Sustainability Dashboard and Metrics

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2012-2013 Academic Year Sustainability Internship Report
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Indiana University, Bloomington | Office of Sustainability
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I. Introduction

On a typical jaunt around campus, I encounter recycling bins, dodge speeding cyclists, see steam escaping from underground lines, and enjoy green spaces dotted by towering trees. These sensory experiences and others speak to the multitude of elements that in combination define sustainability at Indiana University Bloomington (IUB). Environment, economics, equity—called the three E’s of sustainability—help us think about the dimensions that a concept like sustainability encompasses. Looking around campus, I try to gauge the three E’s. Can we feel them? Can we measure them?

Indiana University is an institution committed to a more sustainable future outlined in its Campus Master Plan, Integrated Energy Master Plan and the Office of Sustainability’s 2020 Vision 20 goals for 2020. Yet, it is challenging to create goals, let alone reach them without knowing how well one is currently performing. In order to assess how sustainable IUB is, one first needs to know how to measure sustainability. What factors provide us with the most pertinent information? The options run the gamut from electricity use to public transportation options, recycling rates to classes focused on sustainability. No one metric alone can answer our question, so how do we understand how different measurements coalesce to paint a meaningful picture that can guide us forward? I can trace steam escaping from underground vents back to heat production from burning coal which the Physical Plant measures and records. But quantifying a university’s bike culture proves a harder task. What do we measure and how do we measure it?

II. Impetus of program

Since the 2009 launch of the IUOS internship program, many devoted students have collected data pertaining to specific sustainability projects and initiatives. My internship aimed to capture a holistic vision of IUB’s sustainability efforts and progress by collecting campus-wide sustainability information pertaining to energy, water, transportation, academics, etc. This information would be used for two main projects:

1) The IUB Online Sustainability Dashboard
2) Preparing, Analyzing and Submitting sustainability assessments

IUB submitted its first Sustainability Tracking Assessment and Rating System STARS assessment on January 5, 2011 and intends to continue submissions for upcoming new versions of STARS. In addition, IUB recognizes that during their college searches, students are increasingly taking into consideration how well a university ranks in terms of sustainability. To fulfill the demand for this kind of information, popular college guides like The Princeton Review now provide a sustainability ranking; it is unlikely that this category will disappear. Since these guides come out yearly, IUB will need to prepare for updates by maintaining data collection.

At the same time it collects data for external assessments and publications like STARS and the Princeton Review, IUB wants to provide a more digestible look at sustainability progress on campus to current stakeholders and the public at large. In 2011 Jamie Panuzio
suggested some metrics that roughly fall within the six working groups on campus—Academics Initiatives, Energy and the Built Environment, Environmental Quality and Land Use, Food, Resource Use and Recycling, Transportation, and Computing—that could be displayed on an online campus sustainability dashboard. Following in the steps of other universities and Jamie’s suggestions, IUB decided to create an online dashboard housed on its website to highlight some key campus sustainability indicators over time.

III. History of Data collection

Like a detective unearthing clues in various forms, my data collection process involved a mix of sources. Campus stakeholder interviews and reports, previous internship records and reports, and IUB’s 2011 STARS report all assisted me. Campus stakeholders (Appendix D) provided updated fiscal year 2012 information via emails and interviews. Past IUOS interns (Ben Innskeep, Melissa Gruelich, Jamie Panuzio, David Roedl) have worked on specific projects as well as general campus-wide data reports that I drew upon when preparing this year’s assessments. For a complete record of past internship reports pertinent to data collection, please see the Coordinator Guide.

IV. Stakeholder contacts

Various departments on campus collect sustainability data. In some cases, a specific department measures and records information pertaining to a key indicator; for other indicators, a specific person is responsible for collecting information from various sources. IUOS depends on the commitment and collaboration of campus stakeholders in order to report accurate, timely data. Maintaining these relationships and building new ones is vital to success. Past interns have prepared charts of stakeholders and their contact information which I referred to at the beginning of my internship. In the appendix, I have included an updated list of stakeholders because several staffing changes took place between past reports and my internship.

V. Online Campus Sustainability Dashboard

History and Purpose

At the end of her 2010-2011 internship, Jamie Panuzio proposed the idea of an online campus sustainability dashboard which would display key indicators that track IUB’s progress towards its 2020 sustainability goals. The purpose of the dashboard is to provide a digestible summary of sustainability at IUB to the IUB community and the world. Transparency is an important ethic of any public institution; the dashboard aims to fulfill that responsibility in the area of university-wide sustainable practices. It is also a forum for the Sustainability Working Groups to feature data collection progress in their areas and emphasize the need for continuous rigor. As interest and concern about sustainability grows, the dashboard addresses that demand by telling the story of sustainability at IUB.

