. Academics: students recommended having more courses, programs and events incorporate Indigenous and African NS perspectives and legacies. This could be accomplished through: awards and competitions within and among faculties, exchange and immersion programs, art exhibits, more conference and speaker opportunities which are accessible to minorities and which are promoted by faculty, and include local environmental racism issues and traditional Indigenous knowledge and perspectives in core curriculum.

b. Engagement: students encouraged the university to collaborate between faculties, with other universities and with the community on sustainability and social dimension research topics. There was also interest in having more focus groups to hear from a wide range of people and working more with Indigenous groups and people. One student also suggested having a symposium on the social dimensions of sustainability which would draw on the experience and knowledge of international students (among others).

c. Operations: NA

d. Planning and administration: Students recommended increasing affordability (time and money) of events and conferences to make sustainability topics more accessible and to reduce the financial burden on students. Students also recommended directing more research funding to this topic and hiring staff and faculty that are knowledgeable, and honour and representative of equity. Students encouraged Dalhousie to improve strategies to incorporate more social dimensions into things like purchasing and auditing.

e. Innovation and leadership: students stressed the importance of Dalhousie providing support to combat environmental racism and to increase understanding and acceptance of Indigenous ways.

5. **What does progress look like?**

a. Academics:

    i. Increased degree options: minor and certificate in Sustainability available to students in all programs.
    ii. Curriculum changes: sustainability and social justice (including recognition of environmental racism and white privilege) as core components throughout the curriculum (not just upper years).
    iii. Departmental commitment: each department clearly articulates its sustainability goals
    iv. Collaboration: platform created to showcase and connect Dalhousie operations, curriculum and research on climate change and sustainability. This website would need to be widely promoted and accessible throughout the university.

b. Engagement: more collaboration and sharing best practices; more marketing and awareness.
    i. Local: reaching out to local high schools, more signage about sustainability change and implementation, and more people are taking part in programs and initiatives and supporting efforts. Progress would be marked by having Dalhousie graduates known as leaders in environment and sustainability.
    ii. Global: more global recognition of how Dalhousie is positively impacting Canada leading on sustainability and environmental issues.

c. Operations:
    i. Overall: identifying key performance indicators for sustainability and achieving better ratings, efficiency and reduced resource consumption, plan implementation with appropriate financial support, more cost and environmental savings based on consumption reduction (energy, water and waste), and not having to having to question whether Dalhousie as an institution is fully committed to environmental sustainability and global health goals.
    ii. Infrastructure and carbon emissions: reduced carbon footprint, updating existing buildings, locally appropriate buildings which are climate resilient and meet GHG emission reduction goals, and infrastructure and resource use online with Dalhousie strategies.
    iii. Energy: increased investment in green energy companies and other sustainable companies
    iv. Food and waste: improved food security through greater food options, more student and community run food providers, and more urban gardens

d. Planning and administration: Clear goals stated, and honest progress reports made on what is and is not being achieved, campus wide understanding of the impacts of our actions – not losing sight of climate change and tracking carbon emissions, critical thinking about the environment in administrative decisions, sustainability incorporated into annual reports, sustainability and environmental responsibility much more front and centre (e.g. In the form of a dedicated committee), Dalhousie legislative changes supported by the student body, and working with city to improve sustainable transportation options

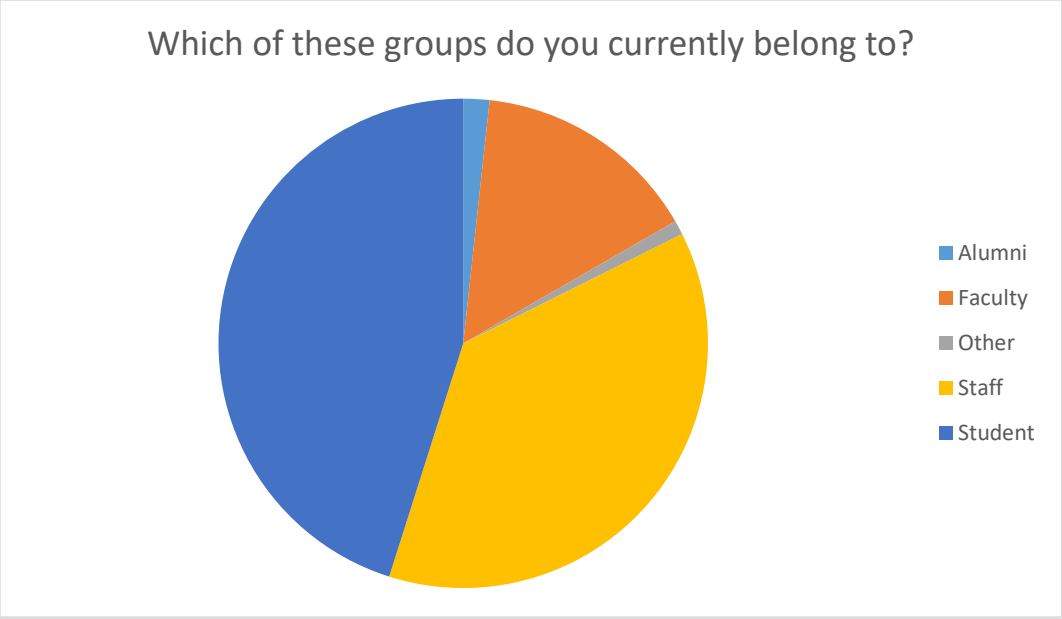
e. Innovation and leadership: UN Declaration on the Rights of Indigenous People (UNDRIP) is recognized and practiced by Dalhousie(including consultation with Mi'kmaq in university decisions), and more local communities proactively reach out to Dalhousie to work on sustainability and environment projects

2020 Sustainability survey quantitative data (all responses)

Prepared by Brianna Maxwell

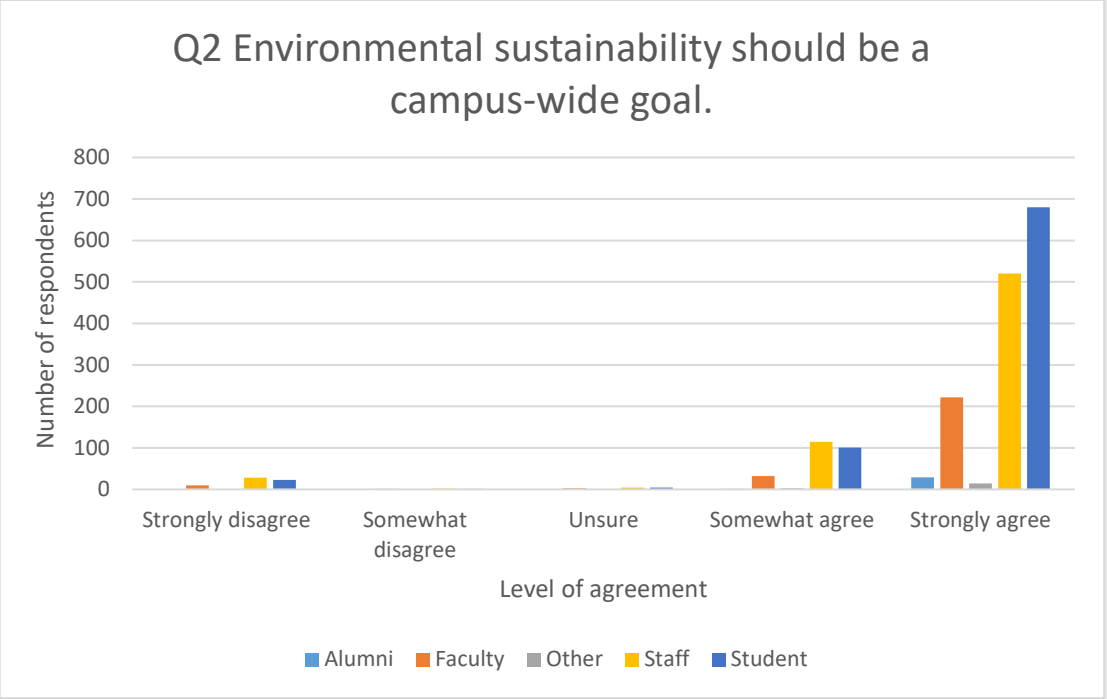
Mar 20th 2020

Question 1: Which of these groups do you currently belong to?



Row Labels	Count of Number
Alumni	31
Faculty	269
Other	17
Staff	670
Student	811
Grand Total	**1798**

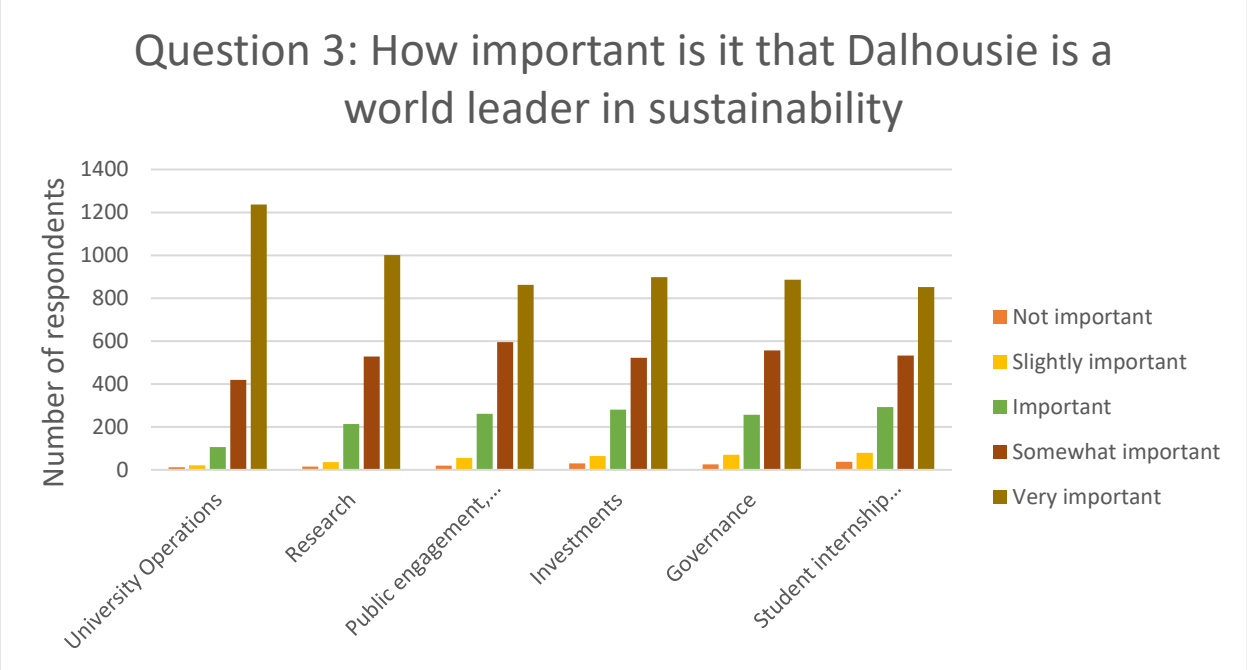
Question 2: Environmental sustainability should be a campus-wide goal.



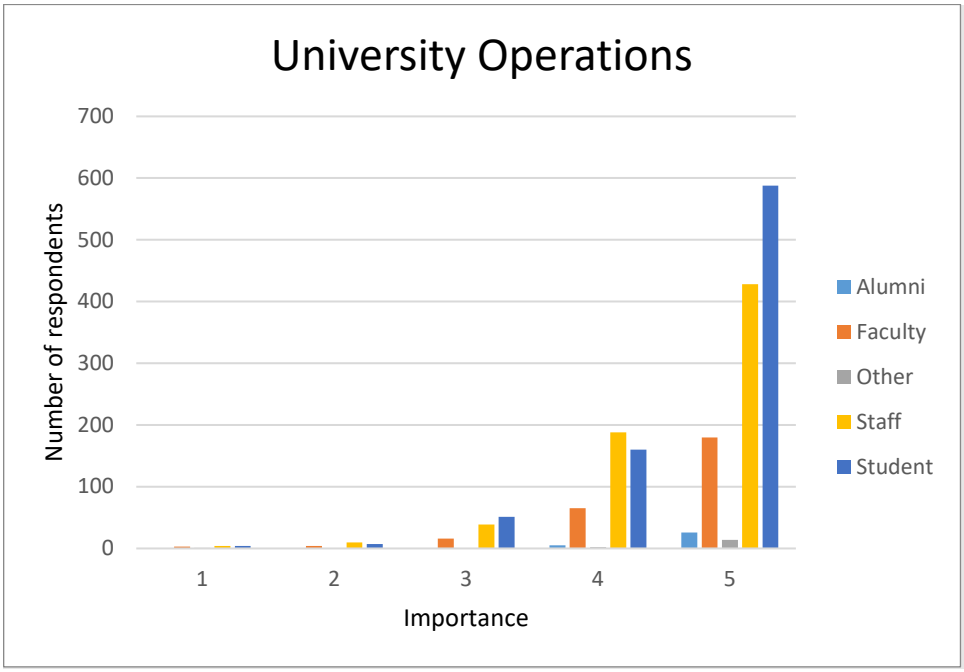
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
Somewhat agree	1	32	3	115	101	252
Somewhat disagree		1		2	1	4
Strongly agree	29	222	14	520	680	1465
Strongly disagree		10		28	23	61
Unsure		3		4	4	11
Grand Total	**30**	**268**	**17**	**669**	**809**	**1793**

Question 3: How important is it that Dalhousie is a world leader in sustainability

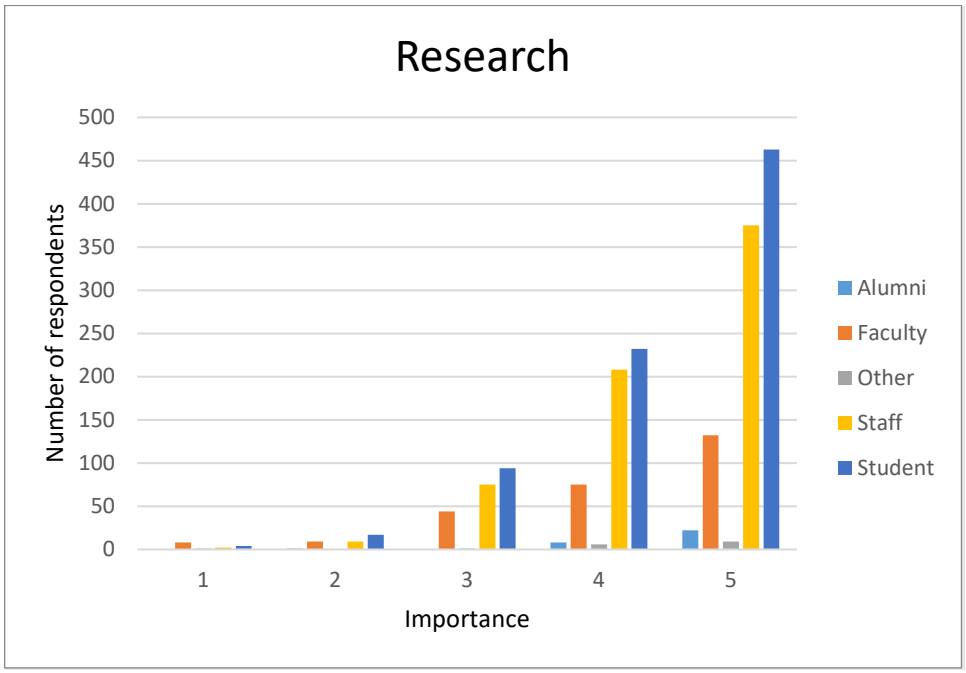
(5-very important, 4-somewhat important, 3-important, 2-slightly important, 1-not important).



