



MIT Student Sustainability Recommendations 2016

Developed and Written by the Student
Leadership in Sustainability Working
Group

Facilitated by the MIT Office of Sustainability

Table of Contents

Overview of Recommendations3
Introduction4
 Our Vision4
 The Role of Students in Sustainability4
 About the Student Leadership in Sustainability Working Group4
Recommendations6
 I. Campus Collaboration and Project Support.....6
 Overview.....6
 Recommendations.....7
 II. Bridging Classroom and Campus10
 Overview.....10
 Recommendations.....10
 III. Student Culture & Experience.....11
 Overview.....11
 Recommendations.....11
Conclusion15
Appendix 1: MIT Students Explore Western Mass Peers16
 Getting to Climate Neutrality16
 The Living Building Challenge and Local Food Come Alive at Hampshire16
 UMass Commits to Real Food, LEED Gold Dining, and Solar PV16
Appendix 2: Membership18



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Overview of Recommendations

Below is a summary of the recommendations developed by the Student Leadership in Sustainability Working Group during the 2015-2016 academic year. The recommendations are organized around three major topic areas:

I. Campus Collaboration and Project Support

1. Create a Student Sustainability Governance Council
2. Create a Peer Sustainability Education Program
3. Launch a MIT Sustainable Activation Fund

II. Bridging Classroom and Campus

1. Provide Comprehensive Sustainability Education
2. Create a Sustainability Information Portal for students
3. Focus on Sustainability in Career Development

III. Student Culture and Experience

1. Incorporate Sustainability into Key Cultural Events & Event Planning
2. Create a Model Sustainable Living Community
3. Promote Transparency of Utilities Data
4. Create a Student Sustainability Pledge
5. Increase Administrative Support of Waste Team and Education
6. Increase Usage of Active Transportation Options
7. Improve the Health, Wellness, and the Physical Environment of MIT

Introduction

*“A central challenge of our time is how to build a sustainable future for the whole human family.”
President Rafael Reif*

Our Vision

Student leaders envision sustainability being truly integrated into the core of the MIT experience. The future Institute will be a healthy, vibrant place for all and ensure that students graduate with the necessary experiences of collaborating on, practicing, and inventing sustainable solutions for the campus and the world.

The Role of Students in Sustainability

Active engagement in sustainability and climate action is continuously gaining momentum at MIT every day – from the President’s Office to laboratories to residence halls. MIT has committed to creating cutting-edge sustainable solutions in its Campaign for a Better World, Plan for Action on Climate Change, and across many of its academic and operational arenas. The Environmental Solutions Initiative is launching a new minor at MIT, while operations teams are rethinking issues that range from using MIT’s rooftops to generate clean energy to designing net zero energy residence halls.

In addition to creating solutions, MIT also has a responsibility to foster future leaders who will live and practice thoughtful stewardship of their planet and communities for generations to come. Students, especially MIT students, are not afraid to push beyond the status quo and are central to moving sustainability forward on campus and around the globe. As such, students must be actively supported in their pursuit to become sustainability leaders through project support, cultural engagement, and educational opportunities at MIT.

Today, MIT has the unique opportunity to work with students to enable the pursuit of student-led transformation on campus. The recommendations in this report will help guide this important work and serve as a starting point for collective, future action. These recommendations are targeted to MIT senior leadership, including: the President, Executive Vice President and Treasurer, Chancellor, Provost, and their related departments, in particular those that oversee matters related to student life, facilities and infrastructure, and education inside and outside of the classroom.

About the Student Leadership in Sustainability Working Group

With recognition that no one understands the unique needs and opportunities of students to advance campus sustainability better than students themselves, undergraduate and graduate student leaders from organizations across MIT were invited to participate in a Working Group, facilitated by the Office of Sustainability during the 2015-2016 academic year. The membership of the Working Group is listed in Appendix 1.

Students were supported by staff and faculty resources as they engaged in a process to assess current conditions, evaluate best and innovative practices across peer organizations, and develop an informed set of recommendations to integrate student leadership in sustainability across the Institute.

