

The Energy Contest Cover Page
Rutgers New Brunswick Undergraduate Students

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Proposal Title: Green Teams

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I. 200 word summary of the proposal or video:

Our solution is to create a network of Green Teams that are trained to work within their organization or department towards implementing a culture of sustainability that takes action towards energy efficiency by cultivating a variety of localized initiatives informed by interdisciplinary ideas. Faculty, students, and staff from a vast expanse of backgrounds would be trained to inspire methods to incorporate sustainability within their communities. Rutgers would become a pioneer in sustainability by creating short term and long term actions that inspire a generation of students to recognize sustainability as an interdisciplinary issue that is vital to our times.

II. Introduction

Formerly, the environmental movement has been critiqued as a niche space for people who are extremely passionate about animals or the natural world. However, as we move into the Anthropocene era, there is an urgent demand to reframe this narrative and declare that an environmentalist is simply someone who cares about creating a livable and ethical future for humans and nature alike. We cannot afford to let environmental issues be something discussed only in SEBSs classrooms and environmental organizations on campus- we must create a culture where the university as a whole is cultivating sustainability as an interdisciplinary endeavor because the issue itself is at the very core of human rights and justice in this new age. Just as every action is traditionally considered in an economic and social standpoint, we must take the time to also evaluate its carbon footprint. While this seems like a daunting task, by implementing a system of departmental and organizational green teams, both logistical and cultural changes

will lead Rutgers to reduce its energy consumption and normalize a new standard of what it means to be conscious and informed changemakers in this day and age.

Our solution is to implement green teams at Rutgers in order to promote increased participation amongst the university population in working towards sustainable cities and communities, responsible consumption and production and climate action — goals 11, 12, and 13 respectively of the UN Sustainable Development Goals (UNSDGs). Although there are various student organizations that each attempt to tackle a multitude of environmental problems, we feel that having a centralized system and set procedures to create green teams will encourage students, staff, and faculty to find ways to be more sustainable in their respective communities. Not only will this initiative allow members of each community to use their specialized knowledge to create improvements, this will also create an easily accessible method for the Rutgers University population to positively impact the environment. Ultimately, by creating a framework for each community to form green teams, Rutgers University will be able to create a centralized system that pushes members of the broader population to think about how to continuously work on the goals 11, 12, and 13 of the UNSDGs.

At its core, green teams are absolutely suitable for the giant community population that we have at Rutgers with hundreds of student organizations and academic and administrative departments. In the past, solutions for sustainability have faltered because they often required waiting for full administrative reviewal and implementation, creating a reliance on multiple different factors that are difficult to navigate. Green teams allow for immediate implementation that in an arguably necessary way shares the responsibility across all of the smaller communities at Rutgers. Inspired by efforts that have proven to be extremely successful at Penn State

University, green teams are effective modes of real action that can be quickly implemented and have long term benefits that redefine our previously unsustainable standards. The committee that oversees green teams can smoothly allow for this transition by giving organizations the right tools and education to see what feasibly can be changed within their own terms and efforts.

Logistics Divisions

Climate action (goal 13) is intimately connected to creating sustainable communities (goal 11) and promoting responsible consumption (goal 12). Green teams at Rutgers will promote cooperation between students, staff, and faculty to transform the practices of our institution from within. Although there are many improvements that can be made in terms of sustainability, we can begin to explore the potential of green teams by trying to tackle three main logistical projects: one, using TerraCycle on campus; two, reducing non-food waste at dining halls; and three, implementing composting campus wide.

TerraCycle, in its own words is a “social enterprise eliminating the idea of waste” by making it possible to recycle traditionally hard-to-recycle materials. TerraCycle accomplishes this by collecting materials through various free recycling programs and partnerships with companies. For example, the company has programs to recycle Colgate toothbrushes and toothpaste tubes, Gillette razors, and other personal care products, such as makeup and soap dispensers. After joining TerraCycle as a member, the next steps of each program would be to collect prospective materials and then ship them to a TerraCycle facility. Green teams could organize and supervise establishing collection bins in the trash collection rooms of each student housing facility, which would allow Rutgers University to effectively reduce the amount of material entering the waste stream from its students. For example, if each student uses four

toothpaste tubes a year and the 43% of students that live on campus participate in the toothpaste recycling program, about 86,437 tubes of toothpaste or 1524 pounds of material would be recycled every year. This initiative could be piloted by either individual student housing facilities, such as Livingston Apartments or Busch Suites, or by campus such as Livingston or Busch.

