

Ivy Plus Green Labs Research Initiative

Contributing Partners

Cornell University
Harvard University
Johns Hopkins University
University of Pennsylvania

Overview and Background

The Green Labs Research Initiative launched in May 2012 with a mission of conducting a broad investigation into sustainable lab practices, with special emphasis on:

- a. Better understanding the culture of the research laboratory environment including hierarchical structure, standard protocols, and most effective approaches to introducing change into this type of environment.
- b. Collecting behavior intervention/engagement success stories and determine which ones are unique to schools versus those that are replicable.
- c. Compiling a literature review of articles specifically from a behavioral perspective in laboratory environments, including academic and industry.

The project began with a relatively modest programmatic question: do any institutions use a “green” checklist or certification program to promote sustainable practices in lab settings? After further reflection, the question was broadened to include gaining a better understanding of the points listed above.

Process

From May through August 2012, the group held weekly conference calls to determine the scope and outcomes of the project. In terms of scope, the groups recognized that “labs” include many different varieties, including teaching labs, computer labs, chemical labs, biology labs, medical research, and engineering. To limit the scope, the group agreed to focus on labs that are most closely related to medical, biological, and chemical research.

To gather information, the team determined that phone interviews, with flexibility to expand questions and follow threads of inquiry, were a better approach than paper or computer self-guided questionnaires. The survey covered 16 institutions; 14 universities and 2 private sector research entities. The questions are attached as Annex 1.

Observations and Findings

From the 16 in-depth interviews, there were a number of common themes that appeared in one form or another on most of the institutions, including:

1. Researchers tend to be strongly motivated by some kind of visual recognition of their greening efforts. Recognition could be as simple as a sticker on the their lab door recognizing the lab as a green lab.
2. When researchers are asked to contribute to greening efforts using their own funds, they are less likely to participate. However, incentive programs that provided

bonuses or funding to help cover the additional costs for upgrading to more efficient equipment – such as a “cash for clunkers” type program – were highly successful.

3. The most successful lab greening programs were often those characterized by an open and positive working relationship between researchers, health and safety, and Facilities groups. Where these three groups worked as “partners,” programs were easier to implement and shared goals were easier to discuss.
4. While certification programs work well in office settings, it is less clear that they are effective on lab settings for three reasons: first, labs are so different that it is hard to establish a clear set of criteria that could be used cross-labs for a certification program. Secondly, certification programs could actually create so much additional labor and complexity that they would be hard to maintain. Finally there was not indication that a certification program would actually lead to additional motivation over and above the more simple measures like recognition efforts.

Samples of Best Practices

In addition to the themes identified through this initiative, the interviews also uncovered a series of best practices worth highlighting.

At the corporate level:

1. Green teams are effective ways of distributing information and practices throughout the labs. In the corporate level, these green teams can be mandated as part of individual work plans.
2. It is helpful to separate lab spaces from office spaces so that researchers can isolate their work habits and styles.

At the higher education level:

3. Efforts that facilitate developing personal relationships between lab researchers and building managers are worthwhile in order to build credibility and trust. The facilitation entails lots of tailoring, as there is no “one size fits all” model.
4. Networking in various forms – events, social occasions, and professional settings – are helpful for introductions.
5. Where possible, combine greening efforts with existing protocols and regulations. For example, green lab practices can be included annual lab safety registrations.
6. Established Green Labs program can be effective when they are seen as a helpful resource instead of an extra activity that will take more work and sacrifice.

Annex 1

Directions: During phone calls allow the respondent to elaborate on any of the following questions. Ask for examples and instances of success.

1. Does your institution have behavioral protocols in place to optimize the use of resources? Explain?
2. What are some of the measures you have undertaken to encourage behaviors to:
 - a. Increase energy conservation?
 - b. Increase water conservation?
 - c. Responsibly dispose of chemicals and solid wastes?
 - d. Divert materials from the waste stream (e.g., recycle, reuse, repurpose)?
 - e. Decrease the use of freezers for storage?
3. What are the most significant obstacles for reducing environmental impacts?
4. Who did you engage in the lab and how did you communicate these protocols/best practices to them, e.g. PIs, Lab Managers, Lab Techs, Students?