During his 2011-2012 internship, David Roedl began to turn Jamie’s vision into reality by
designing the interface of the sustainability dashboard and how it would communicate data. In his final report, David proposed that the term “indicator” rather than “metric” would better represent what IUB intends to track for this project, and I will use the two terms interchangeably in this report. David began collecting data for key indicators that each working group agreed best represented its progress in sustainability.

Ideally, the dashboard will display information for each indicator from 2004 onwards. Because several indicators have only recently been measured, only a few years worth of data is available to display at the moment. Some indicators are easily measurable and reliable, but others depend on assumptions and extrapolations. As I dug deeper to determine how accurate past-reported numbers were, I encountered reliability issues. Often numbers that seemed comprehensive really were not and the stakeholder involved could not properly estimate what was missing. For a detailed status report for each individual indicator, please see the Coordinator Guide, but some general trends regarding each working group’s chosen dashboard indicators follows. The dashboard is, of course, a work in progress intended to be edited every fiscal year with new information. Sustainability is a concept and a process, so it is fitting that the dashboard will evolve over time.

**Sustainability Dashboard Indicator Categories**

**Academics**

What complicates proper monitoring of indicators in this category is both the lack of universal definitions and the absence of established data collection procedures. IUB has created definitions of “sustainability-related and focused” classes, but the expansive and interdisciplinary nature of the concept of sustainability still makes class categorization challenging. Additionally, the Association for the Advancement of Sustainability in Higher Education (AASHE) admits that differing interpretations of “sustainability-related and focused” classes creates inconsistencies in reporting for the Sustainability Tracking, Assessment & Rating System (STARS). If AASHE leads a re-evaluation of these terms, IUB should participate in the conversation so that it can better approach categorizing classes. Not only does this malleable definition of “sustainability-related/focused” also affect research, IUB does not currently track sustainability research and should begin institutionalizing reporting procedures for this metric. Despite the need to improve accuracy of these indicators, all three—especially in combination—are sound ways of measuring sustainability in academics.

**Buildings & Energy**

This is a robust category of the sustainability dashboard representing some of the most traditional ways we conceive of sustainable practices. Energy use, cost, and water consumption data—measured by the Physical Plant—are available for many years past. However, normalization should be pursued since different figures for these metrics have been reported from various institutions on campus due to accounting practices. Even when
IUB’s use of energy and water becomes more efficient, these figures could increase as the campus expands. IUOS will need to determine whether these indicators continue to properly measure sustainability or whether energy/water use per capita or per square foot may be a better measure.

Some indicators in this category—LEED certified buildings, renewable energy—illustrate recent sustainability practices and improvements at IUB, so accordingly only a few years’ data is available to report on the dashboard. Lastly, certain indicators like Greenhouse Gas (GHG) emissions are complicated calculations demanding much time, records, and department collaboration. They can also be calculated through various methodology and calculators. As GHG emissions are a primary concern in global climate change, this is an essential, albeit exacting, indicator to measure and report.

**Computing**

Indicators in this category seek to address some of the most tangible byproducts of computing at a large university—paper use and the disposal of electronic devices. Paper purchases have been consistently and reliably tracked for some time, but accurate electronic waste (E-waste) measurements suffer from inclusion of other campus’s and the city of Bloomington’s E-waste in IUB’s figures. Nonetheless, IUB made substantial progress this year instituting procedures to measure and record E-waste on a monthly basis. Although, yearly growth in E-waste collected and recycled paper purchased represent a sustainable response to consumption, continual escalation in these areas needs to be addressed on the purchasing front. Reducing consumption should precede later necessary recycling.

**Environment**

IUOS may want revisit this category of indicators with the Environmental Quality and Land Use Working Group to see if it can expand upon the one chosen indicator. Data collection methods still need to improve in order to provide an accurate measurement for trees planted as a ratio of trees lost. The IUB campus is green and beautiful; this fact ought to be captured in a more thorough way either through the expansion of the tree canopy, status of on campus wetlands and rivers, etc.