Along the lines of curbing waste, green teams can work to reduce the waste created by dining hall takeout. Half of the dining halls on campus use extruded polystyrene foam (EPF) packaging for takeout. Not only is EPF toxic to produce, when EPF is thrown out, it crumbles into microscopic particles that linger in the environment. To promote more sustainable habits from its student and staff body, other universities around the world have implemented various measures such as a single-use takeout “tax.” For example, at the Hong Kong University of Science and Technology, students that do not bring their own containers for takeout are charged for single use takeout containers. In addition, green teams within each dining facility could offer solutions such as single-use wooden utensils instead of single-use plastic utensils or paper bags instead of plastic bags. Overall, having green teams at Rutgers allows student input and promotes sustainable practices in a localized self-sufficient way that empowers communities to create informed and practical applications.

Lastly, green teams can increase awareness and use of composting services on campus. Currently, RU Compost collects food waste from 10 a.m. to 11 a.m. every Sunday on College Avenue. However, the limited time frame and location prevents many students from participating in composting. Students are thus forced to throw out food scraps and rotten produce. This is extremely harmful, as food waste that breaks down in landfills releases methane, a greenhouse

gas that is 84 times more harmful than carbon dioxide. However, green teams would be able to ameliorate this issue by working with Apartment Assistants or Resident Assistants to create programs to educate residents on how to reduce food waste. In addition, the green teams could also work with the RU Compost to allow a longer collection period for food waste on multiple campuses. By working to prevent food waste, the Rutgers community can lower its carbon footprint.

Other Examples of Potential Green Team Energy Efficiency Efforts

Initiative	Best Suited For
Implementation of an Appliance Policy that ensures that all newly purchased appliances for a building are energy efficient or are the most sustainable options	Office space, academic buildings, libraries, dining halls, student centers etc.
Efforts to consolidate appliances in an office space by sharing utilities rather than each space having an individual appliance- this requires taking inventory of what exists and what can be easily shared: example employees choosing to give up personal refrigerators for a shared one	Office spaces, administrative buildings, etc.
Efforts to actively ensure that monitors and screens are actively turned off during extended breaks or off periods	Office spaces, administrative buildings, academic buildings, libraries, dining halls, student centers, etc.
Creating a “Green Minute” during monthly staff meetings during which a topic related to energy usage or wastage is discussed and a quick sustainable change is implemented	Office spaces, administrative buildings, student organizations, academic departments, etc.
Personally choosing to go plastic free or cut styrofoam from a space by encouraging the widespread use of reusables in a community	Office spaces, dining halls, student organizations, academic departments, etc.
Hosting item swaps or community thrift events	Any division or community of people
Educating students early on at new student	Student affairs, Orientation Leaders, etc.

orientation about the importance of sustainability as a core value of the university through zero waste efforts and education	
Planting a vegetable garden which is accessible to use by community members	Any division or community of people

A. Cultural Divisions

Green teams will be the most effective avenue to disperse sustainability education in a localized way. Rutgers has an increasingly high community population of incredibly diverse backgrounds so a solution for energy efficiency must come with intersectional, interdisciplinary, and intercultural understanding.

There is so much potential and interest from students and faculty regarding sustainability but even now environmental education has been very limited to the SEBs classroom or environmental organizations. Departments like economics or engineering that are directly preparing students for a future where they will have to choose to either create sustainable options or not, have almost no exposure to key concepts of the circular economy or environmental design.

Green teams are a mode of starting important conversations in places where sustainability is not conventionally at the forefront of the conversation despite being an absolutely essential factor. An Engineering green team could work within its department to come up with methods to integrate sustainability related discussions into the curriculum through faculty support, specialized events, and awareness. By encouraging a wide range of communities to incorporate sustainability, Rutgers would be championing the interdisciplinary spirit that is absolutely vital to tackling the climate crisis.

A key component to cultivating a culture of sustainability at Rutgers would be creating a New Student Orientation Green Team to encourage and establish ideas about environmental justice and “eco cosmopolitanism” from the beginning of a student’s journey at Rutgers. This new generation of college students are key actors in the state of the future of our planet. Rutgers can only gain from encouraging the idea that sustainability is a philosophy that has a place in all disciplines especially in this Anthropocene era. Green team leaders could host workshops for how students can best live waste free on campus by bringing their own bags, thermos, or cutlery with them around campus. Furthermore, simple energy conservation skills can also be encouraged by promoting a sense of responsibility to this planet as a staple of our values at Rutgers.