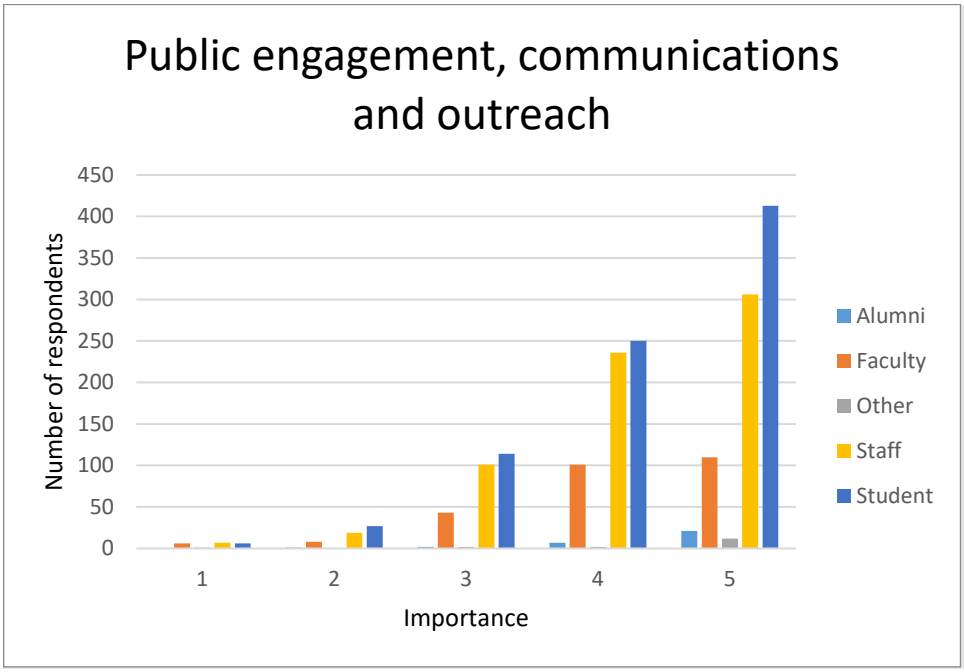
Ranking	University Operations	Research	Public engagement, communications and outreach	Investments	Governance	Student internship opportunities
Not important	12	15	20	30	25	38
Slightly important	21	36	55	64	70	79
Important	106	214	262	280	257	293
Somewhat important	420	529	596	523	557	533
Very important	1236	1001	862	898	886	852



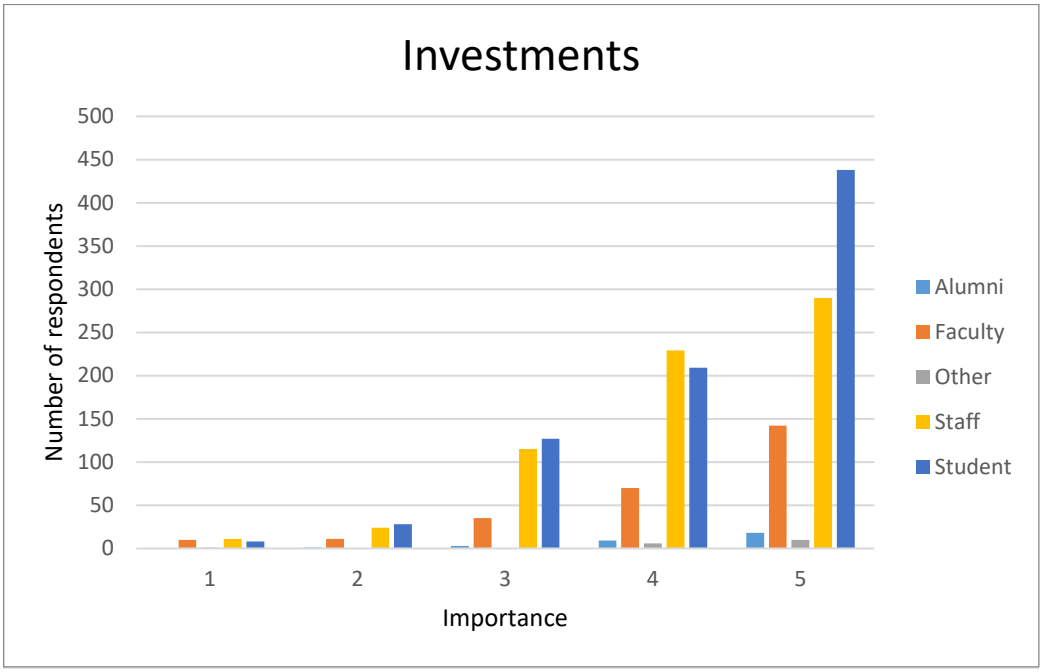
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		3	1	4	4	12
2		4		10	7	21
3		16		39	51	106
4	5	65	2	188	160	420
5	26	180	14	428	588	1236
(blank)		1		1	1	3
Grand Total	**31**	**269**	**17**	**670**	**811**	**1798**



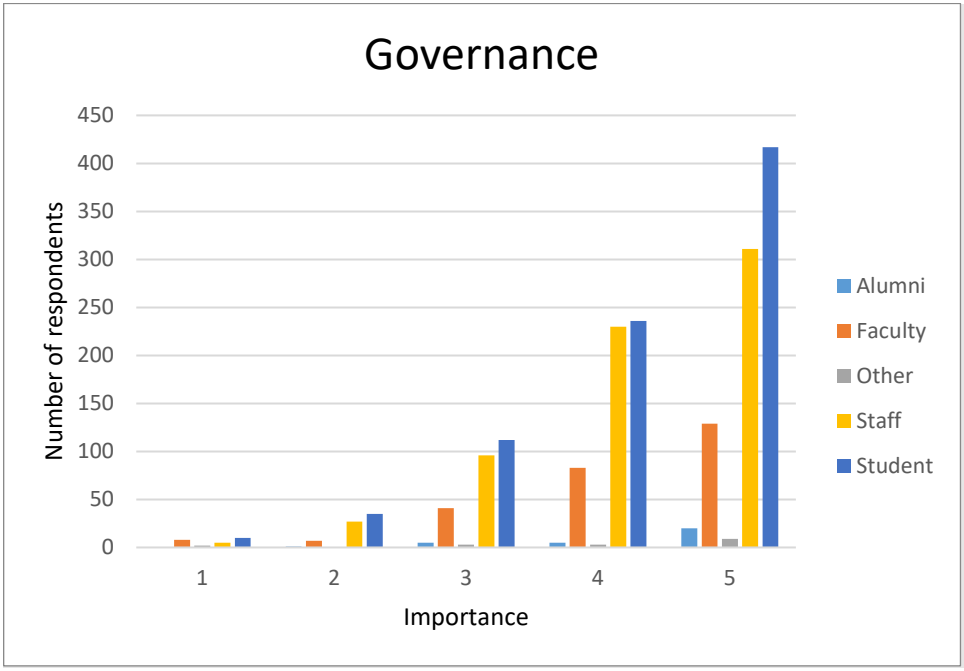
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		8	1	2	4	15
2	1	9		9	17	36
3		44	1	75	94	214
4	8	75	6	208	232	529
5	22	132	9	375	463	1001
Grand Total	**31**	**268**	**17**	**669**	**810**	**1795**



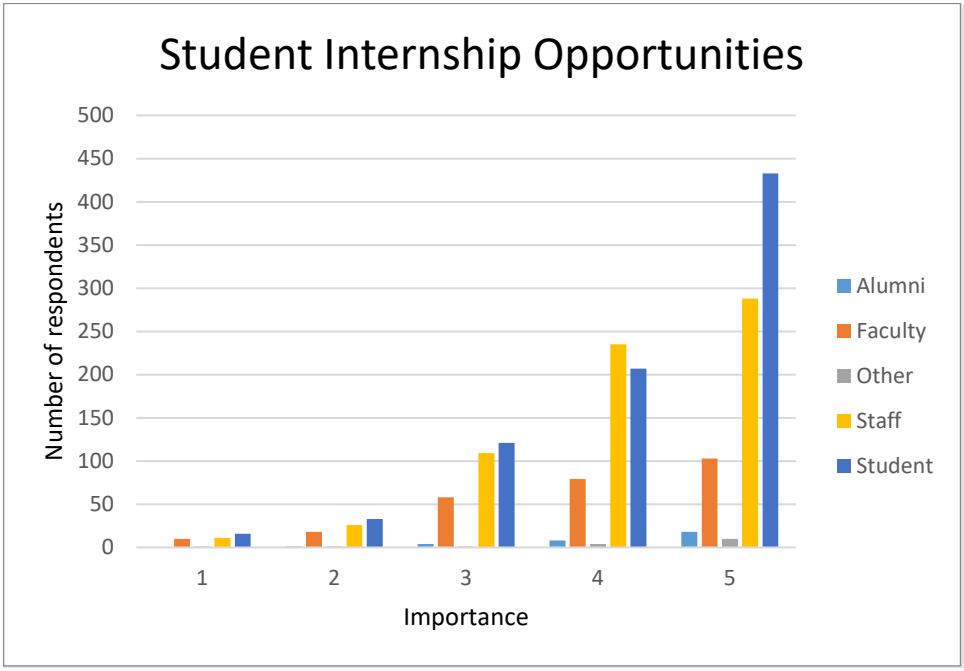
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		6	1	7	6	20
2	1	8		19	27	55
3	2	43	2	101	114	262
4	7	101	2	236	250	596
5	21	110	12	306	413	862
Grand Total	**31**	**268**	**17**	**669**	**810**	**1795**



Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		10	1	11	8	30
2	1	11		24	28	64
3	3	35		115	127	280
4	9	70	6	229	209	523
5	18	142	10	290	438	898
Grand Total	**31**	**268**	**17**	**669**	**810**	**1795**



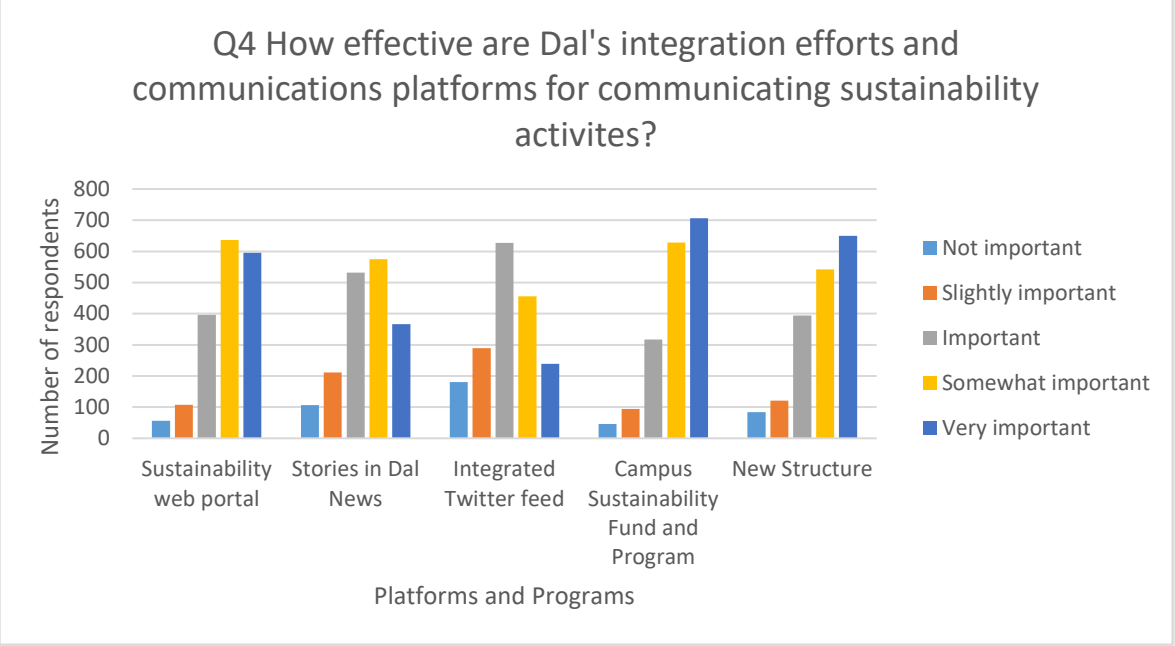
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		8	2	5	10	25
2	1	7		27	35	70
3	5	41	3	96	112	257
4	5	83	3	230	236	557
5	20	129	9	311	417	886
Grand Total	**31**	**268**	**17**	**669**	**810**	**1795**



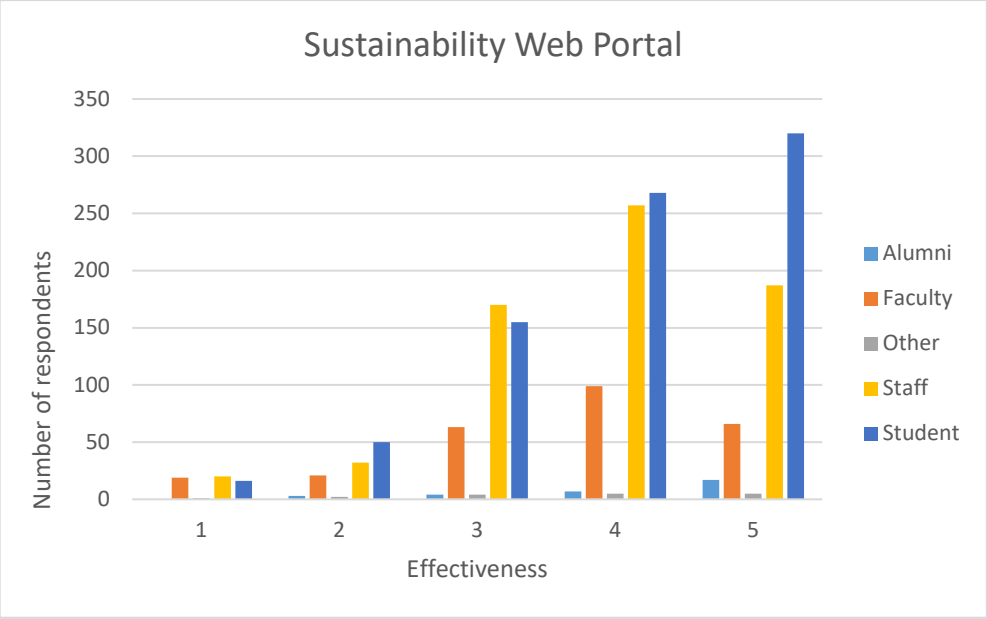
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		10	1	11	16	38
2	1	18	1	26	33	79
3	4	58	1	109	121	293
4	8	79	4	235	207	533
5	18	103	10	288	433	852
Grand Total	**31**	**268**	**17**	**669**	**810**	**1795**

Question 4: Early feedback from the strategic planning process suggest that Dalhousie's sustainability related efforts across programs, research, and operations could improve with coordinated communications and integration efforts.