**Food**

Like the Academics section of the dashboard, competing definitions of terms (in this case “local”) have inhibited authoritative measurement. More outreach and analysis should occur to identify sound historical estimates. Additionally, various barriers to composting have yielded an incomplete picture of what has been taking place on campus. Fortunately, new measurement procedures for composting were instituted this year. IUOS may wish to expand indicators in this section, although the current ones at least target both consumption and disposal elements of food.

**Involvement**
The dashboard is a forum to show off the depth and range of groups on campus dedicated to sustainability. It captures the human element or rather, the Hoosier element, of sustainability. IUOS has accurate records of more formal involvement—like Green Teams—but can improve its methods for understanding student involvement.

Resource Use

An institution the size of IUB produces a lot of “trash.” The purpose of the “Resource Use” category of the dashboard is to tell the story of reduction, reuse, and recycling taking place at IUB. Certain campus entities have contributed comprehensive and accurate measurements regarding their waste management practices, but further research this year highlights the problem of IUB’s current disjointed approach to waste management. Therefore, the available numbers likely underestimate IUB’s total waste stream affecting precise diversion rate calculations. Indicators in this section provide a holistic view of resource use, and highlight a unique IUB tradition—the yearly Hoosier to Hoosier sale. Yet again, the aim should be at increasing diversion rates first through reuse and reduction of total waste before recycling. The Resource Use and Recycling Working Group has made progress this year improving data sharing and drafting a new contract with the local waste management provider.

Transportation

The dashboard features trends in movement through four different indicators. Historical estimates of modal commute splits lack the rigor of recent results reported in the 2012 Transportation Demand Management Plan (TDMP). If the TDM—which calls for transportation surveys to be done regularly as well as the creation of a transportation coordinator position—is implemented, then IUB will have a robust source of transportation data. IUOS may wish to re-visit particular indicators (number of bike racks) that will likely remain stagnant over time and may not best measure progress in sustainable transportation.

Dashboard Progress: 2012-2013

When I joined the dashboard project, more data needed to be collected and the information still needed to be displayed on the new IUOS website. Throughout my internship, I continued to track down information for each indicator. I also worked on the dashboard pages of the new IUOS website. I prepared the overview sustainability indicators page where viewers can read about topic areas as well as the text for each individual topic area page. David Roedl has been responsible for adding graphs that display available data for various indicators. By the end of April 2013, the dashboard will display graphs for all indicators for which current and accurate data is available. To see the dashboard, visit http://www.indiana.edu/~sustain/overview/indicators/index.php.

Recommendations
IUOS should continue to promote the importance of measuring certain sustainability indicators and link individual and department feedback to overall success and recognition that comes from the dashboard. The dashboard will be a useful persuasion tool in the future to demonstrate why seemingly obscure and tedious data collection is important. It continues to enhance a holistic understanding of sustainability at IUB while emphasizing working group efforts to probe into their areas of expertise with metrics.

VI. GreenMetric

History

On August 1, 2012, the rector of the University of Indonesia (UI) sent IUB president, Karen Hanson, a formal invitation to participate in the UI Green Metric World University Sustainability Ranking 2012. Begun in 2010, UI created this survey with the aim to show

“...the current condition and policies related to Green Campus and Sustainability in the Universities all over the world. It is expected that by drawing the attention of university leaders and stake holders, more attention will be given to combating global climate change, energy and water conservation, waste recycling, and green transportation.”

As part of my internship, I reviewed the assessment criteria and collected data for measurable categories. To report certain measurements, I had to make certain assumptions due to the lack of information available; these assumptions obviously attenuate the precision of the data. Certain categories pertained to information that IUB does not currently collect, so systems must be established in order to answer these questions in the future. Under these circumstances, I had to submit the application on November 15, 2012 with zero scores in certain categories. On January 8, 2013, UI published the Green Metric survey results of which 215 universities from 49 countries took part. See Appendix B for IUB’s results.

Following UI’s announcement, I prepared a press release draft which was modified and published online. Later, Indiana Daily Student (IDS) reporter Rahaf Safi interviewed several IUOS participants in the project and published a piece about the ranking in the January 27, 2013 edition of the IDS newspaper.

Challenges and inadequacies of Green Metric

UI sees Green Metric as a tool for universities in both developed and developing countries. Since it caters to very different kinds of universities, IUB scores high in certain categories simply because it is located in an industrialized countries with an economic and legal infrastructure that make certain amenities (sewage treatment, piped water) facts of life. All other U.S. universities face similar realities, so this metric does not really demonstrate

progress in sustainability and does not help IUB compare itself with similar institutions in the area of water. This indicator may be relevant for certain developing countries, but not industrialized ones.