III. Implementation

A. General

Green Teams will be implemented by reaching out to already established student organizations such as Engineering Governing Council (EGC) and RU Compost or creating new ones as appropriate. Newly created Green Teams will be provided comprehensive guidance on sustainability efforts based on other Universities’ handbooks and success stories and be put into collaboration with other Teams to create a larger, more unified voice. This will widen the channel for communication between the student body and Rutgers administration about practically vs. theoretically effective sustainability practices as we track progress and energy efficiency data. Thus more swiftly achieving Central Jersey Climate Coalition’s demands such as net-zero carbon emission by 2030 and a comprehensive Climate Action Plan. The Honors College has also expressed interest in serving as a Living Lab for Green team pilot initiatives.

Any newly created Green Teams based in the Honors College could be further incentivized by having their required volunteering hours fulfilled with any Green Team activity.

The overall timeline for execution would start beginning for Spring Semester 2020, where we would begin obtaining permissions and more necessary data to prepare for New Student Orientation, manage the free recycling program with Terracycle, and gather more information. The pilot would last one year from the first day Summer 2020 student orientations to the end of Spring 2021.

B. Cost-Benefit Analysis

Terracycle

To implement our suggestions regarding Terracycle, we would initially consider the free recycling programs that focus on specific products such as razors^[1] and oral care products^[2].

Central collection bins, which are free and supplied by Terracycle, could be placed in the Academic Building, conveniently near the Honors College, or any nearby public buildings as required by the free program regulations. As an entity that has already expressed interest in this program when we approached them, the Honors College could be the first building that Terracycle is implemented in. The main cost would come from having two auxiliary collection bins (one for razors and one oral products) in each bathroom on every dorm floor. With 4 bathrooms per floor for four floors, this initiative would require 16 bins. At a cost of about \$5 per bin, **this program would cost a total of roughly \$80**, excluding the cost of transporting the bins. The bins are also expected to last about 20 years. This cost, because of how relatively cheap it is, can even be sourced via crowdfunding such as GoFundMe or donations from environmental parties such as Planet Blue Student Innovation Fund.

Money Earned Back vs. Year

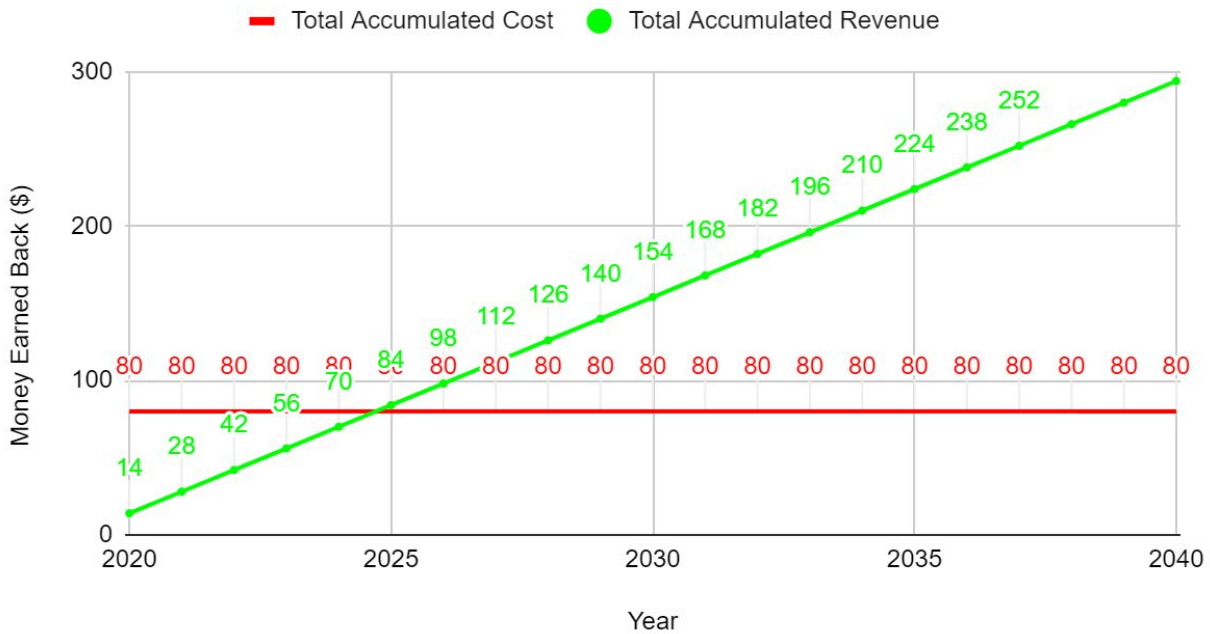


Table 1: Profitability of Terracycle

The bins would be the initial and only substantial cost as janitors would not need to be involved in this 100% student-run initiative. In addition, for every minimum number of pounds per program (5 lbs of razors and 15 lbs of oral care products), the school can receive rewards in the form of \$1 for each shipment or [charitable gifts](#). There is little evidence regarding the per gram usage of razors and oral care products, so we estimate college students to use 60 grams of