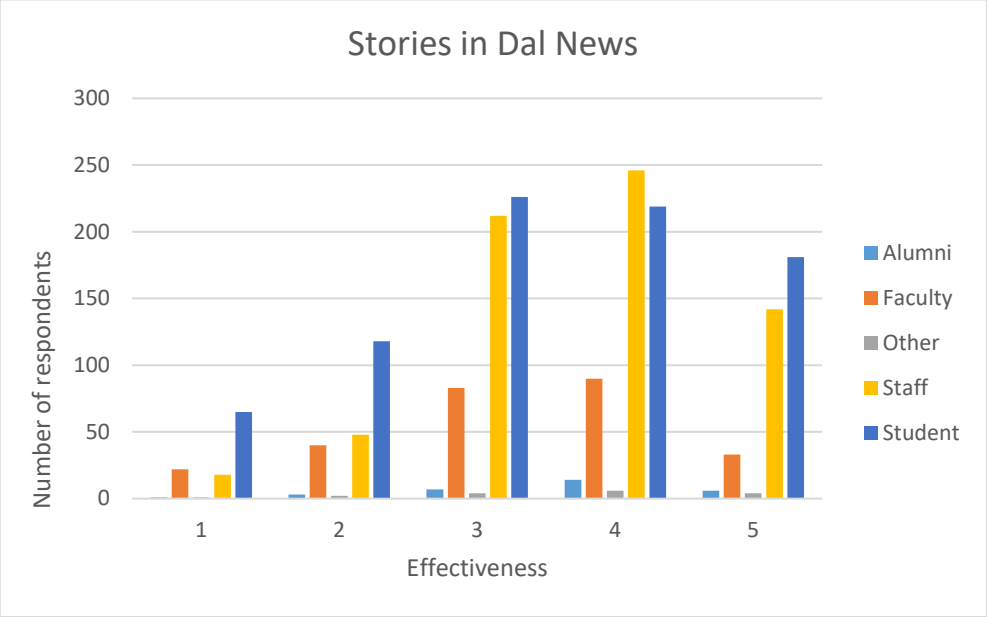
Please rate the following strategies in terms of their ability to improve communications and integration of sustainability activities (5-very effective, 4-somewhat effective, 3-neutral, 2-not very effective, 1-not effective)



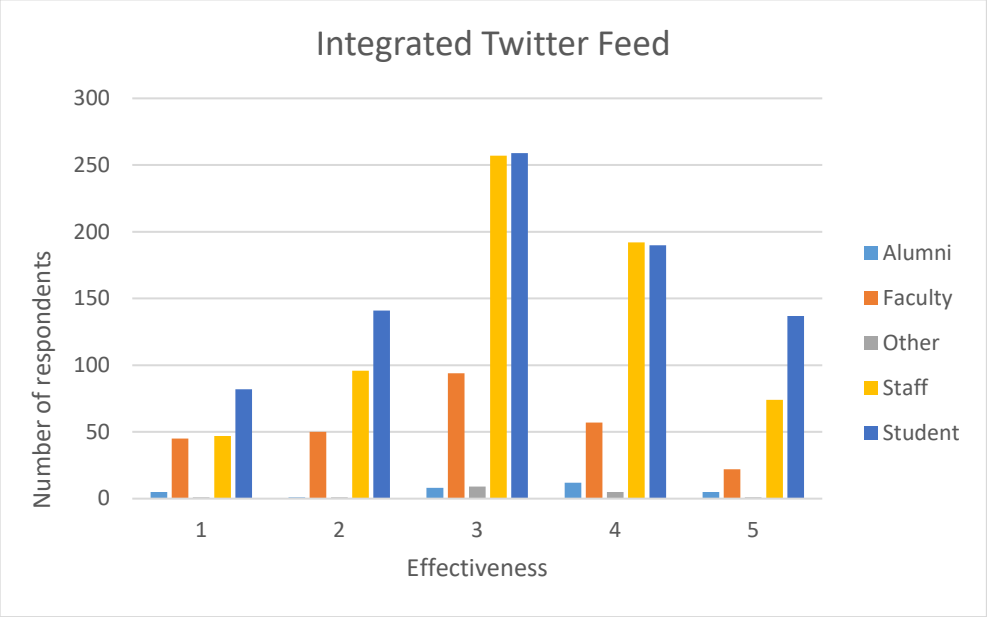
Ranking	Sustainability web portal	Stories in Dal News	Integrated Twitter feed	Campus Sustainability Fund and Program	New Structure
Not important	56	107	180	46	84
Slightly important	108	211	289	94	121
Important	396	532	627	317	394
Somewhat important	636	575	456	628	542
Very important	595	366	239	706	650



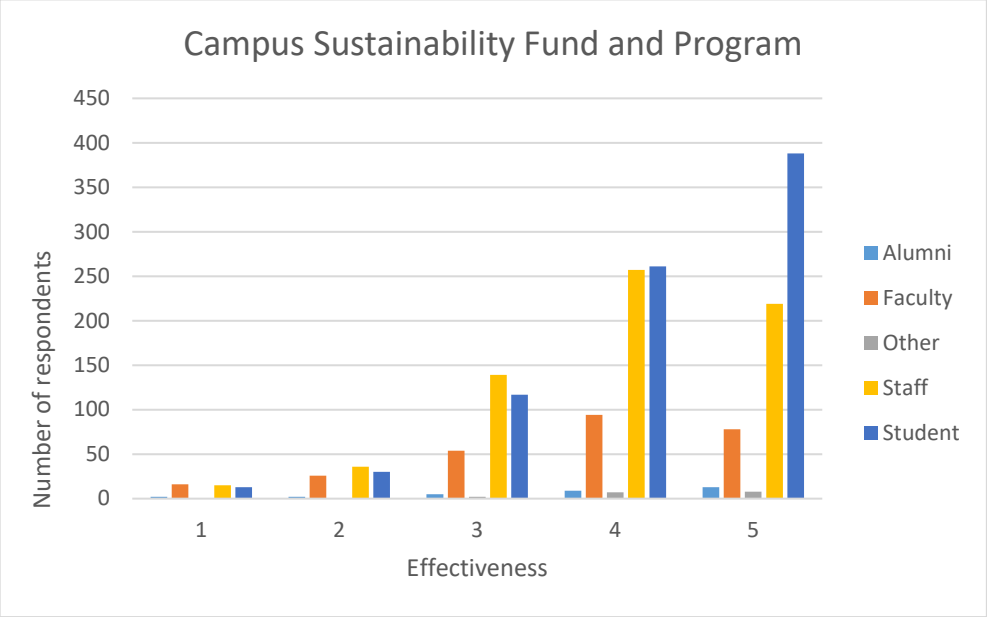
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		19	1	20	16	56
2	3	21	2	32	50	108
3	4	63	4	170	155	396
4	7	99	5	257	268	636
5	17	66	5	187	320	595
Grand Total	**31**	**268**	**17**	**666**	**809**	**1791**



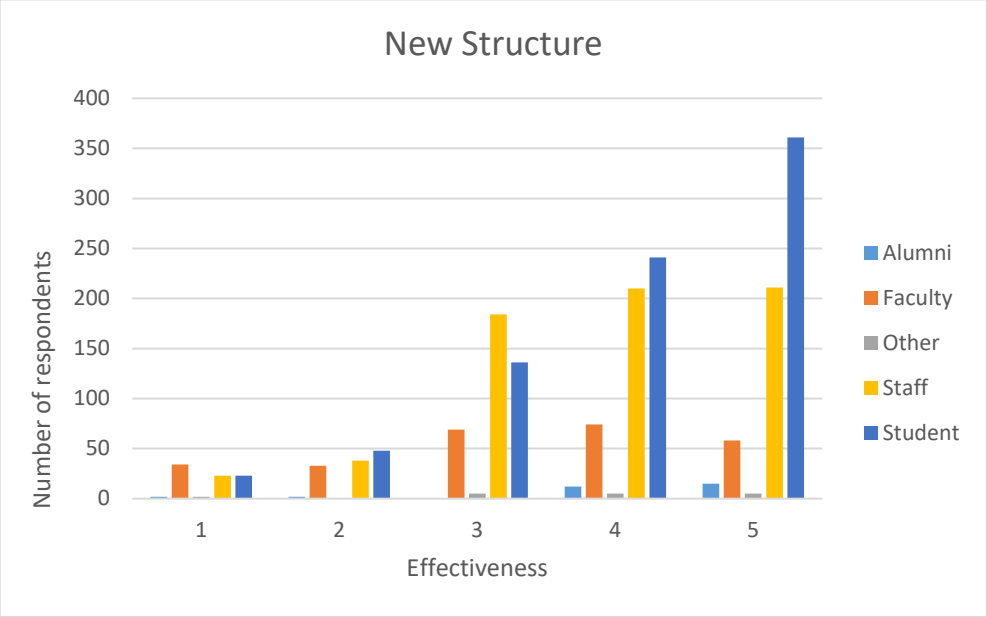
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1	1	22	1	18	65	107
2	3	40	2	48	118	211
3	7	83	4	212	226	532
4	14	90	6	246	219	575
5	6	33	4	142	181	366
Grand Total	**31**	**268**	**17**	**666**	**809**	**1791**



Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1	5	45	1	47	82	180
2	1	50	1	96	141	289
3	8	94	9	257	259	627
4	12	57	5	192	190	456
5	5	22	1	74	137	239
Grand Total	**31**	**268**	**17**	**666**	**809**	**1791**

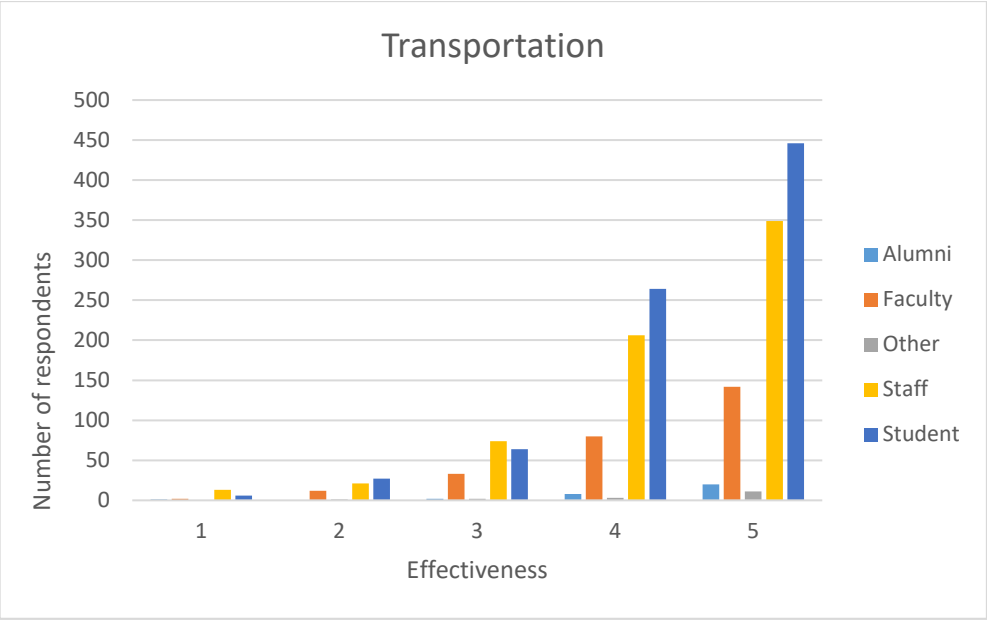


Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1	2	16		15	13	46
2	2	26		36	30	94
3	5	54	2	139	117	317
4	9	94	7	257	261	628
5	13	78	8	219	388	706
Grand Total	**31**	**268**	**17**	**666**	**809**	**1791**

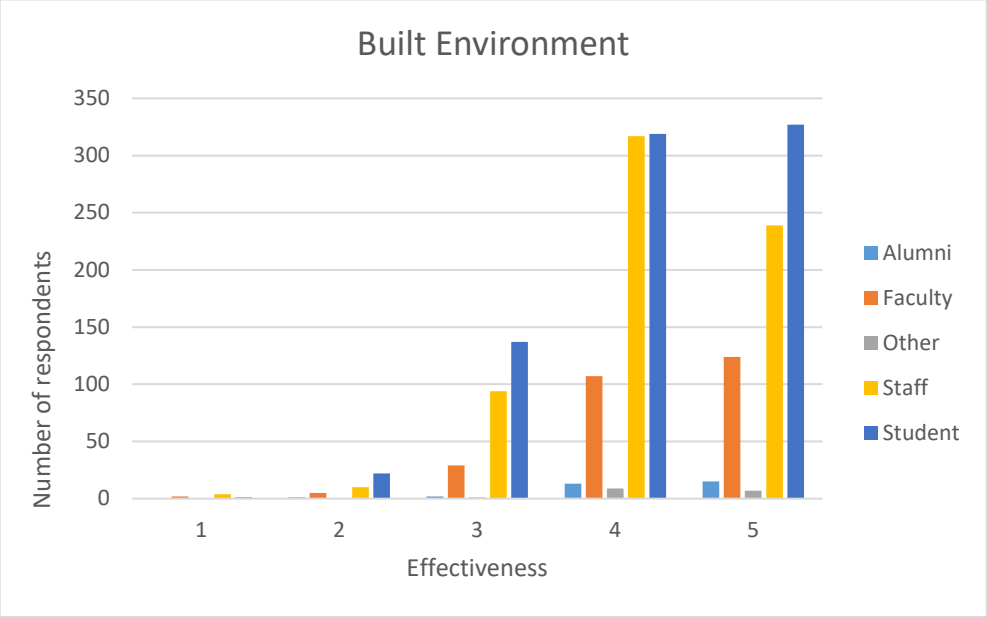


Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1	2	34	2	23	23	84
2	2	33		38	48	121
3		69	5	184	136	394
4	12	74	5	210	241	542
5	15	58	5	211	361	650
Grand Total	**31**	**268**	**17**	**666**	**809**	**1791**

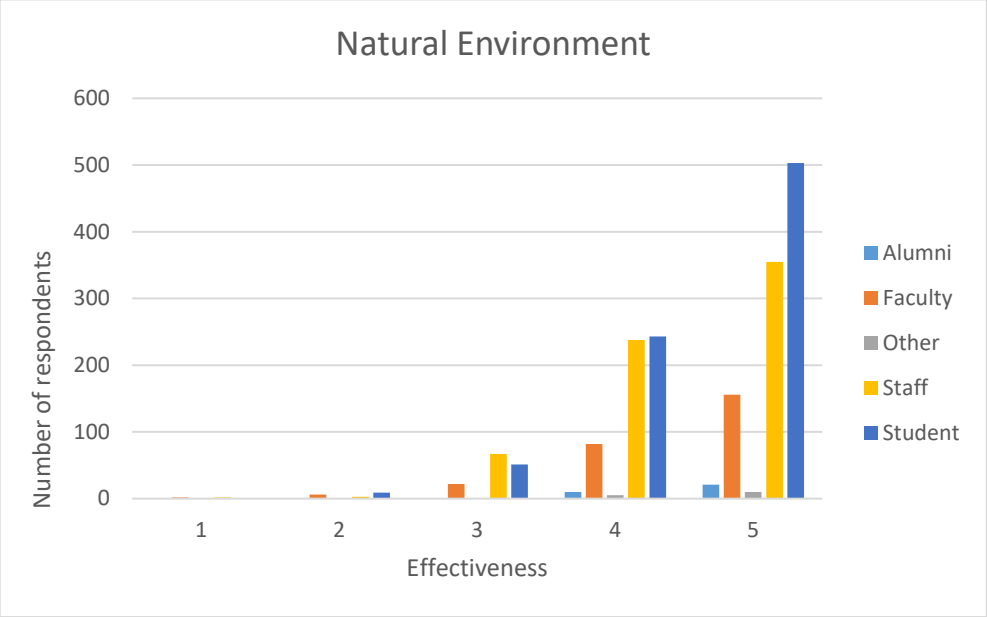
Question 6: The Dalhousie Office of Sustainability works on a number of initiatives. Please rate the following based on how important they are to you:



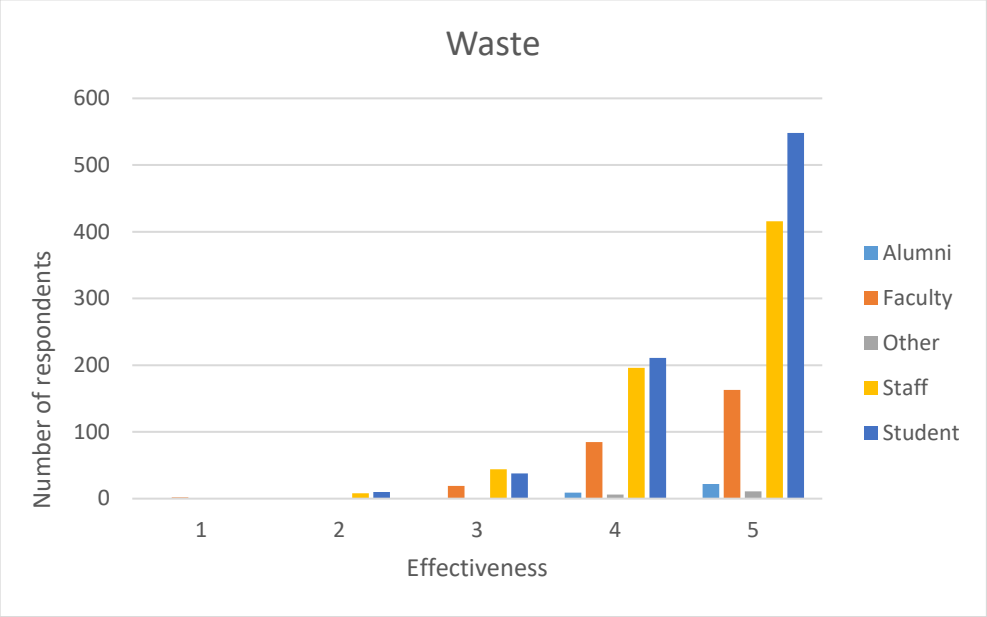
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1	1	2		13	6	22
2		12	1	21	27	61
3	2	33	2	74	64	175
4	8	80	3	206	264	561
5	20	142	11	349	446	968
Grand Total	**31**	**269**	**17**	**663**	**807**	**1787**



