

MESM GROUP PROJECT PROPOSAL 2021 – 2022

Inside-The-Park Home Run: A Sustainability Framework for Major League Baseball Stadium and Clubhouse Operations

AUTHORS

Jordan Davis | MESM Candidate, 2022 | jmdavis@bren.ucsb.edu | (858) 705-9109

Gabrielle Barsotti | MESM Candidate, 2022 | barsotti@bren.ucsb.edu | (808) 748-9473

Eric Shaphran | MESM Candidate, 2022 | eshaphran@bren.ucsb.edu | (818) 456-7832

Mikel Irigoyen | MESM Candidate, 2022 | irigoyen@ucsb.edu | (805) 807-2907

COLLABORATORS

Eric Masanet | Bren Professor | emasanet@bren.ucsb.edu

CLIENT

Gary Goldring | Goldring Family Foundation | gfgoldring@hotmail.com | (860) 354-7223

Chris Dickerson | Players for the Planet | cdickerson@playersfortheplanet.org | (619) 761-1996

OBJECTIVES

1. Develop a quantitative and generalizable framework and calculator for estimating the environmental footprints of sports operations in stadium and clubhouse operations.
2. Quantify the total footprint of MLB stadium and clubhouse operations (running stadiums, footprints of food, packaging, and waste, fan transportation, etc.) through a cost benefit analysis.
3. Assess what capacity the organizations have to reduce different components of their environmental footprints and aggregate best practices, drawn from comprehensive review and cost-benefit analysis of various savings efforts implemented by stadium sustainability leaders.

SIGNIFICANCE

In 2019, Major League Baseball (MLB) games drew close to 70 million fans in attendance and produced well over a ton of waste per game. In addition to 81 home games in a typical year, most stadiums also host events ranging from concerts and sport exhibitions to monster truck rallies and motocross races. Considering these metrics, sustainability efforts have the potential to make a huge positive impact. While every stadium is unique, each venue consumes an enormous amount of resources to put on these events. An average MLB game generates over a ton of waste including food and single-use plastics, and teams can spend millions of dollars per year on electricity. Fortunately, these common issues create opportunities for widely applicable solutions. Stadium operations, such as entertainment productions, concessions, and restrooms contribute to a large amount of waste, energy and water use. On average 28,000 fans flock to their favorite stadiums on a game day, which presents opportunities to reduce the environmental impact of transportation with buses, trams, and subways. With a more comprehensive understanding of the footprint of stadium and clubhouse operations, teams can make the most informed decisions about how to increase efficiencies at their complexes with financial and environmental sustainability in mind. The results of this project can help guide sustainability initiatives at spring training facilities, other professional and collegiate sports teams, as well as events centers further increasing the project impact.

BACKGROUND

Long-standing traditions of enjoying peanuts and crackerjacks at a game are just two examples of baseball traditions that contribute to single-use packaging consumed in high-volumes that add to the waste created at sporting events. For a number of years, virtually no structures for sustainability at event centers existed; however, in the past decade, consumers and businesses alike have made efforts to be more sustainable, and professional sport organizations have followed suit. All 30 MLB teams have made efforts to increase sustainability initiatives and a handful of organizations have designed new stadiums or updated older facilities to attain LEED certifications. Additionally, MLB now has Ballpark Operations, a Sustainability division, and a number of teams have their own individual sustainability department. Existing organizations such as Players for the Planet and the Green Sports Alliance have assisted in increasing sustainability efforts in sports; even the United Nations has established a Sports for Climate Action framework. Despite existing sustainability initiatives, many sports organizations have not investigated the sources of their own environmental footprints, and no standardized and science-based tools exist for calculating such footprints that are tailored to the diversity of impacts unique to sports. There are two distinct areas that need to be addressed: stadium operations, which facilitate the customer experience around events, and clubhouse operations, which encompasses the actions and support for the individual players and team personnel. Both utilize similar resources such as energy, water, food, and plastics, but at different magnitudes. A scientific and methodical study and framework are needed to first quantify the magnitude of impacts and identify the key contributors to each.

EQUITY

This project can address environmental justice issues surrounding stadium and clubhouse operations. By reducing single-use plastic waste generated from food, drink, and other packaging, communities where the plastic is produced and disposed of will significantly benefit from the corresponding reduction in toxic emissions related to those processes. Reducing plastic waste will also serve to mitigate plastic that leaks into the environment, which can create disproportionate health hazards for communities that rely on local food harvest, particularly in coastal regions. Efforts to divert food waste from landfills can improve equity through donations of extra food for food banks and animal feed, and increased access to an affordable and abundant supply of compost for local agriculture operations. Since the water used in stadiums generally originates from the same source as the water delivered to homes and businesses in the surrounding community, water usage efficiency is critically important for stadiums located in arid or drought-prone regions. Regardless of geography and climate, water-saving improvements can increase availability for the local community and environment. Additional opportunities may exist for individual, team, or groundskeeping equipment recycling. For instance, equipment like baseballs, buckets, tees, pitching machines, L-screens, or rakes could be donated to local youth and school teams that could not otherwise afford them. Lastly, the communities where stadiums are situated are disproportionately impacted by air, light, and noise pollution due to transportation emissions and stadium lighting and sound systems. Cost-effective solutions to these problems exist and a compilation of best practices will equip teams with the tools necessary to execute improvements that work best for them.