Recommendations

The recommendations in this report are divided into three areas of focus: Campus Collaboration and Project Support; Bridging Classroom and Campus; and Student Culture and Experience.

Each section provides a brief overview of the significance of each area and outlines specific recommendations identified by the Working Group for turning these critical ideas into action.

I. Campus Collaboration and Project Support

Overview

While collaborative problem solving is embedded in the MIT ethos, student leaders in sustainability often experience barriers to effectively and efficiently collaborating with staff and faculty on campus-focused efforts – from orientation to dorm energy contests. Well-supported collaboration will enable the greatest impact for sustainability at MIT to flourish.

The Working Group identified the potential to create stronger connections between the multitudes of campus efforts in order to advance community-wide sustainability across the Institute. There is an opportunity for students to become strategic partners with staff and faculty in guiding and implementing sustainability goals, by taking an active role in visioning, decision-making, project implementation and evaluation.

The comprehensive integration of students into the sustainability governance process for MIT will help prepare students as leaders in sustainability. MIT should enable student leadership to serve at an institutional level, to ensure and facilitate the essential, creative inclusion of student voice in decision-making and collaborative problem solving.

Student leadership will best be served through increased administrative project support for student clubs and initiatives, outside of the formal academic and research space. The leadership potential of MIT to become a model campus relies on this administrative commitment. This entails:

- Creating collaborative bonds between Institute departments and student groups
- Equipping students as peer educators through opportunities that advance social, environmental, and economic sustainability within MIT
- Enabling sustainability projects, which have both immediate and long-term benefits for the MIT community and enable pursuit of climate and sustainability goals
- Ensuring adequate, easily accessible support, data, and oversight for student-led projects, which advance sustainability at MIT

The following recommendations are intended to be a first step in creating this level of coordination and support.

Recommendations

Create a Student Sustainability Governance Council

As MIT increases its commitment to sustainability throughout campus operations and academics, students are frequently sought out by departments and initiatives to be involved in new committees and projects. For example, administrators sought student participation in the Campus Sustainability Task Force and the Climate Change Conversation, recently. It is clear that students provide an important voice in discussions about the future of the campus.

To ensure that students continue to be strategically involved in key sustainability issues, MIT should support the establishment of a permanent Student Sustainability Governance Council. This group would act as a managing body for student sustainability project coordination, funding allocation, and strategic goal setting across MIT.

It is suggested that the Council be integrated with, or act as a counterpart to, the Sustainability Task Force, or whatever future governing body the Institute implements for ongoing sustainability governance.

The Council would foster a more unified and coordinated student participation in sustainability issues at MIT, helping clubs and initiatives to identify shared, large-scale challenges and opportunities, raise awareness about key issues, and enact purposeful engagement strategies with staff and administrators.

The council could be chaired by undergraduate and graduate level students and include members from student organizations whose missions include a sustainability focus.

Specific responsibilities of the Council could include:

- i.* Convening representatives from sustainability-related student groups as a means of fostering collaboration and providing a central resource for new students looking for ways to get involved in sustainability projects at MIT.
- ii.* Providing feedback and recommendations on MIT's emerging campus sustainability planning and programs, including but not limited to the President's climate action plans, the Environmental Solutions Initiative, the Office of Sustainability's initiatives, and MITEI's campus initiatives.

iii. Maintaining a knowledge base of sustainability-related opportunities for students (such as campus projects, institute committees, and faculty-led initiatives) to facilitate student participation in sustainability activities and decision-making.

iv. Working with MIT leadership to establish and disseminate funding resources for campus activation (such as the proposed Sustainable Activation Fund, see page XX). Providing advising on the development and allocation of funding resources for sustainability projects.

v. Establishing and promoting standards for integrating sustainability into student events and activities, alongside partners such as the Association of Student Activities.

vi. Evaluate success by annually conducting a campus-wide student sustainability engagement survey to track progress towards goals embedded throughout these recommendations using appropriate quantitative metrics and qualitative evaluation.

vii. Provide sustainability literacy and capacity building for students in positions of leadership, including but not limited to sustainability education embedded into student governance orientation and sustainability education embedded into residential life orientation.