While I commend UI for creating a sustainability assessment accessible to all universities, the fanfare should be tempered by how meaningful such a survey is to certain universities. A good ranking in GreenMetric is a highly visible way for an institution to maintain the allure of “greenness” without really being judged by standards appropriate for its setting. It is a bar set low, easily reached, and campus leaders can revel in the good headlines without having accomplished all that much. At the same time, norms are clearly becoming established and as metrics continue to evolve, they will demand more from universities. Universities will find that they must rise to the challenge of more demanding assessments like these because once they have established a track record of submitting them, they cannot cease without suffering damages to their reputation.

In order to submit information for certain measurements GreenMetric required, we had to make some assumptions (For a complete record of complicated calculations, refer to the GreenMetric spreadsheet in the Sust Metrics Oncourse folder.) Unfortunately, GreenMetric’s data entry page for participants was simplistic allowing only for checking boxes and entering numbers with no space for stating assumptions and qualifications. Such a method likely produces consistency errors as each university attempts to complete the survey in the most thorough way possible with no public forum available for explaining how it made certain calculations.

**Benefits of GreenMetric**

By submitting a GreenMetric survey this year, IUB joined a community of colleges worldwide committed to valuing the importance of sustainable practices at institutions of higher education. Many large state universities had submitted the assessment in previous years thus demonstrating that institutions similar to IUB considered it valuable. At a certain point, assessments like these can reach a critical mass where it becomes the norm to submit them. If the GreenMetric becomes more rigorous, it could gain further momentum and become an international standard. Alternatively, the recognition GreenMetric is attracting could motivate AASHE to broaden the audience of STARS with an international version of its assessment.

GreenMetric also serves as a gap analysis of sorts. IUB can use it as a tool to compare itself to other universities, particularly ones that scored high in GreenMetric, to address weaknesses and maintain strengths. IUB can learn from the best practices of other higher education institutions.

Once the rankings were announced, IUOS received recognition online through an IUB press release and in an IDS article. This sort of public recognition is beneficial for IUOS demonstrating its important role in shaping a key element of IUB’s positive image. Furthermore, IUB aims to be an internationally recognized leader in sustainability. Results, like those from GreenMetric, attract student, faculty, and staff attention and excitement.
VII. Other Sustainability Assessments

In addition to the GreenMetric sustainability assessment, I submitted updates for the Princeton Review and Sierra Club. Director of Sustainability Bill Brown decided early in January that we would not submit a new STARS submission for 2013, due to the pending changes for STARS 2.0. Instead we only updated the supplemental section required for Princeton Review and Sierra Club assessments.

Princeton Review and Sierra Club Updates

This year, IUB received invitations to participate in the 2013 edition of the Princeton Review Green Guide to colleges and the Sierra Club’s “Cool Schools” 2013 survey. Both these organizations use the Supplemental Data section of STARS for acquiring their data requests. In order to update the supplemental data section, I contacted various stakeholders on campus who had filled out sections previously to see if any figures had changed for fiscal year 2012. Many figures had not changed, but there were some substantial changes in fuels used for heating. I made the noted changes and submitted our results on February 8th, 2013.


VIII. Recommendations

Past and present data records lack organization. Student interns cycling in and out of the internship program find themselves starting from scratch or spending substantial time reviewing past data collection records. The online dashboard, STARS, and other assessments will need updating on a yearly basis. Therefore, my recommendations revolve around streamlining data collection and adequately managing records.

Sustainability Indicators Datamart and Online Database

A large university like IUB is awash in data collected and stored by myriad entities. From this mass of information, IUOS seeks a specific set of data related to sustainability. A data mart—a specialized data storage system that houses information from various databases—could serve IUB’s needs. The data mart focuses on a concept—in this case, sustainability—and could integrate historical data from all over campus. It would be a way to more systematically approach data collection. In addition, I recommend that IUOS create its own database as a means of accessing and organizing information in the data mart for its yearly updates. These two tools would solve some of the current inadequacies of sustainability data collection at IUB.