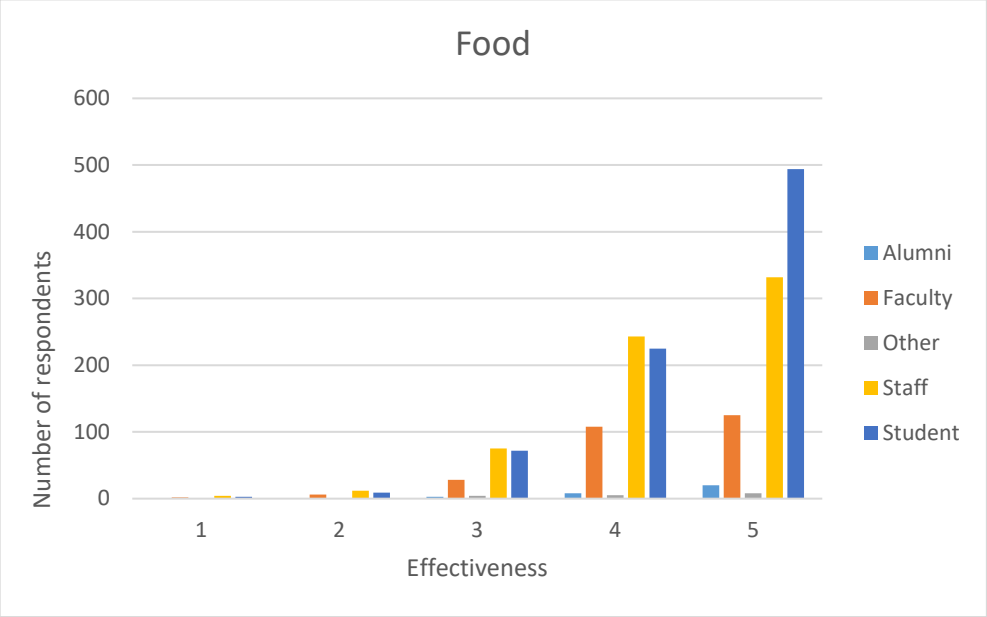
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		2		4	1	7
2	1	5		10	22	38
3	2	29	1	94	137	263
4	13	107	9	317	319	765
5	15	124	7	239	327	712
Grand Total	**31**	**267**	**17**	**664**	**806**	**1785**



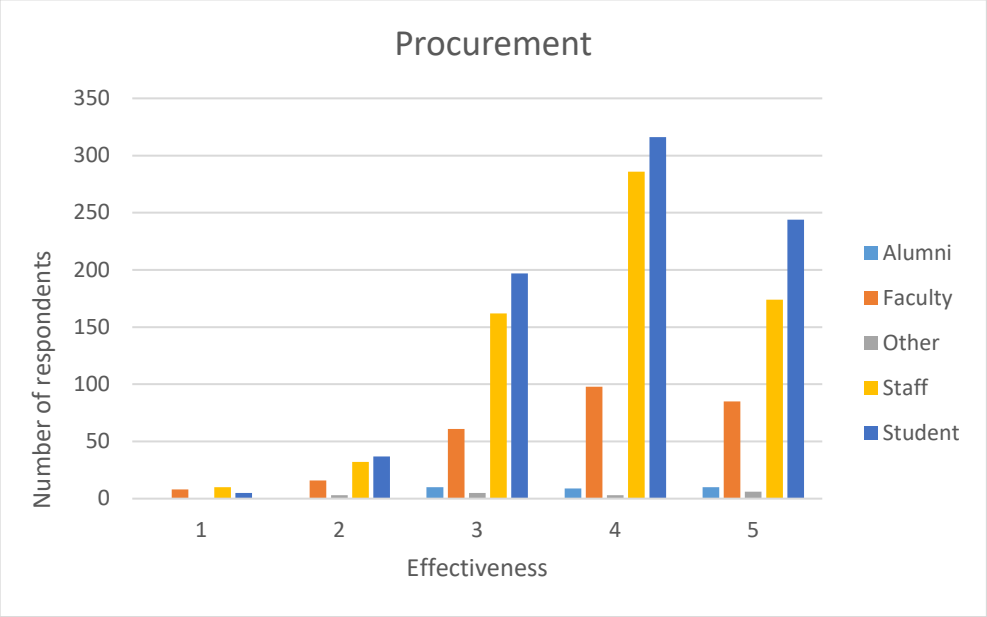
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		2		2	1	5
2		6	1	3	9	19
3		22	1	67	51	141
4	10	82	5	238	243	578
5	21	156	10	355	503	1045
Grand Total	**31**	**268**	**17**	**665**	**807**	**1788**



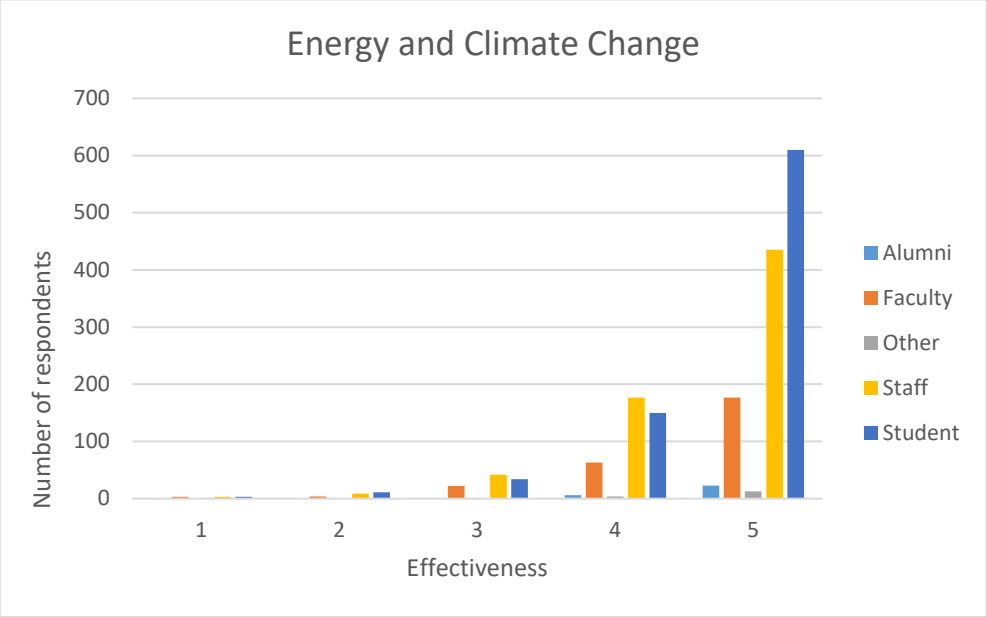
Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		2		1	1	4
2				8	10	18
3		19		44	38	101
4	9	85	6	196	211	507
5	22	163	11	416	548	1160
Grand Total	**31**	**269**	**17**	**665**	**808**	**1790**



Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		2		4	3	9
2		6		12	9	27
3	3	28	4	75	72	182
4	8	108	5	243	225	589
5	20	125	8	332	494	979
Grand Total	**31**	**269**	**17**	**666**	**803**	**1786**



Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		8		10	5	23
2		16	3	32	37	88
3	10	61	5	162	197	435
4	9	98	3	286	316	712
5	10	85	6	174	244	519
Grand Total	**29**	**268**	**17**	**664**	**799**	**1777**



Count of Number	Column Labels					
Row Labels	**Alumni**	**Faculty**	**Other**	**Staff**	**Student**	**Grand Total**
1		3		3	3	9
2	1	4		9	11	25
3	1	22		42	34	99
4	6	63	4	177	150	400
5	23	177	13	435	610	1258
Grand Total	**31**	**269**	**17**	**666**	**808**	**1791**

2020 Dalhousie Sustainability Survey qualitative findings for the University Strategic Planning Process

Prepared by Brianna Maxwell

Mar 20th 2020

Context

The Office of Sustainability included six questions in their Annual Sustainability and Commuter survey in January and February 2020 to explore sustainability and environment themes in Dalhousie's curriculum, operations and research as part of the University Strategic Planning Process. Participants included students (811), staff (670), faculty (269), alumni (31) and those who identified as "Other" (31). The following document is the amalgamated qualitative findings from the freeform survey questions, broken down by question and participant group. The ASSHE STARS categories (academics, engagement, operations, planning and administration, innovation and leadership) were used as broad themes to organize the data.

Tables: unless otherwise noted, the contents in the tables are phenomenon that the respondents would like to see more of. When no value ranking was provided (i.e. 1-5) or stated (e.g. very important), content was assumed to be important (3).

Question 3. As part of Dalhousie's new strategic planning process, the theme of Dalhousie's engagement with Sustainability and Environmental responsibility is being explored. How important is it that Dalhousie is a world leader in sustainability: (5-very important, 4-somewhat important, 3-important, 2-slightly important, 1-not important).

Other (please add rating of 1-5 in terms of importance after your response)

1. Students (52): students want more action from Dalhousie via daily sustainability actions (e.g. waste reduction) and long-term changes (e.g. divestment from fossil fuels and investments in renewable energies)

Areas	5	4	3	2	1
Academics	Sustainability content in curriculum		Student sustainability internships and coops		
Engagement	Information on sustainability for students; improve student life through sustainability initiatives (e.g. bike rentals, UPass); public engagement in issues	University networking programs			
Operations	Green standards for vendors; restrictions on food packaging; less paper use; on-campus food services; reduce food waste	Adaptive reuse of buildings			
Planning and administration	Divestment; investment in green energies				
Innovation and leadership	Divestment				

2. Staff (40): staff are less interested in Dalhousie being a leader, and more interested in Dalhousie addressing ongoing issues in their work environments

Areas	5	4	3	2	1
Academics					
Engagement		Encourage shifts in personal lifestyles	Work with Province of NS to address sustainability issues		
Operations	Remove single use options (e.g. beverages and wipes); reduce food waste; fix ongoing building issues (i.e. Mona Campbell)		Transportation; accessibility		

Planning and administration	Divestment				
Innovation and leadership	Lead by example; divestment; investment in sustainability initiatives; address social sustainability				

3. Faculty (22): similar to Dalhousie staff, faculty members are interested in tangible actions on sustainability rather than necessarily being a leader.

Areas	5	4	3	2	1
Academics	Further education on sustainability; invest in research to find more sustainable alternatives				
Engagement	Incentives for active transportation to and from Dalhousie and between campuses				
Operations	Sustainable food services on campus; ban plastic beverage containers on campus; waste management; reduce unnecessary vehicle use by facilities management				
Planning and administration	Revise Dalhousie administrative structure to make it less top-down and more collective and effective; divestment				
Innovation and leadership	Integrate sustainability into organizational culture; "actions speak louder than words" (respondent 8421044); divestment; investment in renewable energy generation				Being a world leader is not important because it is an impossible goal

4. Alumni (3): increase student internship opportunities for all, increase opportunities for multi-model mobility, and support students through housing
5. Other (2): instead of aspiring for world leadership, Dalhousie should strive to be outstanding in all categories.

Question 4. Early feedback from the strategic planning process suggest that Dalhousie's sustainability related efforts across programs, research, and operations could improve with coordinated communications and integration efforts.

Please rate the following strategies in terms of their ability to improve communications and integration of sustainability activities (5-very effective, 4-somewhat effective, 3-neutral, 2-not very effective, 1-not effective).

Other (please add rating of 1-5 in terms of importance after your response)

1. Students (33): students seem more interested in tangible results and education than necessarily how the information is communicated.

Areas	5	4	3	2	1
Academics	Sustainability courses for all students; integrate sustainability into first year content (e.g. Orientation week and Dalhousie tours)				
Engagement	Community engagement initiatives and spaces to discuss sustainability across disciplines		Facebook; teleconference technologies		
Operations	Plant based meal options and retrofitting existing buildings	Bike racks; indoor plants	Space for sustainability initiatives		
Planning and administration					
Innovation and leadership	Action on sustainability; mitigate carbon emissions				

2. Staff (33): staff had many ideas for how to communicate content more effectively, though some respondents still discussed other issues related to programs, research and operations

Areas	5	4	3	2	1
Academics					
Engagement	Training for team leaders (e.g. deans, department heads) to demonstrate and implement sustainability practices	Short quizzes per office on how to make sustainability improvements	Establish comprehensive sustainability web portal*; use on campus screens to show tips on individual action; use existing communication channels for sustainability information; have more sustainability oriented events for students; make sustainability information more accessible; engage people with specific expertise in designing these communication methods; use Instagram		
Operations	Using existing materials and buildings better through updating and reuse; better integrated recycling options within offices		Bring together sustainability related offices and programs into one space instead of creating a new institute, and campus wide EV charging		
Planning and administration			Review daily business practices to identify sustainability improvements		
Innovation and leadership	Integrate sustainability lens into all university activities and communications; focus more on social justice		Actions speak louder than words; work with outside organizations on solutions; integrate sustainability into Dalhousie culture and regularly share knowledge (e.g. like safety check ins at meetings)		

*Original comment: "comprehensive sustainability web portal containing course information, research connections, student links and operations details. Stories in Dalhousie News. A new branded campus sustainability fund and program supporting on-campus and community projects. A new structure (e.g. Institute) that better coordinates and integrates sustainability and environmental activities at Dalhousie. A new structure (e.g. Institute) that better coordinates and integrates sustainability and environmental activities at Dalhousie" (respondent 8420611)

3. Faculty (23): faculty members were not in support of bureaucracy and instead supported more day to day improvements (e.g. website accessibility)

Areas	5	4	3	2	1
Academics		Collaboration between departments through direct interaction (not just social media)	Limit bureaucracy in education		
Engagement	Make it easier to navigate and access information on Dalhousie websites or a web portal will not work very well				
Operations	Reuse and retrofit existing buildings				
Planning and administration	Restructure existing communications system to create a new structure				
Innovation and leadership	"you can't force sustainability with more bureaucracy" (8420680); greater collaboration with government; greater honesty is needed	Direct substantive action on sustainability is needed			

4. Alumni (3): follow the lead of the EAC in publicly sharing sustainability efforts through information shared in buildings (e.g. energy saved); engage with programs, research and operations practitioners to build the strategy; use the existing research and knowledge compiled by students, staff and faculty (e.g. Campus as Living Lab projects) to take action now.
5. Other (0)

Question 5. How should social dimensions (environmental justice, equity, diversity) be more effectively incorporated into the sustainability agenda?

Summary: while there was consistent support from most staff, students, faculty, alumni and others for discussing social justice issues in relation to sustainability, each group had respondents (17%- 32%) who either did not understand the question or did not agree with linking these topics together. Overall, most respondents supported further awareness and education on social dimensions of sustainability, and engagement with the communities most effected by these issues. Linking social justice and sustainability and incorporating them into the way Dal Dalhousie operates were consistent themes, as was the need for action.

1. Students (414): most students (83%) were in support of increased focus on social dimensions, while others (17%) were unclear on what this would entail or why this should be done. Frequently, students said they did not have the knowledge to address this question or did not understand what was being asked (66). A handful of students (5) said they either did not believe social dimensions play a role in sustainability or that Dalhousie is already doing enough in this area. Most respondents however recognized the value of including social dimensions in the sustainability agenda and highlighted the importance of including a variety of people in sustainability discussions.

a. Academics: Many students suggested incorporating diverse social justice and sustainability content into required coursework across the university and to connect it to the course content. Students generally want more educational opportunities for themselves, faculty and staff (e.g. "The subject should be required for as many student as possible... so that the future workers and leaders keep sustainability in mind" respondent 8424752) . More research, scholarship and internship opportunities were also highlighted as opportunities. Students called for greater diversity in teaching staff and for different perspectives on (and solutions too) sustainability to be represented in the curriculum
b. Engagement: Students highlighted the need for increased awareness and engagement of these issues for all people. Indigenous peoples were frequently discussed as key knowledge holders in the realm, while African Nova Scotians, other people of colour, LGBTQ+ individuals and international students were mentioned significantly less frequently. Students frequently commented on the need for consultation and engagement prior to (not after) starting projects. Students are interested in having more social focused events with the broader Halifax community to share knowledge within and beyond the Dal's borders. Students are also interested in learning more about how people from all walks of life can reduce their impact on the environment
c. Operations: Students called for the incorporation of these social dimensions in strategic planning process so that social dimensions are considered in the project plans and budgets and the appropriate communities are consulted prior to starting work. Students are also interested in having more affordable and accessible sustainability options on campus for all (e.g. vegan meals available on each campus).
d. Planning and administration: Students called for transparency, accountability and inclusiveness in social and environmental planning and action at the university level. Students consistently recognized the value of including diverse people in university staff and faculty, and in decision making processes. Students also recognized the importance of compensating individuals fairly for their time and knowledge. Students want change to happen quickly and some students recommended that each department and or faculty should create clear yearly social and environmental goals so track progress over time. Students also mentioned that accessing university education can be difficult due to social dimensions and one individual suggested increasing funding supports (e.g. scholarships, bursaries) for students from diverse backgrounds.
e. Innovation and leadership: Students consistently recognized the need for social dimensions (such as equity, inclusion and environmental justice) in sustainability and they are looking to Dalhousie to make those a funded and actionable priority. Students are looking for internal change which has external impacts (e.g. Dalhousie facilitating community wide conversations on environmental racism and working with communities to address those impacts). As one student put it, "Environmental justice and equity should be a main goal because without it we cannot truly achieve sustainability" (respondent 8428955).