Working with Senior Administration: Senior leadership including the President of MIT would meet with the Council no less than once per year to review priorities, recommendations, and the success or further funding of campus projects and initiatives. This meeting will provide a forum for collaboration and integration of ongoing campus sustainability efforts.

Create a Peer Sustainability Education Program

To enable students to live the values of MIT on a day-to-day basis, MIT should launch a staff-supported, comprehensive peer sustainability education program, which meets the unique challenges and opportunities of the MIT student culture. The following programs are examples of the efforts needed at MIT:

- a. Residential Peer Education:* Launch and support a dorm-based sustainability program that enables a team of students to monitor, educate, and connect students within the residential experience to sustainability literacy and engagement opportunities.
- b. Laboratory Peer Education:* Integrate peer-to-peer education into the emerging Green Labs program, being spearheaded by the Environment, Health, and Safety Office (EHS), about reducing waste and energy use within the Departments, Laboratories, and Centers structure.

- c. *Explore support needed for Graduate & Off-Campus Peer Education:* Explore and design a program specifically for developing strategies to engage graduate populations and off-campus residents, and ensure appropriate resources and programs are designed to meet these students' unique needs.
- d. *Explore the creation of Digital and Non-Traditional Student Education:* MIT has the potential to provide a groundbreaking model for engaging non-traditional, returning, and digital students, through platforms such as EdX, by creating a model program for sustainability peer education and behavioral engagement for these audiences.

Launch a MIT Sustainable Activation Fund

Although many resources exist for students to conduct academic research and develop entrepreneurial enterprises (such as the MIT Sandbox), there are fewer dedicated resources for students to develop ideas that could improve the campus community itself.

The Working Group recommends that MIT launch a Sustainable Activation Fund to support student projects that focus on creating a culture of sustainability learning, practice, and living at MIT.

The Fund could be a new, stand-alone fund or draw on existing funding sources on campus. The funding would be specifically aimed at generating new ways of encouraging the behavioral and cultural adoption of sustainability within the MIT community.

The following areas of potential project development have been identified as critical to the success of MIT's sustainability goals and are identified as potential focus areas for this type of funding:

- i. Making large community events such as Orientation and Commencement as sustainable as possible
- ii. Incorporating sustainability into the residential life experience
- iii. Making the office and lab culture as sustainable as possible
- iv. Energy and climate awareness
- v. Incorporating sustainability into purchasing decisions that affect students
- vi. Examining and creating sustainable on-campus food systems
- vii. Measuring, understanding and reducing emissions related to air travel
- viii. Making improvements to MIT infrastructure that would promote occupant engagement

The working group feels that the implementation of these recommendations would bring MIT closer to reaching its sustainability goals by leveraging the power of collaboration across the MIT campus.

II. Bridging Classroom and Campus

Overview

MIT has demonstrated its commitment to becoming a “test-bed,” “living lab”, or “incubator” for sustainability solutions by dissolving the boundaries between the classroom and campus. The Working Group developed the following recommendations to further push thinking in this area and to highlight the importance of education in the pursuit of a sustainable future.

The comprehensive integration of sustainability into the Institute’s research, teaching, and extra curricular learning opportunities will further enable students to test and solve, sustainability challenges and prepare them for their work as leaders.

The Institute, therefore, must provide hands-on learning opportunities on campus, which are accessible to both undergraduate and graduate students. These opportunities would enable practice, play, and exploration with sustainability concepts and systems, including but not limited to: renewable energy installations; urban agriculture systems; innovative waste reduction such as composting toilets or rain catchment systems; urban microclimates; and interactive building energy systems and dashboards.