AVAILABLE DATA

Both clients, Players for the Planet and the Goldring Family Foundation, are willing and able to provide data. Gary Goldring of the Goldring Family Foundation is an owner of the Tampa Bay Rays and will connect us to Rays personnel, including their sustainability director and head of stadium operations; these individuals will be able to provide data on current clubhouse and stadium operations including information on water and energy use. We will also be able to ask the Rays for data on concessions to obtain values for single-use plastics and food waste. Similar data types can be obtained from other teams via contacts provided by Players for the Planet. Dr. Masanet will be able to help with procuring any LCA data and energy and emissions modeling data that are needed, and nearly all of these data will be publicly available.

POSSIBLE APPROACHES

- Organize all data provided by Players for the Planet and MLB sustainability director for all current practices used by MLB players and stadiums.
- Based on existing operations, determine sports environmental footprint and the financial costs associated with waste, single use plastics and energy efficiency to understand potential savings with best management practices for sustainability.
- Conduct a cost benefit analysis of switching to sustainable practices
- Economic and financial analysis to compare best use practices between stadiums and clubhouses
- Assess the results of the financial analysis to determine what information should be included in outward facing communication to other sports organizations.
- Leverage data to analyze stadium and/or clubhouse operations using life cycle assessment (LCA) practices and outline a generalized LCA-type tool teams can use moving forward

DELIVERABLES

Students will:

1. Construct a website that houses:
 - a. A directory of contacts at professional sports organizations
 - b. A general interactive calculator tool to measure environmental footprints and explore the impacts of different strategies for reducing these footprints
 - c. Repositories of best practices
 - d. Case studies on “Green Athletics” to serve as foundational resources

INTERNSHIP

Players for the Planet and Gary Goldring are able to sponsor and support up to \$15,000 for summer internship(s). Number of student interns and internship length will be determined with the clients closer to the summer. Under current COVID-19 restrictions and safety concerns the internship(s) will likely be remote. Players for the Planet and Gary Goldring are able to host an in-person internship(s) if deemed safe at a later date. Please see attached client letter of support for confirmation.

BUDGET

It is not anticipated that the proposed project would require additional funding beyond the \$1,300 contributed by the Bren School. If funding is deemed necessary then support will be provided by the clients in the amount of \$15,000 to be split with internship costs. See attached letters of support.

Goldring Family Foundation

January 15, 2021

To:

Group Project Committee
Bren School of Environmental Science & Management
2400 Bren Hall, University of California
Santa Barbara, CA 93106-5131
Projects@bren.ucsb.edu

From:

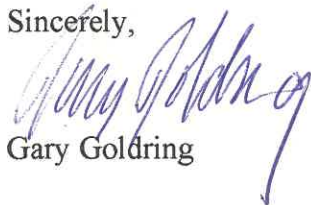
Gary Goldring
Goldring Family Foundation
gfgoldring@hotmail.com

I am pleased to endorse the proposed master's project proposal in collaboration with Players for the Planet. I am looking forward to seeing how the interdisciplinary skills of Bren School students and faculty are applied to facilitate efforts to implement and incentivize more environmentally sustainable practices with major league sports teams.

The Goldring Family Foundation will provide funding support up to a total of \$15,000 in internship support, and related Group Project expenses beyond those covered by the Bren School for the Group Project's basic operations, to facilitate Bren students to continue working closely on this project over the summer of 2021.

I look forward to your favorable consideration of the proposal.

Sincerely,



Gary Goldring



January 21, 2021

To:

Group Project Committee
Bren School of Environmental Science & Management
2400 Bren Hall, University of California
Santa Barbara, CA 93106-5131
Projects@bren.ucsb.edu

From:

Chris Dickerson
Founder, Players for the Planet
cdickerson@playersfortheplanet.org

Dan Rosica
Players for the Planet
drosica@playersfortheplanet.org

On behalf of Players for the Planet, we are pleased to endorse the proposed master's project proposal concerning a sustainability framework for Major League Baseball stadium and clubhouse operations. Players for the Planet is excited to utilize the interdisciplinary skills of Bren School students and faculty to achieve the following:

1. Develop a quantitative and generalizable framework and calculator for estimating the environmental footprints of sports operations in stadium and clubhouse operations.
2. Quantify the total footprint of MLB stadium and clubhouse operations (running stadiums, footprints of food, packaging, and waste, fan transportation, etc.) through a cost benefit analysis.
3. Assess what capacity the organizations have to reduce different components of their environmental footprints and aggregate best practices, drawn from comprehensive review and cost-benefit analysis of various savings efforts implemented by stadium sustainability leaders.

This letter serves to highlight Players for the Planet's support for the Bren Group Project. Summer internship funding and support for related Group Project expenses beyond those covered by the Bren School for the Group Project's basic operations will be provided up to a total of \$15,000 to facilitate Bren students to continue working closely on this project with Players for the Planet over the summer. This support will come from the co-client and project partner, Gary Goldring of the Goldring Family Foundation and co-owner of the Tampa Bay Rays.

We look forward to your favorable consideration of our proposal.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Dickerson".

Chris Dickerson
Founder, Players for the Planet

A handwritten signature in black ink, appearing to read "Dan Rosica".

Dan Rosica
Players for the Planet