oral care products (the total mass of a few toothbrushes, floss containers, and a couple toothpaste tubes) and 80 grams of razors per year (blades included). According to our graph, this initiative could expect to break even within 5 years if rewards were taken as \$1 payments. The numbers are estimated with expectations that 80% of the 500 Honors College students would participate effectively, meaning over 50 lbs of razors (50 lbs per year / 5 lbs per shipment per dollar = \$10 per year) and over 60 lbs of oral care products (60 lbs per year / 15 lbs per shipment per dollar = \$4 per year) can be collected each year ($\$10 + \$4 = \$14$ per year as revenue). This estimation also does not consider non-HC students participation, which would only make the initiative more worthwhile.

The numbers in the table above are underwhelming, but the above suggestions, after talking with the Honors College administration and considering the feasibility of having the Academic Building as a drop-off center for razors and oral products, are only immediately applicable initiatives; if the pilot program is successful, this initiative could spread to other dorms and public buildings and also include more free recycling programs. Should Terracycle maintain its policies, profits from these initiatives could become non-negligible.

Charging Takeout Containers

The Green Team involved in promoting sustainable takeout materials would closely work with dining hall faculty and other relevant parties. The main objective is to shift away from using EPF by having Rutgers supply reusable takeout containers similar to the Cupanions initiative. To help achieve this, students would be charged 25 cents onto their RUExpress to incentivize participation. Efforts to promote reusable bags for shopping are arguably effective in all eight

states that have enacted legislation that have placed fees on plastic and paper bags. Participating in this initiative would require a one-time purchase of \$5 from students. Students would be expected to bring back their used receptacles to trade in and pick up a new clean one with their takeout purchase.

Composting

The Honors College has coffee machines that produce ideal compost ingredients: coffee grounds and filters. Everyday the grounds would be emptied into a compost bin outside the building and ultimately taken care of daily by the Green Team. If there is any involvement from staff, it would be minimal enough so as to maintain the spirit of 100% student operated. Once a week on Sundays between 10:00 AM and 11:00 AM, the Green Team would take the compost to Hillel a block over from the Honors College and drop it off with RU Compost, an already established group of environmental activists. We can roughly estimate over a hundred pounds of coffee grounds and filters to be composted, assuming that for the twelve weeks of Fall and Spring semesters (28 weeks total) at least four pounds of coffee grounds are collected per week ($28 * 4 = 112$ lbs coffee grounds and filters). The pounds of coffee are educationally estimated based on student observations and experiences. This would mean about 86 kg of CO₂ equivalent would be preserved. In terms of the fertilizer it produces, coffee grounds would also produce a minimal amount of money and save Cook Farm from needing external fertilizers. This initiative does not consider any other organic waste that students may consider composting, making these guesses an underestimation.

The immediate, monetary impact of this composting initiative is minimal, but the main purpose is still easily achieved, which is to slowly transition and explore more sustainable practices. The University of Michigan already had a successful pilot for a dormitory compost program before spreading to more of its on-campus [housing](#). Currently many of its on-campus students compost despite dorms not offering any food services. There would be no significant costs except a compost bin to store weekly coffee grounds and filters and an indoor collection bin that could total around \$50, which again can be funded by students.

In the future, this green team will have established a protocol that can be applied to other dorms and reduce trash from dorms by diverting it to compost. According to the University of Michigan, 30-40% of dorm trash is compostable. This has the potential to severely reduce how much waste Rutgers produces.

C. Non-monetary Benefits

1. We believe, after realizing how much sustainability that Rutgers already practices from an administrative level from biodiesel powered buses to motion sensor light switches, that besides more funding, Rutgers only lacks in data collection from how effective sustainable practices are. These Green Teams could provide data that could drive better school-wide sustainability decisions.
2. Rutgers will become a pioneer of sustainability in the short term and long term by cultivating a culture of innovation and interdisciplinary sustainability that will inspire a generation of students who are prepared to deal with the biggest issue of our time.

IV. Conclusion

Green Teams, although they may seem like a very grassroots and simple solution, have the ability to be a powerhouse force on our large campus that absolutely changes the way staff and students interact with their environment and campus. Culturally it would bring together Rutgers community members within their own organizations but also university wide through the value in reducing our carbon footprint. In the future, green teams will be a source of data that can allow us to take even larger measures towards achieving carbon neutrality goals. It will allow us to build an entire infrastructure from the bottom up that normalizes sustainability as a core value that we instinctively acknowledge as we continue to innovate and strive forward as a university.

V. Resources

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