2. Staff (258): Within the staff responses, there was a large divide between those who recognized the value of including social dimensions in environmental conversations (~68%) and those who either did not understand the question, did not see how it related to sustainability or did not think social dimensions should be a focus (~32%). The ten respondents who did not support this content appeared to have a limited understanding of why social dimensions were important in sustainability and in some cases they were concerned that focusing on social dimensions of sustainability would distract from more pressing sustainability matters (i.e. climate change). However, the majority of respondents

consistently recognized that social aspects of sustainability are essential to sustainability and should always be included in discussions.

a. Academics: staff highlighted the need for greater education amongst staff, students and faculty on equity, diversity and inclusion (EDI), and EDI and the sustainability, with mixed recommendations on how that could be achieved. Generally, there was agreement that this content should be incorporated into the academic curriculum through a) more courses in these areas or b) integration of this content throughout the curriculum across faculties. Further research in this area using methods related to EDI (e.g. GBA+ analysis, Indigenous methodologies) was also highlighted as a need.
b. Engagement: engaging with and learning from marginalized and racialized communities was the most frequently discussed recommendation with 91 staff members explicitly discussing its importance. Storytelling, news articles, forums, cross-discipline collaboration, workshops and conferences were all recommended for sharing knowledge between, and engaging with, diverse groups of people within and outside of Dalhousie on these topics. The importance of engaging with existing faculties (e.g. Elders in Residence Program, Black Faculty and Staff Caucus), those with lived experiences of racial inequality (e.g. Indigenous people, POC) and those who are often underrepresented in discussions was also highlighted.
c. Operations: most staff comments related to operations were focused on sustainability actions (e.g. reducing paper use, building repair and maintenance, food and waste, divestment) which did not connect explicitly to social justice, though many of these topics can be connected to social issues.
d. Planning and administration: transparency in process, purpose and outcome is key to these discussions, as is incorporating diverse perspectives into projects from the beginning. A few staff members recommended using "existing social inclusion frameworks from other university programs as a guide to ensure investments and sustainability planning includes, and aims to support, diverse social groups in an equitable manner" (8425993). Support for equitable hiring and procurement practices was expressed, as was the need to incorporate social dimensions into procurement processes and Dalhousie's Strategic Plan. Multiple respondents said that Dal's sustainability agenda should be integrated with other initiatives (e.g. EDI, public health) so that programs fit together and can be accomplished in unison. Some staff members also called for a review of Dal's strategic plans through an environmental and social justice lens.
e. Innovation and leadership: staff highlighted the need for action on sustainability now while ensuring equality and fairness throughout the process. Multiple staff members also recognized that not all people can access sustainable products, services or opportunities (e.g. food packaging, unpaid internship opportunities) due socio-economic status which adds an additional layer of complexity to sustainability.

3. Faculty (136): while the majority (75%) of faculty members were in general support of integrating social dimensions into sustainability, a quarter of respondents (25%) either did not understand the question, did not find this issue important or were unclear on how social justice related to sustainability. Amongst these respondents, there was concern that adding social aspects to sustainability would stall or over-complicate sustainability discussions. In contrast, the majority of faculty respondents recognized the importance of, and connections between, social dimensions and sustainability.
    a. Academics: faculty members expressed interest in having sustainability and social justice content (e.g. related to social determinants of health, environmental racism) for all students in all programs. The need for further interdisciplinary networking and collaboration was expressed, and faculty members recommended drawing on the scholarship of Dalhousie experts to find further answers to this question.
    b. Engagement: to understand the unique needs of equity seeking groups, faculty members strongly recommended engaging with diverse groups of people through public events and social media. Given the complexity of both social and environmental issues, faculty members strongly recommended having clear agendas and actionable goals for each. Working with community groups and prominent local social justice figures on these goals was also recommended.
    c. Operations: accessibility in Dal's built environment was frequently discussed as an important aspect of social and environmental sustainability on campus. Other operations comments included: transportation, green investments (e.g. ESG investing), and divestment.
    d. Planning and administration: faculty members recognized that for social dimensions of sustainability to be addressed and actionized, they need to be incorporated into policy and program decisions (e.g. the sustainability agenda), and there needs to be supports to help faculty members make these decisions (e.g. SGBA+ analysis). Employee hiring and training processes were also highlighted as areas for considering social dimensions and sustainability.
    e. Innovation and leadership: Similar to staff respondents, many faculty respondents also recognized that environmental and sustainability issues do not affect everyone equally (e.g. lack of transportation options for those who can not afford to live on the Halifax peninsula) and that meaningful action on these issues is needed.
4. Alumni (16): respondents generally (75%) supported further exploration of social dimensions of sustainability, with four respondents (25%) unsure what this question was asking.
    a. Academics: recommendations included increasing or strengthening the social sustainability content of current courses, adding additional courses in other faculties (e.g. business, healthcare), and having students critically engage with and reflect on Dal's colonial legacy.
    b. Engagement: alumni supported further education and engagement on these topics, particularly with individuals and communities most effected (e.g. Indigenous and African Nova Scotian communities).
    c. Operations: NA
    d. Planning and administration: alumni recommended hiring more multicultural staff with backgrounds related to sustainability and incorporating social sustainability considerations across Dal's initiatives intentionally and from the outset
    e. Innovation and leadership: NA
5. Other (14): here again, most respondents (79%) were in support, while a handful of respondents (21%) were unclear on the question or value of adding multiple dimensions to sustainability conversations.
    a. Academics: NA

b. Engagement: respondents expressed a desire for Dalhousie to create a more diverse and equitable community which can engage in serious social and environmental discussions (e.g. structural inequalities, environmental racism).
c. Operations: NA
d. Planning and administration: respondents consistently recognized that social justice and sustainability should be incorporated into everything Dalhousie does.
e. Innovation and leadership: consideration of social dimensions was recognized as crucial for achieving sustainability.

Question 6. The Dalhousie Office of Sustainability works on a number of initiatives. Please rate the following based on how important they are to you:

Any other comments:

1. Student (35)

Areas	5	4	3	2	1
Academics		Research into transitional technologies (e.g. converting gas to electric vehicles)			
Engagement	Activities and events on campus (particularly on energy and environment)*				
Operations	Accessibility; waste and sorting (especially food and water waste); active transportation options and network on campus (e.g. more bike lanes); solar energy	Reduce plastic use on campus			
Planning and administration					
Innovation and leadership	Racial equity and environmental justice				

* "In addition to larger initiatives, I would be happy to see smaller-scale initiatives around campus, e.g. having the tree-planting search engine, Ecosia, as a default browser on campus computers, or having sustainability-related events and activities that students can regularly participate in" (respondent # 8422976)

2. Staff (35)

Areas	5	4	3	2	1
Academics					
Engagement		Address sustainability through social science	Increase awareness of road rules for cyclists		

Operations	Need training on waste management procedures for researchers with hazardous waste and for those who clean those spaces; need for proper waste containers in all labs and facilities; stop cutting the grass as frequently; implement local bulk ordering and supply sharing across university departments to reduce waste; add more water fountains (i.e. the Rowe has 1); reduce food waste on campus	Stop people (particularly faculties management) from parking in bike lanes; add more carbon sequestration on campus (e.g. green roofs, living walls)	Address food waste on campus; conduct business and policy reviews for each faculty; retrofitting existing buildings; introduce bike sharing between campuses		
Planning and administration	"Divestment from fossil fuel and extraction industry, INCLUDING Emera" (8422386)				
Innovation and leadership	Address ongoing transportation and parking issues at Dalhousie so people outside of walking distance can have an easier commute*; increase transportation options (including carpooling outside of Dalhousie employees); stop raising parking rates for those with medical conditions; address socio-economic barriers to sustainability**; focus on local problems and solutions manifestations of global issues (e.g. affordable housing, GHG emissions)		Emissions from internet should be included.		

*Living close to Dalhousie is not feasible for all staff, students and faculty. One respondent suggested working closely with HRM transit to develop a rapid bus route to and from Dal

** "I am disheartened to see that social dimensions are wholly neglected in the above list. This is an institute of higher learning, and we should hold the university to a higher standard of multidisciplinary analysis. What are socio-economic barriers to sustainability? What are social attitudes toward sustainability?" (Respondent 8426029)

3. Faculty (20)

Areas	5	4	3	2	1
Academics					
Engagement			Highlight the work of Dalhousie researchers (e.g. solar panels, EV batteries)		
Operations	Prioritize health of Dalhousie users (e.g. personal space, clean facilities, noise pollution; Integrate sustainability into university) operations- not just the Office of Sustainability; have Dalhousie facilities		Reduce waste overall (e.g. food, water, electricity); make Dalhousie more bicycle friendly (e.g. cover parking); increase vegan and		

	management and security use EV or hybrids		vegetarian option on campus and include labels; include EV chargers at Truro campus		
Planning and administration					
Innovation and leadership	Transportation and parking options for all users; leadership; work with HRM to connect transportation networks (i.e. bike lanes) and make it easier to get to campus from out of town; address the needs of Truro campus;				

4. Alumni (1): sustainability conversations must give students hope and options for change. Dalhousie can take action on global issues (e.g. climate change, pollution) and create real change which the students need to see to avoid despair.
5. Other (2): net zero emissions are crucial now and further research on how university groups are working together is important.

Respondent comments about the survey

- Dalhousie should aim to develop surveys which do not have leading questions like #3 and #5, and which provide more background content, so respondents do not grossly misinterpret questions (e.g. # 3, #5)
- Some participants were not able to skip text questions
- "The abbreviation for example is e.g. not e.g. It is an abbreviation for the Latin phrase exempli gratia. I mention this every time your office does a survey" (Staff respondent 8421384)
- In question 4 'new structure' was interpreted by many to mean a new building while our team meant it to refer to bringing together existing sustainability programs. This language caused different interpretations of what the question was asking and therefore there is a greater variety of responses.

DALHOUSIE UNIVERSITY

Sustainability and Environmental Responsibility Self-Study Team
Facilities Management Focus Group Session

Date: February 3, 2020
Place: Central Services Building – Room 511

Comments provided by Facilities Management Staff related to the following statement:

Dalhousie's teaching, research, and operations are known locally and globally for making positive change on Sustainability and Environmental Responsibility issues.

What Rings True about this statement today?

- Investing money
- $150k/yr towards energy efficiency projects
- MOU with EfficiencyNS and Johnson Controls for efficiency
- Recycling Program – and source separation
- Grassroots initiatives
- Awards for recognition
- Procurement program for reuse of surplus materials
- LEED Buildings
- Office of Sustainability
- Research – water conservation
- There is a culture of sustainability at FM.

In what ways are we currently not meeting this statement?

- Waste Management – substantial contamination issue. 1 FTE source separator landscaper. There is no funding for this position.
- After students leave residence, refrigerators are left everywhere for FM to manage. The refrigerators must be trucked to FCM in Elmsdale.
- Perception of our waste management is good – reality is quite poor.
- We generate 12 tonnes per week of garbage

What could we be doing in the next decade to fully realize this statement?

- Food company contracts should require that waste is sorted properly. Consider an environmental stewardship contract type.
- Consider dedicated budget funding for an end-of-Dal stream waste separator position.
- Consider high efficiency appliances are requirement for residences.

- Constant education on waste management process. So much turnover at Dal is must be constant. Try to help people understand what their decisions mean. If I leave this refriderator here, FM will need to pick it up and travel to Elmsdale for disposal, for instance.
- Information – who to change what you've always known. People come to Dal from so many different places – how do we change to a common positive behavior? Consider stories about what's been done.
- Electrical emergency generator usage – perhaps we don't need everything running with generators during power outage. Reduced load to lessen fuel usage.

How should social dimensions (environmental justice, equity, diversity) be more effectively incorporated into the sustainability agenda?

- Accessibility
-

What does progress look like?

- FM as leadership role in sustainability. Academic links to operations. For example, Faculty of Engineering tours of the AC Biomass plant. These requests don't happen but they certainly would be welcomed. How do we integrate operations with academics more regularly?
- FM can offer tours
- Time requirement of waste sorter goes done on waste sorting and up on landscaping
- FM ready to help others.

Session facilitated by:
Nathan Rogers
Assistant Director, Capital Planning
Facilities Management
Dalhousie University
902-494-4324
Nathan.Rogers@dal.ca

APPENDIX D. EQUITY, DIVERSITY AND INCLUSION AND SUSTAINABILITY SCAN

Integrating Social Justice and Sustainability Practices in Higher Education

Dalhousie Office of Sustainability

Sophie J. Boardman

March 26, 2020

Table of Contents

1 Introduction

1.1 The Institution

Dalhousie University is a public University founded in 1818 in Halifax, Nova Scotia (Dalhousie University, 2020). Additional amalgamations with the Technical University of Nova Scotia (TUNS) in 1997 and the Nova Scotia Agricultural College (NSAC) in Truro in 2012 (now the Faculty of Agriculture) has made Dalhousie an organization leading change in the province (Dalhousie University, 2020b). In 2008 the Dalhousie Office of Sustainability (DOS), along with the College of Sustainability (CoS) and Dalhousie Student Union Sustainability Office (DSUSO) joined together to create the Presidential Advisory Committee (PAC) to address the need for collective action on all fronts at the university to address long-term sustainability (Dalhousie Office of Sustainability (DOS), 2017).

1.2 Dalhousie University Strategic Planning Process

In the Fall of 2019, Dalhousie entered into a new phase of its strategic planning process (Reeder, 2019). As part of this new phase, eight self-study topics to be led by different teams were identified for further research (Reeder, 2019). These eight topics are research future, culture and climate, campus health and well-being, future of teaching and learning, student experience and success, sustainability and environmental responsibility, internationalization and global engagement, and Dal purpose and social responsibility (Reeder, 2019). Over the next year eight teams will lead in-depth research to create recommendations for the President and Dalhousie community to consider moving forward (Reeder, 2019).

1.3 Social Equity within Sustainability

A formal definition of sustainability that many places of higher education use is from the 1987 Brundtland Commission of the United Nations and is defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Hooey, Mason, & Triplett, 2017, p. 280-1). To be truly sustainable, economic, social and environmental needs must be integrated properly (Hooey et al., 2017). Many universities have been working towards environmental sustainability more easily than social sustainability policies and practices (Hooey et al., 2017). This is due to the fact that environmental indicators, such as energy use, emissions, waste, and transportation, are easier to measure than social indicators (Hooey et al., 2017).

1.4 Research Scope

This research is part of the larger university wide strategic planning process and is specifically part of the environmental responsibility and sustainability stream. This research is focused around the following question, "How should social dimensions (environmental justice, equity, diversity) be more effectively incorporated into the sustainability agenda (DOS, 2019)?" The focus will be on researching how Dalhousie can incorporate social justice dimensions (environmental justice, equity, diversity) into operations and operational policies at the university. This will be done by researching best practices of operations and recommendations for Dalhousie. To do this, a literature review and semi-structured interviews were conducted.

2 Methods

2.1 Methodology

Two separate methods were conducted to gather and research equity and diversity in sustainability operations at Dalhousie University. The two methods employed were a literature review and interviews.

2.1.1 Literature Review

A literature review was conducted to research what is currently being done to address social equity within sustainability at other universities in Canada and the US. The Association for the Advancement of Sustainability in Higher Education (AASHE) was used initially to scope out projects and institutions implementing notable sustainability related programing and operations. Further research into academic peer-reviewed journals and a smaller reliance on grey literature was conducted to examine operations, polices, and programs that have been successful at other universities and colleges.