Recommendations

Provide Comprehensive Sustainability Education

MIT should provide each student, regardless of degree program, with access to sustainability education. While the Working Group recognizes and endorses the importance of creating an Environmental and Sustainability Minor, as currently being undertaken by the Environmental Solutions Initiative, it categorizes this action as necessary but not sufficient to ensure the sustainability literacy of the full study body. In addition to this important first step, the Working Group strongly endorses the following actions:

- i.* Create a series of campus living laboratory UROPS which are appropriately aligned with the needs of MIT operational sustainability priorities and climate action goals
- ii.* Ensure sustainability-related learning objectives in every Course and major
- iii.* Establish a common requirement for sustainability education such as a general education requirement which touches all students

The Group further endorses faculty incentives to ensure robust sustainability integration, including but not limited to:

- i.* Sustainability integration workshops for faculty

- ii. Faculty and researcher awards for course module development,
- iii. Institute-wide committee assessing the current strengths and opportunities for sustainability

Create a Sustainability Information Portal for students

We recommend the creation of a single, easily accessible portal that lists all academic sustainability-related options including courses, minors, Undergraduate Research Opportunities (UROP), other research opportunities, living laboratory projects, and faculty collaborators for students to easily access and plug into learning opportunities aligned with their research and major.

Focus on Sustainability in Career Development

In order to allow students to better inform their research, curricular, and learning experiences, the Working Group recommends that students are actively connected to emerging sustainability career opportunities and alumni networks. The Working Group advocates that the Institute:

- i. Create a Sustainability Career Fair and/or ensure that sustainability is integrated into existing efforts including the Energy Career Fair and UA Career Fair focused on nonprofits.
- ii. Create a Sustainability Career Mentoring Programming that engages alumni.

Together, these recommendations will facilitate the ease of access to MIT's rich resources around sustainability and create stronger connections between campus and classroom.

III. Student Culture & Experience

Overview

In order to truly become a leader in sustainability, MIT must integrate principles and practices of sustainability into student life and culture. There is an immense opportunity to increase the level of sustainability currently present within every event, activity, and residence hall at MIT. The following recommendations are critical toward nurturing sustainable citizens throughout their experience on campus.

Recommendations

Incorporate Sustainability into Key Cultural Events & Event Planning

The working group recommends embedding sustainability literacy into critical cultural events across the MIT student experience. Through everyday experiences, students should develop literacy in the sustainable systems at MIT (i.e. water, energy, transportation), its climate action commitments, engagement opportunities, and key principles of sustainability and climate change. The Group recommends focusing on the following events and activities, at minimum:

- i. Campus Tours
- ii. Prospective Student materials & events
- iii. International Student Orientation
 - a. Investigate and approach the variance of cultural values brought to the MIT campus by incoming students as an opportunity for building common literacy and language around sustainability, and fostering cross-cultural exchange around sustainable practices, norms, and mores.
- iv. Incoming Student Orientation
- v. Residential Living Orientation
- vi. Key Lecture Series
- vii. Commencement

To enable this transformation, the Working Group also recommends the development of a general Sustainable Event Training for all student event coordinators. In collaboration with the CAC, Office of Sustainability, student groups, and other event coordination centers, MIT should provide sustainable event certification, planning resources, and annual training for both graduate and undergraduate students.

Create a Model Sustainable Living Community

The MIT campus does not currently have a working example of a robust sustainable living community. In order to serve as a demonstration and test bed of what MIT is capable of, the Working Group recommends creating a new, model sustainable living community which explores, invents, and embodies cutting edge practices in building design, sustainable agriculture, water and land use, regenerative design, and human happiness and wellness (See [University of California Davis, West Village](#), or the [Duke University Smart Dorm](#)).