Currently, there are several problems with IUOS’s data collection process. First of all, most stakeholders report their data to IUOS via email, spreadsheets, or hard copies to IUOS
Past interns with specific focuses on data collection have created Oncourse folders where they stored this information. However, many of these reports lack dates, contact information and any explanation of the context making it difficult for new interns to decipher the information IUOS does have. Additionally, there is the possibility that some reports may never have been saved. Since interns frequently turnover, consistent methods should be established rather than relying on each individual to organize and record information in his or her own way. Also, metric interns might not be aware that other interns compile data for specific programs such as waste; coordination among interns is essential to prevent duplication of research.

Second, many requests to various offices around campus for data are not returned. IUOS is asking extra time and effort of already very busy people with such requests, so they are often a last priority for stakeholders. Even when stakeholders have the best intentions of responding, they may not be prepared to comply with the request in a timely manner because of the unpredictable schedule of the requests and their existing responsibilities. IUOS should continue to advocate for the importance of all stakeholders’ participation in the data collection process, encourage appointed individuals to be responsible for submitting data requests, and plan specific yearly times that data must be submitted by. It could send reminders about upcoming deadlines to data collectors. Basically, IUOS should advocate for making data collection and reporting a normal practice among all stakeholders across campus. Lastly, often IUOS requests information that is not currently collected. I have begun to identify unreliable, incomplete, or missing information that various assessments often request, but this process must continue and steps should be taken to begin collecting data in these fields.

A data mart could alleviate some of the problems just described. Most importantly, all data would be stored in one place programmed to track when and who submitted information. IUOS employees and interns working on various projects could all have access to this centralized knowledge through the IUOS database. The data would be organized in a uniform way year after year making it easy for new interns to track changes and make conclusions about trends. A data mart could guide stakeholders as they submit requested information thus eliminating lengthy email chains and ambiguous spreadsheets. When employee turnover occurs among our campus stakeholders, new employees could be easily taught about the data mart rather than try to fulfill open-ended data requests by researching how their predecessors answered such questions. IUOS could train and provide data mart manuals to each office to eliminate barriers to data collection and reporting.

Campus entities, like the Physical Plant, already use metering systems that feed them information about water and energy use. The Physical Plant may play an important role compiling its data and translating it; data from their databases could be set up to directly populate the IUOS dashboard. The Physical Plant, like other departments, will have to be amenable to outside monitoring and tracking of data they submit. They could also provide important feedback on the relevance of dashboard indicators so that that the dashboard can display information that is the most impactful for the IUB community.
This project will take considerable collaboration between IUOS, University Information Technology Services (UITS), the Office of Institutional Research and Reporting, and the Physical Plant. The Sustainable Computing Working Group also wishes to address how technology can help the data collection and sharing effort.

**Problems to consider**

To explore my idea of an IUOS database for metrics and indicators, I consulted Senior Lecturer Terry Usrey who teaches Database Management Systems at SPEA. Professor Usrey offered to serve as a future consultant in maintaining the database for IUOS and provided insight into the implementation of such a database. Since IUOS created its new website through the web content management system at IU, the campus web server automatically provides datastores that would be large enough for a project of this size. Professor Usrey believes that a good student coming out of his class would have the requisite skills to design and implement an online database. He also recommended that this project would be an ideal summer internship because someone could do it in 2-3 months. To that effect, I have created a job description for such a position (Appendix A) that IUOS can consult if it wishes to create a database management internship in the future.

In addition to Professor Usrey, I consulted research librarian and current SPEA graduate student, Krista Mantsch about database management. She provided advice about design, access, and usability. She said to consider the following:

1) Scoping process: Prior to creating the database, IUOS should conduct focus groups to inform campus stakeholders about the database project as well as elicit feedback about the usefulness of such a tool for various offices. Before implementation, it is vital that IUOS gauge how much support exists for the data mart and database and whether various stakeholders can incorporate this tool into their ongoing practices. After incorporating feedback from these meetings, the database designer should create mockups of the interface to share and requests comments on. Later, usability testing must be conducted to make sure individuals understand how to enter data into the database. This scoping process, especially the first steps, must occur in order to avoid creating a beautiful product that nobody ends up using, a problem that Ms. Mantsch has seen on occasion during her career.

2) Usability for IUOS and stakeholders: While designing the database interface, the designer should take into consideration what is included and in what format on each page including the number of fields available, text, and potential drop down menus for those inputting data. Additionally, one should consider what kind of output/reports the database should produce for IUOS. IUOS staff should also be able to access fields about who entered data and when. To keep data confidential and secure, Krista Mantsch recommends requiring a password to access the database. Importantly, the database must be designed in a way that allows it to grow when new stakeholders and metrics/indicators are added.