2.1.2 Interviews

Semi-structured interviews were conducted with notable persons of varying offices who engage with diversity and equity on campus. At the beginning of the interview, an explanation of the research was provided to each interviewee and the overall strategic planning process Dalhousie is currently undertaking. If interviewees had any questions they were also answered. As well, the anonymity of each interviewee's identity was made clear. Interviews followed the general guidance from focus group sessions which were conducted by other DOS staff. A statement about

Dalhousie's sustainability efforts was then read and says, Dalhousie graduates, research, and operations are known locally, regionally and globally for making substantial positive change on Sustainability and Environmental Responsibility issues. Following this statement, Interviewees were asked follow up questions about the statement and other questions around sustainability efforts. These questions were,

1. What rings true about this statement today?
2. In what ways are we currently not meeting this statement?
3. What could we be doing in the next decade to fully realize this statement?
4. How should social dimensions (environmental justice, equity, diversity) be more effectively incorporated into the sustainability agenda?
5. What does progress look like?

Clarifying other questions were asked depending on the answers given by interviewees to the main questions. Interviews were on average 30 minutes long but were longer in cases where interviewees talked extensively about certain topics. Interviews were conducted to gain a better understanding of what current initiatives are being done on campus. They were also conducted to see possible challenges and opportunities these people foresee to implementing increased diversity and equity policy on campus.

2.2 Analysis

The literature review and interviews were both compared for similar themes. Literature was analyzed on operations, polices, and programs that have been successful at other universities and colleges. A closer look was taken at the strengths and weaknesses of these programs, as well as further opportunities and challenges moving forward. The interviews and literature were examined to create recommendations of policies or programs in which Dalhousie could engage with to enhance and incorporate diversity and equity in sustainability efforts.

2.3 Limitations

This research was limited by a few factors. Due to the nature of this research being done as an internship, there is a considerable time limit on what can be achieved weekly over the course of a single semester. With such a large scope, the breadth of the research will be limited by the

time constraint. There was also a limit in the number of interviews which could take place due to time constraints and capacity throughout the University.

3 Results

Several key themes have emerged from the literature review and interviews.

3.1 Transparency

When interviewees were asked about how Dalhousie is currently not meeting its sustainability and environmental goals, reporting and providing access to how well Dalhousie is doing was brought up many times. This was also found in the literature as many places of higher education are often not pressured to openly report or report and share as often as they should (Blackburn, 2016). The current trend in higher education is that sustainability reporting has not been seen as a priority (Blackburn, 2016). This has largely been due to the little pressure universities have for reporting sustainability efforts (Blackburn, 2016). There has been some effort for reporting, usually in the form of short reports, extensive reports, Sustainability Tracking, Assessment & Rating System (STARS), and Global Reporting Initiative (GRI) guided reports (Blackburn, 2016). Dalhousie does participate in STARS and most recently received a Gold rating, but this is largely unknown outside of a specialized audience. Additionally, there was concern that this tool does not evaluate social progress correctly and that a more robust measure or tool is needed beyond STARS. For example, a way to measure social behavior changes beyond a reduction of greenhouse gas (GHG) emissions. Association for the Advancement of Sustainability in Higher Education (AASHE) has heard this criticism and has been working on better ways to measure social indicators.

There were further criticisms about not being clear enough about failing to meet goals and needing to be more vulnerable. There has not been enough pressure for clear reporting, but many places most likely do not because of funding pressures and other revenues where schools can receive money (Blackburn, 2016). While the Dalhousie Office of Sustainability (DOS) has reports available to the public, these are not very accessible for the campus at large. Most people on campus are unaware of where the Dalhousie is at on current climate goals. It is also unclear if the climate plan endorsed at all levels of the university and/or if it is part of the strategic plan. One interviewee stressed the importance of recognizing the climate plan and the societal backlashes.

The interviewee said it should be formally recognized throughout the university before we get to a real climate emergency and there is civil unrest and actual food shortages. Further, DOS reporting generally leaves out equity and diversity in their overall goals and is largely separate. Some schools have joint statements about equity and diversity within sustainability or vice versa. For example, the University of Minnesota Institute on the Environment integrates their equity and diversity office throughout their website providing easy access (University of Minnesota (UMN), 2016). They also provide explicit access to how equity and diversity is integrated into their strategic plan (UMN, 2016). In the UMN Institute on the Environment (2018) Strategic Plan 2019-2022, their action section has a section talking about equity and diversity which states,

> Inclusion of vulnerable people in projects and programming improves efficacy and enables institute priorities to be set more justly. IonE will enhance diversity, equity and inclusion (DEI) among staff and affiliates through its DEI committee, create criteria for funding support that requires DEI considerations and deploy a special seed grant program for fostering DEI, with the hope and expectation that seeded activities will enliven and engage the broader IonE community over time. (p. 7)

The University of Minnesota Office for Equity and Diversity (2020) also discusses sustainability in their Equity and Diversity Vision Framework connecting the two quite clearly. In the report the connection between sustainability and equity and diversity is made in their values and principles section and states,

> Sustainability: We recognize that a sustainable commitment to excellence requires holistic models of equity and diversity that incorporate the perspectives of myriad identities and cultures on teaching, learning, research, and outreach. We must develop and share best practices, engage in ongoing assessment, and integrate equity and diversity into the University's infrastructure, so that the work is proactive and shared, not compensatory or reactive; so that it is done with conviction, not detachment; and so that the results are systemic and sustainable, not dependent upon an individual person, group, or unit. As Minnesota's population changes, sustainable excellence at the University of Minnesota will depend more and more on a sustainable model for and commitment to equity and diversity. (UMN Office for Equity and Diversity, 2020, p. 6)

It is clear that strong and clear reporting should be a priority (Blackburn, 2016). There is evidence that people on the Dalhousie campus perceive sustainability reporting as non-existent and inaccessible.

3.2 Inclusivity

When interviewees were asked about how the university is not meeting its sustainability and environmental goals, a key theme was the inclusion of underrepresented communities on campus, such as Indigenous students, Black and African Nova Scotians, and international students. These groups need to be contacted more frequently so that their views and thoughts on sustainability may be included on campus. By talking to these communities more, this would also expand the definition of sustainability on campus to what other people or groups on campus perceive it themselves to be. This aligns with an argument by Lu et al. (2018) when they discuss environmental justice in higher education. Lu et al. (2018) argues that the definition of sustainability in education has been reduced and erases the social component of sustainability entirely. They further argue that sustainability is not an outcome, but an ongoing political process and relationship that recognizes sustainability are embedded in historical and cultural specifics which reflect privilege and marginalization (Lu et al., 2018).

When interviewees were asked about how social dimensions, such as environmental justice, equity and diversity, could be incorporated into the sustainability agenda on campus several key themes emerged. One was increased representation by the underrepresented groups on campus. There should be an effort to be more present with these groups and ways they care about sustainability and how they can contribute. By being more present with these groups, both sides can foster a mutually beneficial relationship. By hearing from these groups, their lens increases the scope of sustainability, can provide a new way of seeing something and increasing the diversity of issues on campus. These findings align with (Lu et al., 2018) discussion and definition of what inclusive sustainability means. As Lu et al. (2018) argues that sustainability is an ongoing relationship between groups which aligns with what interviewees expressed.

Another emergent theme was creating more inclusive spaces for these underrepresented groups. When creating these spaces, people may feel more inclined to share their experiences and what sustainability and diversity means to them. Interviewees were unsure of what these spaces could look like but cited the Indigenous Student Centre (ISC) and space for Black students in the

same building as a safe and inclusive environment for these students. An interviewee also thought that an inclusive space could possibly be a safe prayer space for students on campus or areas where smudging could happen respectfully but was unsure the role that DOS would play in creating these inclusive spaces. Other schools have created inclusive spaces through groups or events specific centering the experiences and voices of students of color. For example, the Students of Color Environmental Collective (SCEC) was created to allow the voices of students of color to be the center (Mohan, & Chaudhry, 2019). The SCEC therefore creating a specific space on campus for these students and their work towards sustainability efforts at the University of California Berkeley (Mohan, & Chaudhry, 2019). SCEC also hosted a national conference to host students and educators of color in the environmental field, which was also important in creating a community and giving space to students of color who normally would not have this opportunity (Mohan, & Chaudhry, 2019).

A caution that was brought up by the interviewees was that the lived experiences of these underrepresented groups will not align with other people and when expressed can translate to mean something very different by other people. These findings align with Lu et al. (2018) views on inclusivity. Lu et al. (2018) argues that inclusivity occurs when the diverse socio-cultural approaches and lived experiences of impacted communities are included and given the same level of respect as other views and experts on campus. This works to challenge the built-in structures of power and hierarchies of expertise on campus (Lu et al., 2018).

Further, inclusion is an active choice that you can always be making (Amin & Shi, 2018). Inclusion also means everyone openly accepting diversity along with the accepting of people's different world views. Inclusion also extends to the treatment of all other minority groups being thought of as cohesive, since an Indigenous student would have different experiences than an African Nova Scotian.

3.3 Structure and Employment

In order for a university to be truly sustainable, this must happen at all levels of the university including campus operations, research, curricula, administration and planning, student activities, and community engagement (Blackburn, 2016). Blackburn (2016) identified structure and deployment and personnel selection, development and motivation as two key areas of best practices of sustainability operation system (SOS) practices at universities. For a school to be able

to achieve its sustainability objectives and goals, structure is key to help focus and facilitate these objectives at all levels (Blackburn, 2016). Within this structure, it is also important to have the right people to effectively accomplish sustainability objectives at the school (Blackburn, 2016). Diversity and inclusion within university structure is (Blackburn, 2016). As discussed above, increased inclusion expands a school's scope of what sustainability means when all viewpoints are incorporated (Lu et al., 2018). Similarity, diversity across campus also means gender, race, religion, ethnicity, age, sexual orientation and physical ability (Blackburn, 2016). Diversity is also a catalyst for innovation and multifaceted thinking which is what sustainability solutions call for essentially (Blackburn, 2016). Diversity-oriented and nondiscriminatory hiring and promotion practices are key to showing respect on campus (Blackburn, 2016).

Due to the way institutions of higher education are structured, Blackburn (2016) argues that there should be teams across all levels to facilitate and manage sustainability operations for differing capacities. While Blackburn (2016) argues that six working teams with specific roles would be the most efficient, depending on structure, needs and capacity in the context of a school more or less would be sufficient. This was brought up by interviewees as well. It was suggested that there might be a possible eco-advisor for each faculty to audit and help at a smaller level to help reduce workload. It was also expressed by interviewees that these efforts should not just be tied to the budgetary reductions and move to social ecological changes and behavior modification.

Additionally, it is the human resource offices responsibility to have the proper introductory workshops on sustainability for incoming faculty, but representatives of the larger group need to be engaged properly for the session to be effective (Blackburn, 2016). Blackburn (2016) also argues that it is under the human resources area of the administrative and planning part of a school to have a policy on diversity in hiring. When hiring faculty, staff and accepting students, the school should hire based on the candidate who is qualified for the position based on education, skills and experiences (Blackburn, 2016). The selection of candidates should also be based on their values and if they align with the school values or values the school wishes to foster (Blackburn, 2016). This also means accepting applicants of different background, embracing new ideas and respecting the environment and teamwork (Blackburn, 2016). One example of this is that the University of Florida set aggressive hiring and retention goals so the school would reflect the current societal racial, ethnic and gender diversity (Blackburn, 2016). Their recommendations were the following,

1. Require all academic and administrative units to develop student recruitment and faculty and staff hiring and retention policies that will bring the University of Florida to a position where its students, faculty, and staff reflect the State of Florida's racial, ethnic, and gender diversity.
2. Increase the levels of gender and equity training of all personnel working at or hired by the University of Florida.
3. Ensure that a minimum of a living wage with good benefits is paid to all University employees.
4. Engage University faculty and staff in decision-making and formalize this process.
5. Increase the level of investment in the training of University employees.
6. Take steps to improve campus climate by increasing the campus' exposure to diverse groups. (p. 10401)

As seen above, the University of Florida's hiring goals cover more than just diversity in a traditional sense (Blackburn, 2016). There was a criticism that Dalhousie needs more diversity in all levels, especially in bodies of high decision-making power. The senate was specifically brought up as needing more diversity with not only white settlers on it.

3.4 Multi-disciplinary Curriculum

An increased interconnected between different curriculum across faculties and programs at Dalhousie was always brought up when asked about how social dimensions could be brought into sustainability. This can be difficult because current administrative structures make it difficult to develop the needed multi-disciplinary approach for curriculum to be effectively developed (Hooey, Mason, & Triplett, 2017). This also often leads to faculty commonly initiating the inclusion of sustainability related concepts into their own curriculum and developing it themselves (Hooey et al., 2017). It is crucial for faculty to initiative this, but faculty should also meet with administration to convince them about the importance of sustainability and why it should be enforced in curriculum (Blackburn, 2016). Additionally, another critic was that because so many people also view sustainability differently, the university is only doing well in environmentally focuses degrees and operations but not in other programs. For example, engineers have little to no access to proper sustainability education and classes. This is because the university is all sitting in separate silos where there is little opportunity for knowledge sharing. Thus, if it was truly interdisciplinary everywhere on campus, including cross-teaching in all sections of campus, then

everyone would be well-versed in sustainability education. Additionally, few schools with strong sustainability commitments require students to take mandatory sustainability training, which is usually a course (Blackburn, 2016).

3.4.1 Integration

There were also further criticisms about the integration between sustainability and social justice dimensions. It was stressed by interviewees that everything needs to be looked through a social justice lens and needs to be integrated properly. There was also the caution that when you choose to look at sustainability in a purely environmental silo it is too selective. In general, literature rarely addressed the connection between the environment and society and how important the connection is. Few schools have also clearly addressed the connection between society and the environment in curriculum and on campus. One example of a school that hast tried to do this is Connecticut College with their social justice and sustainability integrative pathway (Connecticut College, 2020). It diversifies the kinds of classes a student can take and directly addresses the connection between social justice and sustainability (Connecticut College, 2020). The University of Minnesota has an Equity and Diversity Certificate Program available for all students, staff and faculty on campus and is available at two levels (UMN, 2016).

It was expressed by interviewees that there needs to be more cohesion and less of a divide between programs. What many people fail to understand is that sustainability is intersectional, and everything is affected by it (Amin & Shi, 2018). There also needs to be continued communication, workshops and working groups even after the strategic planning is over. Schools should also be providing more opportunities to meet and have conferences and learn from each other. There should also be allocated funds to support students, faculty, staff, and programs to integrate social justice and sustainability intersectionality's into all levels.

3.5 Ethical Purchasing

Another theme that was brought up in literature and interviews numerous times were ethical purchasing and investing by the school. Many people on campus felt like Dalhousie is officially greenwashing in certain ways since most of the university is still funded by fossil fuel companies and we are still investing in them. There was also questions of the research at Dalhousie being truly sustainability sound or capitalistic in nature because oil companies still fund research. Additionally, there is a history of Suncor and Shell funding research and giving scholarships to

Indigenous students. There were questions surrounding how that really is just and not really promoting a just transition off fossil fuels. These complexities and contradictions all send a message of false sustainability. When the university is still bought into the oil industry, but yet advertising how advanced we are in our sustainability efforts we are the true hypocrites.

Blackburn (2016) also notes how uncommon "green purchasing" (p. 5) and responsible investment policy and plans are at schools. Moving towards a socially just ethical purchasing program at all levels at the university requires different strategies for various levels. In general, you should divest from companies who do not share the same values (Kalscheur, Wellman, & Schneider, 2016). Instead, schools should be investing and buying from companies who share the same values as your school (Nealis & Redpath, 2019). For example, that could mean buying fair trade products, which support farmers rights and well-being and products are more equitable (Nealis & Redpath, 2019).

Dalhousie has some initiatives at different levels in regard to purchasing. Dalhousie's Procurement Policy outlines code of conducts for procurement, ethical practices, and sustainability considerations (Dalhousie University, 2012). Dalhousie also has a sustainability checklist that employees can use to help guide them in making more sustainability centered purchases (Dalhousie University, 2020a). The checklist may also be used for vendors to provide their own information on how their products or service is sustainability oriented (Dalhousie University, 2020a). Dalhousie is also part of the InterUniversity Services Inc (ISI) cooperative made up of universities and colleges in Atlantic Canada (DOS, 2020). Through this cooperative Dalhousie is able to make purchases guided by sustainability criteria that the ISI incorporates in their purchasing and have ongoing dialogue with the other school's part of ISI (DOS, 2020).