Promote Transparency of Utilities Data

In order to promote student research, awareness, and action on energy and water issues, MIT needs to dedicate resources to make utility data in the residential facilities transparent and accessible for the student population. Students have run into many barriers in the past in their efforts to organize successful dorm residential energy contests. The Working Group recommends that MIT:

- i.* Develop ways to allow students to interact with, access, and analyze residential utility data in order to enable sustainable living practice learning, management, and research across the campus residential experience
- ii.* Implement smart metering and building dashboards which allow students to see and understand building level (or sub-set level) energy use and water use in all new buildings and any existing buildings where feasible.
- iii.* Embed these recommendations into existing and emerging Sustainability Working Group recommendations for Building Design & Construction, and Climate Action Plans (i.e embedded carbon pricing, reaching and exceeding 32% reduction goal and climate neutrality)

Create a Student Sustainability Pledge

In order to effect and maintain behavior change amongst the student population, MIT should create a Student Sustainability Pledge and corresponding, supporting incentives to shift behaviors towards more sustainable purchasing, materials and waste management, energy, transportation, food, and wellness choices.

Examples of incentives that would need to be deployed in order to support systemic change include but are not limited to: reduced coffee and beverage prices for bringing reusable mugs, and reduced food prices for bringing reusable plates/silverware.

Increase Administrative Support of Waste Awareness Team and Education

The working group recommends scaling up support of the existing student-led waste awareness initiatives, such as the current Waste Watchers team and increasing educational opportunities for students to learn to take ownership over their waste reduction potential on the MIT campus. Waste teams led by students and supported by administrators could monitor, and deploy compostable, recycling, and waste management strategies at key events. To expand the benefits of these strategies, the Working Group recommends establishing an online training program for properly handling and disposing waste for incoming students, similarly to the existing online trainings used for student education.

Increase Usage of Active Transportation Options

The Working Group recommends that MIT work toward increasing the capacity of students to use sustainable transportation methods to move throughout the MIT campus and Metro Boston area. This could be achieved by supplementing existing bicycle and pedestrian infrastructure and maintenance services, as well as adding new opportunities for flexible modality. This might include the expansion of bike programs on campus, such as:

- Ensuring that the supply of bike-sharing locations and spaces is able to meet the demand at all times
- Monitoring and increasing bicycle parking on campus to ensure the infrastructure supports student and staff biking
- Increasing programs that support safe biking

Improve the Health, Wellness, and the Physical Environment of MIT

Given the demands on students to achieve high levels of success in their academic and extracurricular lives, the Working Group recommends that the MIT Campus become a physical place that optimizes cognitive and emotional health.

With the creation of the MindHandHeart Initiative, MIT has made clear its commitment to strengthen the Institute's mental health and well-being programs. Providing nutrient-rich food and a connection to nature are increasingly recognized as important elements of health, well-being, and sustainability. Student leaders in sustainability invite MindHandHeart - and other core departments and initiatives - to collaborate on an integrated strategy that further develops the following strategies on campus:

- a. Increased procurement of local, organic, fair, humane, and healthy food through participation in the Real Food Challenge or related framework. This will demonstrate MIT's commitment to global sustainability and promote health on campus. A focus on creating a healthier food culture in "formal" and "informal" dining spaces
 - i. Dining halls and cafes
 - ii. Event catering
 - iii. Vending Machines
 - iv. On-campus farmers markets or CSAs
 - v. Neighborhood food establishments
- b. Increased spaces that promote well-being and a connection to nature and our food systems
 - i. Roof top and community gardens
 - ii. Outdoor green spaces that promote physical activity and a connection to nature

By focusing on these recommendations, we are creating a campus where sustainability is more than a catch-phrase, but a way of life.

Conclusion

These recommendations are meant to be a starting place for students, staff, and faculty to come together in the 2016-2017 academic year, identify key strategies that meet shared goals, develop a timeline, and implement a selection of projects and policies. Student leaders invite administrators and the MIT community to review these recommendations and convene in the Fall of 2016 to identify next steps.

Over the next five years, MITOS will continue to launch and facilitate a series of working groups and committees tasked with redefining our campus systems to improve performance, reduce environmental and human health impacts, and become a living lab that we as a community seek to create.