Other schools are leading the way in other areas of ethical purchasing (Blackburn, 2016). A school leading the way in purchasing policy and practices is Rutgers University (Blackburn, 2016). Their Green Purchasing Policy and Guidelines use environmental purchasing program requirements resulting in pressuring outside sourcing and focusing on waste particularly (Blackburn, 2016). Other schools are leading the way in socially responsible investing (SRI) (Blackburn, 2016). For example, Texas A&M university stopped supporting companies and corporations that invest and make money from prisons because of the racial tensions and high rate of black and African American men in prisons (Kalscheur et al., 2016). At Columbia University,

an advisory committee was formed so that school trustees could be advised on SRI (Blackburn, 2016). Yale University, Stanford University and many other schools in the US have also pressured administration to disclose the social and environmental harm that their investments have caused (Blackburn, 2016). Additionally, there has been pressure for schools across the US and Canada to start divesting from fossil fuel companies (Blackburn, 2016). Stanford University Board of Trustees announced its plan to divest $18 billion of direct funds in coal companies in 2014 (Blackburn, 2016). Concordia University also announced their plan to divest from all investments in oil, gas and coal in October of 2019 (Friesen, 2019).

3.5.1 Carbon Offsetting

Another popular method that institutions have been using to reduce their GHG emissions are through carbon offsetting purchasing or projects (Vujic, 2010: French, Pumilio, McGrath, Pasinella, Newcomer, 2015: Dees & Hooper, 2016). Carbon offsetting and purchasing has been used to attain carbon neutrality and becoming increasingly popular with hundreds of institutions in the US part of a network interacting with this system in some way (Woodside & Colbert-Sangree, 2017). Carbon offsets can look like many different projects including, waste to energy, urban forestry, peatland restoration, avoided deforestation, energy efficiency, residential solar, clean cook-stoves, ozone depleting substance destruction projects (Woodside & Colbert-Sangree, 2017). There are also many existing carbon markets that schools can utilize depending on their needs and size (Woodside & Colbert-Sangree, 2017). According to a model created by a third-party source called Second Nature, neutrality must be achieved on campus, through combustion and fuel use, purchased electricity and traveling and commuting (Woodside & Colbert-Sangree, 2017). The basic criteria of carbon offsets follows PAVER: it must be permanent so the reduction must last, must be additional, not have occurred under a business as usual model, verifiable so the action must be able to be verified with data, enforceable since it is counted only once, and real in that the reduction is not due to false accounting (Woodside & Colbert-Sangree, 2017). Second Nature also defines what peer-reviewed, innovative, and traditional offsets are (Woodside & Colbert-Sangree, 2017). Peer reviewed offsets meets all PAVER requirements, uses existing protocol, is verified by peer institutions, and the project review and offset quantification is documented and publicly available (Woodside & Colbert-Sangree, 2017). An innovative offset meets most PAVER requirements, includes transitional document describing how it will meet PAVER in the future, and it is reviewed by other peer institutions (Woodside & Colbert-Sangree,

2017). Traditional offsets are the most robust with stricter requirements with peer reviewed and innovate offsets being less robust and there being more flexible requirements (Woodside & Colbert-Sangree, 2017). Further, innovative and peer reviewed offsets that are developed internally by the school and not gone through the traditional third- party validation and verification are not marketable (Woodside & Colbert-Sangree, 2017).

There have been a number of institutions leading the way in carbon offsetting. One of these schools is Duke University who started a pilot program in 2010 to offset travel carbon emissions through a collaborative carbon program (Vujic, 2010). DukeEngage collaborated with Sustainable Duke and the Duke Carbon Offsets Initiative to offer students and staff the opportunity to offset their travel and be carbon neutral (Vujic, 2010). The Duke Carbon Offsets Initiative (DCOI) was to facilitate and catalyze high quality local and regional carbon offset projects to meet the portion of Duke's GHG reductions that it cannot achieve on-campus (Vujic, 2010). The pilot program was for DukeEngage students traveling abroad in the summer of 2010 over the course of two months (Vujic, 2010). They also created educational opportunities on campus about what going carbon neutral means, what carbon offsetting is and other goals to reduce GHG emissions on campus (Vujic, 2010). The major cost of project in the beginning was internal with the Office of the Executive VP committing 10,000 for around 1000 offsets (Vujic, 2010). It must also be noted that staff time was not included in the cost (Vujic, 2010). In this pilot program, 23 of the 431 DukeEngage pool participated and payed on average $29.69 to offset GHG from travel (Vujic, 2010). The price to offset greenhouse gas emissions from air or car travel was calculated by applying an emissions factor and radiative forcing index to the total miles traveled (Vujic, 2010). Therefore, price was correlated with miles traveled (Vujic, 2010). DukeEngage thought maybe more would participate if the price was reduced (Vujic, 2010). Another example of a schools offsetting program is at the University of Georgia (UGA) Costa Rica (French et al., 2015). Their carbon offsetting programs all directly benefit the landscape and was also created so students could directly participate in each activity as well (French et al., 2015). Their man projects include, reforestation through carbon capture in trees planted, regenerative farming, composting and recycling, wastewater treatment, and a biodigester (French et al., 2015). At Appalachian State University (ASU), they have a number of areas where they are trying to go carbon neutral (Dees & Hooper, 2016). One of these is through their campus renewables Adopt a watt program where they matched with REI and a donor fund to reduce GHG (Dees & Hooper, 2016). Another way is

on campus through behavioral acts such as dietary changes, coffee and tea consumption, home efficiency, and pledges to commute to school (Dees & Hooper, 2016). Another is through third party offsets with different partners and have regional options targeted for study abroad programs traveling (Dees & Hooper, 2016). They also have a number of tree programs, including an ASU tree fund, Australia tree program, conservation easement petitions, and international relationships with bioreserves (Dees & Hooper, 2016). ASU also has onset programs which would have a fund that would have a committee that distributes money towards programs such as fishing line clean ups, sustainability education, and more (Dees & Hooper, 2016).

There are also many challenges for a school to start a number of different offsetting programs. Some challenges to starting an offsetting project is that the project type protocol does not exist, it is too strict or does not apply to your campus settings, the project may be too small to justify the costs of 3rd party verification, and there may be no available software to calculate carbon offsets properly (Woodside & Colbert-Sangree, 2017). Some challenges from urban forestry is a scalability issue since there is administrative complexity there is a relatively high cost of planting trees in the urban landscape depending on the environment (University Sustainability Practices, 2018). Further, many carbon offset programs for large institution, like Arizona State University (ASU), cannot rely solely on a locally-generated offset operation (University Sustainability Practices, 2018). It would be more feasible to move outside the university and partner with third party organizations or other schools (University Sustainability Practices, 2018). ASU also faced issues with the carbon offsetting being a generally new realm for all levels at the institutions, prompting additional permissions and the cities general purchasing policies which required legal aid in certain areas (University Sustainability Practices, 2018). There can also be high costs initially at the start and can be hard to find adequate funding throughout the project (University Sustainability Practices, 2018). There are also specific challenges with on-campus specific carbon offset programs (McNamara, 2017). These usually require more time, effort, and monitoring due to researching carbon accounting and financial markets, to tracking purchases and moving money and monitoring for inflation (McNamara, 2017). Generally, more participation means there is more work (McNamara, 2017). These projects are also usually not verifiable and cannot claim reductions in the carbon market, but this seems like a good tradeoff for some schools since the campus is specifically experiencing the impact and is more felt (McNamara, 2017). This is also not a perfect science because tracking is hard and it is hard to account for CO2 impacts

from funds raised (McNamara, 2017). There are also specific challenges with off-campus specific carbon offset projects (McNamara, 2017). Many times, these projects are sacrificing the actual benefit and there is a loss of the sense of connection and it is harder to tell the story (McNamara, 2017). It is also hard to "price" carbon right is since there is no one price that fits for all (McNamara, 2017). Other more general challenges are that the different factors needed to price carbon and offsets are also always shifting, such as the carbon market and cost to travel (McNamara, 2017). Institutions also cannot actually claim offsets but would actually be reducing other pieces (McNamara, 2017). Increasing participation of the programs and impact at more levels across campuses are considerable challenges (McNamara, 2017). At Portland State University it was also found that their perception of the carbon tax or fee was not popular (McNamara, 2017).

There are also some opportunities for carbon offsetting programs. One is the large network a school could be a part of and would have access and dialogue with the other institutions that already have projects or similar projects (Woodside & Colbert-Sangree, 2017). For example, the Offset Network has 13 participating institutions and 7 beyond higher-education institutions (Woodside & Colbert-Sangree, 2017). Another is certain projects can generate future research opportunities and new ways to collaborate with the community outside the school, like the ASU tree planting program did (University Sustainability Practices, 2018). The ASU program also generated a lot of community support increasing community engagement and sense of place with the university and surrounding residents (University Sustainability Practices, 2018). The ASU was also able to find more funding through increased relations with the community and 3rd party donors from different tree planting events (University Sustainability Practices, 2018). There are other opportunities for specific campus only programs (McNamara, 2017). On campus offset programs can complement and connect to other initiatives (McNamara, 2017). The money saved and generation would stay on campus and would be a stronger case for participation (McNamara, 2017). The money saved can be used for improved facilities addressing deferred maintenance and modernization (McNamara, 2017). There would be a number of co-benefits following the engagement of the offset program, such as reducing energy consumption, reducing costs, and improved light quality (McNamara, 2017). There would also be increased leadership because people within the university would be solving the specific challenges resulting in home grown solution, and there would be more supporting opportunities for students to engage in the problem-solving aspect (McNamara, 2017). In opposition to this, there are also many upsides to have

offsetting programs off campus (McNamara, 2017). It can often be more convenient and easier to manage because there is not as much labor and people to manage (McNamara, 2017). When the offsets are verified by 3rd parties the school is participating in the global carbon market and the certified offset that can be "claimed" (McNamara, 2017). There is also more of a specific science due to monitoring the markets, direct impacts and often is more reliable with the outside data available (McNamara, 2017).

3.6 Working against the Colonial System

We are living in a colonial society. Whether you as a person experience oppression as a result of colonization or not does mean that colonization has ended. Canada operates on the settler colonial narrative because internal and external colonial models of exploitation are simultaneously achieved since the empire and colony are one causing the displacement and exploitation of people and the land (Tuck & Yang, 2012). Land, water, air, subterranean earth, aka land, is the most valuable in this model (Tuck & Yang, 2012). Every day that settlers occupy and further disrupt Indigenous people's relationships to their land is violence (Tuck & Yang, 2012). A quote that best summarizes Canadian colonialism says,

> ...colonialism is best conceptualized as an irresistible outcome of a multigenerational and multifaceted process of forced dispossession and attempted acculturation – a disconnection from land, culture, and community – that has resulted in political chaos and social discord within First nations communities and the collective dependency of First Nations upon the state. (Corntassel, 2012, p. 88)

When institutions separate and distance themselves from this narrative and choose to be silent (Santone, 2019), they are furthering the cycle of trauma and enforced violence on Indigenous peoples and other minority groups.

Social justice and sustainability are looked at through a variety of cultural and historical lenses (Fregosi, 2017). Schools must examine how racist practices have shaped the relationship of different identity groups to the land and to the environment (Fregosi, 2017). They must also look at how have inequitable access to natural resources have shaped identified and what kinds of repercussions there has been (Fregosi, 2017). Access and affordability have also shaped higher education, thus influencing how sustainability is practiced within higher education (Fregosi, 2017). Addressing the social landscape and environmental history of the school and land on which it sits

is employing the inclusive sustainability narrative (Fregosi, 2017). This narrative works to include the struggles of populations into the narrative of the school and shapes how the school can properly include all voices and make sure it is serving the population effectively (Fregosi, 2017). This narrative also properly acknowledges that environmental issues are inherently intertwined with social justice issues, which needs to be at the center of all sustainability work. Thus, the inclusive narrative will and should include the history of settler colonialism and how it has shaped the institution and how it continues to shape it. The next sections breakdown and explore this and smaller themes further.

3.6.1 Supporting Indigeneity

There needs to be more support for Indigenous peoples at Dalhousie. There should be an integration with and supporting of the people and groups working towards racial and social justice on campus (Kalscheur et al., 2016). In supporting Indigenous peoples at Dalhousie, the institution is working as an ally and entering in a lifetime long relationship (Cosyn, Reyes, & Daraphonhdeth, 2019). This does not mean being recognized in lifting this group out of their struggles. The success of social indicators is also tied to Indigenous peoples on campus. With that being said, there needs to be more support for the Indigenous Student Center (ISC). There also needs to be an expansion of the Elders in Residence program and more support in general. Most students are unaware of this program as a result of the small capacity of the current program. There also needs to be mental health capacity and training specifically focused on trauma for indigenous students. In a similar vein, there are limited resources for students who are anxious and worried about the climate crisis. Additionally, a reconciliation and/or strategic focus group specifically focused on this in a Dalhousie specific context needed. Dalhousie has adopted the Calls to Action from the Truth and Reconcilitation Commission and is engaged in a partnership with the National Centre for Truth and Reconciliation (Rogers, 2019). This is not common knowledge, so further work and more discussion are needed. Staff also need the time and money for opportunities to learn about what reconciliation should look like at Dalhousie. There also needs to be more funding for staff themselves to learn about it. Further, we must work to move beyond the land acknowledgement. A land acknowledgement is not an empty promise or a blanket statement. It needs to be sincere and actually discuss why you are grateful about having access to whoever's traditional territory you are on. We need to understand the role individuals and organizations play in perpetuating

colonial violence and systems and how this is harmful. The acknowledgement must also speak to the struggles happening in the territory you are in.

3.6.2 Moving Beyond Stereotypes

Similarly, there are all internalized stereotypes created by oppressors that society has now deemed as normal. The dominant group in society will set the prescribed norms with all other groups or cultures considered the "other" (Carlson, 2017). Additionally, groups will create visible social divides where each group puts the other in a box (Ramohai, 2013, p. 436). This was observed by interviewees on campus where it was seen in a class that it was clear that the international students and non-international students sat clearly apart. This could be unintentional but is often a root issue where groups feel like they do not have enough in common with the other group to bridge the social divide (Ramohia, 2013). We must work to move beyond these social divides and stereotypes a certain group holds.

One thing that was consistently brought up is that there needs to be more indigenous content in courses rather than just a land acknowledgement. The content should also be more contemporary and needs to cover every subject course, from health to sciences and history. It is no longer appropriate or enough to talk just about the peace and friendship treaties. There have been and are programs which have worked to integrate Indigenous ways of knowing into their own programs. For example, at Bemidji State University their program called Niizhoo - gwayakochigewin: Two Ways of Doing the Right Thing in the Right Way integrates Indigenous knowledge perspectives with science to look more holistically at the world and bring better sustainable change to the world (Bailey-Johnson & Campbell, 2019). This initiative is also really important because it is Indigenous led and was created by an Indigenous team of faculty and leaders at the school (Bailey-Johnson & Campbell, 2019).

Another topic which was brought up is to create spaces to talk about race and colonialism. Often people feel apprehensive to ask questions in unsafe environments. When you can create collaborative learning spaces where people would not necessarily have the opportunity to discuss such topics allows people the opportunity to learn and reflect in a productive manner (Ramohai, 2013). This is much different than many school environments where often there is a culture of blame making. When people engage in effective dialogue, it helps to ground the conversation and help people work towards a common solution (Carlson, 2017). At Dalhousie this was also a

criticism. We are not discussing all the hard topics and having those hard and difficult conversations enough.

Another criticism that was brought up was the narrow definition of sustainability that is often used and shared around the Dalhousie campus. When people think about sustainability on campus, they often think of recycling and energy but could not think about other issues and social issues which intersect with sustainability. For some students, thins seemed like a barrier and people often did not feel like their definition of sustainability lines up with the schools or of what the Office of Sustainability may advertise as well. We need to move beyond the normative definition of sustainability and recognize that there more ways of knowing than what the dominant group in society has taught (Barrett et al., 2017: Harmin, 2017). Moving beyond this and fully seeing the intersectionality of sustainability would be to overcome a threshold concept (Barrett et al., 2017). Threshold concepts are particularly hard, transformative, irreversible and integrative ideas that are important to a field of work (Harmin, Barrett, & Hoessler, 2017). Threshold concepts essentially rewire how a person views and thinks about a topic (Barrett et al., 2017). Harmin (2017) argue that different ways of knowing and moving beyond the idea that there is only one of doing something is conducive to the complex problems we are presented with today.

3.7 Food Justice

Another topic not often brought up as an intersectional issue with sustainability and social justice is food justice. The food justice movement is a type of social justice movement because it is focused on issues of inequality in food access, the exploitation of labour practices and environmental degradation (Bradley & Herrera, 2016). Food justice is therefore placed within struggles against racism, exploitation and oppression within the food system and paired with actions to establish fair, equitable access to fresh, healthy, affordable and culturally appropriate food in low-income and vulnerable populations (Bradley & Herrera, 2016). Additionally, there is a growing concern that the so-called food justice fight today is doused in whiteness and masquerading as racism (Bradley & Herrera, 2016). Leadership within the food justice movement is mainly well-educated, white people who are paid to serve communities of color and low-income, which often just perpetuates the cycle of inequality (Bradley & Herrera, 2016).

One way that campuses are combating food justice is by enacting a Fair-Trade campus (Nealis & Redpath, 2019). A fair-trade campus addresses famer's rights and well-being,

sustainable practices and supply chains by supporting produces which align with high social and environmental regulations (Nealis & Redpath, 2019). This is arguably a connection with social justice and sustainability since students are choosing where and how they get their food and get a closer look into supply chain practices (Nealis & Redpath, 2019). Another interesting way to start a conversation about food justice and place the University of North Carolina held an event called Decolonizing a College's Farm-to-Table Dinner: Reclaiming Our Food Stories (Marcus and Bodeau, 2018). At this event they provided a wide variety of locally farmed food with a three-course meal with traditional foods, dancing and activities (Marcus and Bodeau, 2018). Ongoing at the event was discussions around decolonizing food and what that would look like and just talking about food (Marcus and Bodeau, 2018). The event also covered the history of food that had been colonized and who should be at the event, but maybe were not there (Marcus and Bodeau, 2018).

Specific to Dalhousie, there was a criticism that more food and medicine be grown on campus and have it more accessible to all students, regardless of race and income. It was also brought up how much food waste the campus still creates and what systems could be implemented to prevent this. Especially at big events, food waste is a much bigger issue. The Loaded Ladle was also identified as an important hub for students and faculty, since it provides nutrition meals for free for students on the Studley Campus. It was recommended the Loaded Ladle needs a larger space for the student and staff demand and other services like it should be available on all campuses, especially Sexton.

3.8 Engagement

Another important topic in literature and interviews was engagement strategies and who you are engaging with. In your engagement strategy, you should explicitly incorporate social justice into outreach platform and make it clear it is a value you believe in (Blackburn, 2016). Additionally, schools may have a hard time connecting with a particular group of students. This is not because those groups do not care about sustainability, you just have to find the ways they are and work with those groups rather than make them believe in what you are doing (Toscano, 2019). Sustainability interacts and crosses all disciplines, including art, engineering and chemistry to just name a few (Toscano, 2019). When you do not push your boundaries of who you reach out to, you are effectively cutting out a whole group of people who believe in your mission and not employing your full potential (Toscano, 2019). This idea was also brought up in interviews because it was

stressed that the students who often need more of a sustainability education on campus are not being properly reached.

Schools across Canada and the US have employed different engagement strategies to engage properly with all students on campus. One example is the University of Florida's engagement strategy with minority groups was paying homage to their lived experiences through history and art exhibits and created inclusive spaces (Perez, 2019). This particular approach was taken due to the lack of history about these students on campus and lack of people of color in architecture spaces (Perez, 2019). At other schools, artists and theatre students engage with sustainability through different artistic renditions such as songs, dancing, spoken word, and are showcased at different events and places on campus (Fregosi, Koning, Hirsch, Polanco-O'Neil, 2019: Perez, 2019: Toscano, 2019). Many schools hold events to showcase campus and community work around social justice and sustainability work (Cosyn et al., 2019: Fregosi et al., 2019). At the University of California Berkley, the Students of Color Environmental Collective is made of students of color and works to engage with the campus bringing a more intersectional approach to sustainability and social justice (Lu et al., 2018: Cosyn et al., 2019).

Other engagement strategies which schools have employed are type of learning called Service-Learning and Internship Courses (Blackburn, 2016). Service-learning is a term for integrating sustainability into class work and first created in 1960s in Tennessee which saw complimentary work on a waterway (Blackburn, 2016). This can look different at schools depending on the need on campus and background of teaching staff (Blackburn, 2016). Another type of more structured kind of engagement is the Sustainability Internship Program (SIP) (Rex & Stoffel, 2014). A SIP is a program offered by a school that students may engage in structured opportunities that contribute meaningfully to sustainability-focuses research, academics, program and projects (Rex & Stoffel, 2014). SIPs vary widely at every institution, but most have the typical goals of supporting institutional and cultural changes towards sustainability, connecting operational activities with academic, and may provide unique skills and career development opportunities to students and increasing institutional capacity (Rex & Stoffel, 2014). It is important to note that SIPs differ from eco-reps programs and peer to peer sustainability programs since the former refers to mainly educating peers (Rex & Stoffel, 2014).

At Dalhousie, there was a concern that most of the audience DOS reaches are mainly students who are invested in the movement. There was also little knowledge of the general engagement work that DOS does do besides Olympics in Residence. It was recommended that there needs to be more regular engagement of ongoing sustainability efforts by DOS. More ongoing eco-week or themed events which are fun and accessible to the entire campus. There was also a concern that there is not enough social pressure and more of an ongoing program or social pressure to keep each other in check more. This was thought to be a product of people's disconnection between waste and the earth. It was also recommended that DOS should become more of a resource for students and raising awareness about their efforts through more engagement events.

3.9 Other Barriers

Further, there seemed to be a general thought that Dalhousie is not quite prepared for the climate change crisis. There did not seem to be much faith that Dalhousie has the proper resources in the coming decade. In general, there is a slow learning process until a crisis hits and then Dalhousie is forced to reckon with the crisis. Additionally, there does not seem to be any type of top down and administrative repercussion if Dalhousie does not meet its GHG reductions, which does in some ways take away from the work that Dalhousie has been doing. This lack of administration buy in can severely undermine the work being done by universities (Blackburn, 2016). In an Australian survey of 52 universities from around the world, the lack of executive commitment was identified as a key obstacle to progress on sustainability (Blackburn, 2016). Further, a disconnect between students and administration can undermine student sustainability efforts and needs on campus. It is often unclear how the administration can know what students are asking for when there is limited interaction. There should be greater interactions and some other way to facilitate interaction other than meetings.

3.10 Conclusion

Sustainability in an educational setting has often been reduced, usually erasing the social component of sustainability completely (Lu et al., 2018). Without the social component, sustainability efforts are not truly sustainability (Amin & Shi, 2018). It is also crucial to understand how sustainability rests within the current political scene and recognize how it operates within the historical and cultural of specific place (Lu et al., 2018). In recognizing the history, it must include

all voices and the role the dominant peoples of society have shaped sustainability and left out minority groups and thus creating an inclusive sustainability narrative (Fregosi, 2017). As a school located in Canada, it is Dalhousie responsibility in recognizing its role in perpetuating a cycle of trauma within the colonized society Canada lives in (Santone, 2019). Incorporating social dimensions in sustainability starts with values and examining who you are you serving and leaving out unintentionally (Blackburn, 2016: Lu et al., 2018). When you start to listen to more voices, especially supporting Indigenous and black students at Dalhousie, initiatives will be more inclusive and socially just and the solutions needed for sustainability issues will reflect this change (Blackburn, 2016). This commitment to socially just sustainability must be backed by all levels of administration and every level of the school's structure (Blackburn, 2016), transforming the social landscape and all will benefit.

4 Recommendations

While not completely exhaustive, the following recommendations can be seen as either short-term or long-term goals and action that must be taken. Additionally, these recommendations come as what have done in other places and feasibility was not fully taken into account. The hope is that these can be goals or actions to take place in time within the appropriate constraints.

4.1 Policy

Dalhousie's Sustainability Policy (2009) outlines the role of the President's Advisory Council (PAC) on sustainability and who is a part of the PAC. It says that representatives of staff, faculty, students, and community and alumni members make up the PAC (Dalhousie University, 2009). The role of the PAC is outlined as basically a driving force of sustainability change on campus (Dalhousie, 2009). There is a lack of a social justice lens of the PAC in their mandate and who makes up the group. While this may allow it to be more flexible and there could be another place where more guidelines are provided, there needs to be a clear sentence or framing within the role of PAC that addresses social injustices. The first would be to define minority groups who should have a chair on PAC, which could be an Indigenous advisor, faculty member and student, Black or African Nova Scotian advisor, faculty member, and student, a chair from the International Centre or head of the International student society, someone from the DSU Equity and Accessibility Office and the Human Rights and Equity Services. While there could be more, these groups needs and work intersect with sustainability issues and should have a voice in what is being

done. Additionally, minority groups voices should be increasingly elevated and having them on the PAC committee would ensure that they are not being silenced. The role of the PAC should also include a sentence about social justice and inclusivity, bringing into focus the often overlooked social side of sustainability in operations. There are many examples from across the North American context, but a statement which is within the context of Dalhousie should be crafted by the appropriate body.

Beyond the definition of PAC and its role in Dalhousie's Sustainability Policy (2009), the policy does not address sustainability's implications on injustice and the role of institutions in how it is implemented. A section about the role of the institution and displacement of people's needs to be added. This would need to address the history of colonization, how sustainability is inherently intertwined with the social and political structures, highlighting social inequities of different groups and vulnerable populations on campus, and what Dalhousie's sustainability role in combatting this would be. This would cement Dalhousie's commitment and valuing of social justice.

DOS should also consider updating their mission and objectives to include social inequities and vulnerable groups within sustainability. Their current missions only broadly cover covers engagement and campus learning, which is the closest to social sustainability that DOS gets to. This would help cement and show Dalhousie's commitment to social justice and would help center this important topic on all operational and outreach work that DOS engages in.

4.2 Engagement

The DOS should increase its engagement with groups and campus beyond their current engagement. Due to DOS's low people capacity, an internship or someone paid by honorarium would be a good role for increased engagement. An internship aimed at increased engagement would be beneficial to DOS and people on campus. Increased engagement could be tabling and going to more events to advertise and showcase the work that DOS has been doing. The internship could also be help pull in groups and people on campus that are often overlooked. Through the internship, they could work with these groups for increased capacity and hold more workshops and events for the campus and these groups. For example, paring with the Indigenous Centre to hold more workshops and gather feedback about sustainability. This would also allow open spaces for Indigenous students to be able to voice their opinions without being criticized and further

oppressed than they already are. This internship could also be an opportunity to provide more trainings to staff and people on campus. The person in this internship could help develop materials to distribute on campus and coursework to deliver to give to others across campus.

Additionally, this internship could be an opportunity to bridge the gap between students and administration. There should be more informal spaces for students and administrators to interact and learn from each other. The internship position could also help organize these informal spaces, which could look like lunch and learns or meetings. Students would benefit greatly from hearing about the administration side of the university and barriers they identify to sustainability work. If students were to interact with administration and different levels of the university, they would feel an increased dialogue and feel heard. Additionally, administration would have more opportunity to listen and talk to students, which is something they normally don't have the opportunity to do.

4.3 Ethical purchasing

While divestment not a popular topic or opinion, this is still worth mentioning due to what has been found in the literature and the urgency of climate change. Divestment does not mean an immediate all or nothing and complete cut off from fossil fuels. Cutting off investments and use is just not feasible. Dalhousie does need time to prepare for alternative investments and infrastructure changes, which will take more time than what is usually asked of institutions. That is not to say that it cannot be done. It will take work from all levels of the university and planning. Cutting off investments into oil and gas into clean energy can be shown and will show Dalhousie's commitment towards mitigating climate change impacts and upholding social justice values. This commitment will also need people on campus to change their consumptive habits and other changes. DOS is in an excellent position to provide support and other sustainability leaders on campus will be essential assets if this is something the university supports.

Something that can help in the meantime would be starting a carbon offsetting program for travel. Dalhousie staff and students travel for conferences, to do research, study abroad and much more. This would hopefully help reduce carbon emissions of the Dalhousie community even further. Depending on the volume of travel and price people are willing to pay would affect the effectiveness of a travel program. Another carbon offset program could be a tree planting program, either on campus or in the community. There are wilderness areas around Halifax and in Truro that could benefit from this type of program.

4.4 Food Justice

There was a call for increased access to affordable, seasonal, and socially responsible food on Dalhousie's campuses, especially on Carlton and Sexton spaces. One recommendation is for Dalhousie to become a Fair Trade Campus. There are a number of schools throughout Canada who are certified, including Acadia University which is the only Atlantic Canadian School to be Fair Trade (Canadian Fair Trade Network, 2020a). The Canadian Fair Trade Network (2020b) provides support and many resources on how to campaign and gauge support for going Fair Trade on campus. Being part of this group would significantly reduce the amount of work and Dalhousie would be able to see other schools who are operating successfully within this model. It would also be useful to reach out to Acadia University to see how they achieved going Fair Trade. Additionally, it would be useful to have all groups already working towards food justice to head this effort if this is something that would be beneficial for Dalhousie. There are a number of different groups on campus, such as the Loaded Ladle, DSUSO, the Dalhousie Urban Garden Society (DUGS) and the Food Collective, who are advocating for food justice policies and programs to increase students' access to food.

Another way to increase affordable food on campus would be to expand the current student garden run by DUGS. The agricultural campus in Truro may already have a similar program, so it would be best to reach out to someone on that campus to see what programs and how procurement of more space was done. The foods on this garden could focus on having campus food for each upcoming school year and growing native foods.

4.5 Decolonizing the Institution

The connection between sustainability and the colonized system we live in cannot be ignored. As an institution making environmental and social changes, we cannot ignore and further perpetuate the violence Indigenous peoples face in Mi'kmaqi. We must hold ourselves accountable and provide as much support as possible as a settler institution. There are many changes the university should take, but only a couple will be mentioned in this particular context.

There should be an increased capacity for the Elders in Residence program. This program provides vital resources to Dalhousie for teaching and learning opportunities. They also provide prayers and smudging before events. More capacity and increased support is vital to the university. All work, research, teaching and learning takes place on stolen land so we must pay homage to

this. While the Elders in Residence program provides some services, they can not fully provide all the learning and teachings that must take place to decolonize the institute at a very small level which all settlers must be fluent and understand. Especially as Dalhousie has adopted a land acknowledgement, many are still ignorant and do not understand its importance, making hollow statements with no real meaning. If the Elders in Residence were to be expanded, providing in class teachings for every discipline should take place.

All teachers and staff should take a course or training on social competency which covers Indigenous issues and problems they face and other minority groups. This would make people equipped to deal with Indigenous students and faculties and other groups traumas and be able to support them. In providing this training, it places the onus on the staff and faculty to unlearn harmful stereotypes and provide safe spaces. This would also help place a harder system on staff and faculty who are acting inappropriately and for people who continue to act harmfully, more harsh repercussions and systems in place for these people to face some type of punishment.

The working group of the Truth and Reconciliation and its Calls to Action and changes to education has not been visible. It is also not clear what kind of work the working group have been doing, what kind of reports they have made, and if this group is still conducting work. It is also not clear what is being done to increase knowledge across the campus and in administration. This group should be revived and groups across campus should be re-engaged in this. It cannot be expressed enough how important that a settler institution be doing this type of work.

5 Final Thoughts

As Dalhousie embarks on another ten years of strategic planning, sustainability and environmental responsivity are increasingly important as climate change impacts will continue to be felt. Climate change will affect every facet of the university and it is clear we must be doing more. Dalhousie has made substantial sustainability progress in the last decade, along with the great work that DOS has achieved in operations and across the campus. It is also clear that social indicators are key to effective sustainability work in higher education. Social indicators, such as social justice, equity and diversity, are important in improving sustainability efforts and making sure that sustainability work is what it is supposed to be. The research in this paper provides a clear basis for future work, but this is just the beginning. As sustainability is not meant to be an outcome

(Lu et al., 2018), Dalhousie must foster relationships and connections within and beyond its communities to be an effective leader in sustainability change. Dalhousie is in a great position to be an even better environmental and social leader in the coming decade.

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