Appendix 1: MIT Students Explore Western Mass Peers

As part of the working group, students traveled to Hampshire College and the University of Massachusetts Amherst (UMass) to learn first-hand about the schools' innovative sustainability initiatives. Both schools inspired MIT students to think big about climate goals, cutting edge infrastructure, and – of course – tasty, sustainable food. Below are some takeaways from the visit.

Getting to Climate Neutrality

Both Hampshire and UMass have shown themselves as leaders in sustainability. They have each signed the American College and University Presidents' Climate Commitment, and pledged to reach climate neutrality - Hampshire by 2022 and UMass by 2050. These institutions serve as resources as MIT works towards its goal of achieving carbon neutrality as soon as possible.

The Living Building Challenge and Local Food Come Alive at Hampshire

At Hampshire, students toured the brand new Kern Center, a multifunctional building. The Kern Center is designed to meet the world's most advanced green building standard, the Living Building Challenge; it generates its own electricity, collects its own water, and avoids toxic "red list" chemicals in its materials. Students were also able to see the Hampshire Farm and its Community Supported Agriculture (CSA) program.



Both the Kern Center and the Hampshire Farm are great examples of living laboratories. Students serve on the campus Building Committee, and are able to integrate the building into meaningful class projects. The farm provides student with ample opportunities for hands-on learning, whether it be through growing food or conducting studies of agriculture for coursework.

UMass Commits to Real Food, LEED Gold Dining, and Solar PV

At UMass, students toured the newly renovated Hampshire Dining Commons, a LEED Gold dining hall striving to be "one of the healthiest and most sustainable dining operations in the country". The dining commons was designed around UMass Dining Service's four guiding principles: Healthy Eating, Sustainability, World Flavors, and Community. UMass Dining is also partnering with UMass Real Food Challenge, a student-led initiative that aims to bring 20% Real Food (food that is organic, fair trade,

local, or humanely raised) to the UMass campus by 2020. MIT Students were really impressed by sustainable food options available, and had new ideas for what was possible at MIT.

Finally, students visited three solar photovoltaic parking canopies at UMass. Students were inspired by integration of solar photovoltaic into campus, and brainstormed how can MIT maximize its solar potential on campus.

Appendix 2: Membership

This Report was developed by the Student Sustainability Leadership Working Group, whose members are listed below, along with the support from the staff listed:

Student Leaders			
Name	Department	Graduation Year	Club
Geoffrey Supran	Materials Science & Engineering	PhD Candidate	Fossil Free MIT
Jeremy Poindexter	Material Science & Engineering	Masters/PhD Candidate	Fossil Free MIT
Joshua C. Hester	Civil & Environmental Engineering	PhD Candidate	Graduate Student Council-Sustainability
Jaqueline Kuo	Mechanical Engineer	2016	Undergraduate Association-Sustainability
Jennifer Lauv	Mechanical Engineer	2017	Undergraduate Association-Sustainability
Rebecca Sugrue	Civil & Environmental Engineering	2016	Undergraduate Association-Sustainability
Abigail Utami Regitsky	Materials Science & Engineering	PhD Candidate	MIT Waste Alliance
Jessica Bryant	Civil & Environmental Engineering	Masters/PhD Candidate?	Clean Energy Hackathon
Sarah Nolet	System Design and Management	Masters/PhD Candidate	MIT Food & Agriculture Club; Sloan Sustainability Initiative
Samantha Allyn Fahrback	Management	Masters/PhD Candidate?	MIT Food & Agriculture Club
Marco Miotti	Engineering Systems Division	Masters/PhD Candidate?	Climate CoLab Student Fellows
Sarah Day Kalloch	Sloan School of Management	Masters	Sustainability Summit
Ethan Sherbondy	Computer Science	Masters	MIT Beekeeping Club
Rebecca Grekin	Chemical Engineering	2019	Next Sustain
Daneil Mascoop	Civil & Environmental Engineering	2016	Fossil Free MIT
Linda Jing	Materials Science and Engineering	2016	UA Sustainability

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