*Other approaches to data collection*
Institutionalizing data sharing through a data mart system is a necessary but ambitious goal that may progress slowly. In the meantime, there other stopgap measures that IUOS could implement. If no Sustainability Dashboard Internship position exists in the future, data collection duties could be split up among several different interns. Considering the internship positions available in 2012-2013, I recommend the following interns be responsible for certain kinds of data:

Energy and Built Environment Service Corp Fellow: Collect data on traditional and alternative energy use and water including amounts and costs.

No Waste Intern: Collect waste data including compost, recycling, and electronic waste.

Document management: Collect data on recycled and non-recycled paper purchased.

Academic Initiatives: Collect data on number of sustainability focused/related classes, research hours/funding, scholarly publications and events related to sustainability.

Environmental Quality and Land Use Service Corp Fellow: Collect data on number of trees, trees lost/trees planted.

Bike intern: Collect data on bus ridership, modal splits, and bike racks available on campus.

I also recommend that all interns, departments, and organizations that recruit volunteers should create systems for recording the number of volunteers and hours, so we can report volunteer hours more accurately on the dashboard.

IX. Unanswered Questions: Better definitions

What are we measuring? Such a simple question can be rife with disagreement and ambiguity. Within the field of sustainability, particularly sustainability in higher education, experts have not agreed upon set definitions of certain words, often leaving universities to define them in their own way. This of course causes problems when schools come together to compare measurements in certain categories that they have conceived of in very different ways.

The STARS leadership has realized this problem, particularly when it comes to defining sustainability related/focused classes. Currently, IUB uses the following definitions:

- **Sustainability focused** courses concentration the concept of sustainability, including its social, economic, and environmental dimensions, or examine an issue or topic using sustainability as a lens. Sustainability is a consistent thread throughout each course component and most assignments are designed to help students develop a better understanding of sustainability and sustainable development.

- **Sustainability related** courses incorporate sustainability as a distinct course component or module, or concentrate on a single sustainability principle or issue.
In a recent AASHE blog post, Julian Dautremont-Smith discussed the inconsistencies among definitions and the way in which courses were interpreted by various institutions. He offers a new definition:

“A sustainability focused course is one in which the primary focus is sustainability as an integrated concept, including its social, economic, and environmental dimensions. This focus must be explicit. Typically, this will be achieved by including ‘sustainability’ or ‘sustainable’ in the course title. At a minimum, sustainability must appear prominently in the course description. As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines. These courses are also likely to have been created recently since sustainability is a relatively new field of study.”

Also, he expounds on the idea of using new labels such as “inclusive of sustainability” and “supportive of sustainability.” When substantial points in the academic category of STARS rest on this indicator, there may be the temptation for schools to relax their own definitions of “sustainability related/focused” and report large numbers of classes. The time has come for a more authoritative definition.

We can see that GreenMetric introduced the same ambiguities in its survey in the education category where it asks participants for the number of courses related to environment and sustainability. By including the word environment, nearly all courses in biological and physical sciences fall under this definition even though they arguably do not really fall in the realm of sustainability.

This same issue extends to defining sustainability research—an indicator that continues to crop up in sustainability assessments. Without a precise definition, tracking sustainability research dollars is problematic. Moreover, scholars are conducting sustainability research across campus in assorted departments and research centers some of which may appear obvious nurturers of sustainability research while others are unexpected. We also do not know how much communication takes place between scholars at the different research centers and departments conducting sustainability research. IUOS could fill this void by surveying scholars and research centers, but it must first be equipped with a solid definition of what constitutes sustainability research. Once defined, a sustainability research “flag” could be added to research center databases to more easily distinguish and report sustainability research. In Appendix E, I have crafted an example of a letter that could be modified with the appropriate definition and sent out to directors at different research centers and departments. This letter includes the beginnings of a survey that directors could send to their employees that would provide IUOS with an idea of what kind of sustainability research is taking place on campus. Additionally, I have listed potential research centers and departments that are the most likely to house sustainability scholars.

Similar ambiguities arise with terms like “local” when it comes to qualifying sustainable food. For STARS category OP-6, AASHE defines local food as food “grown and processed within 250 miles of the institution.” However, there is no one definition for this term and many sustainability practitioners still disagree.

Ambiguous definitions that lack authority beget a confusing environment where universities are measuring different things and indicators are not comparable across schools. Mark Milby, the 2012-2013 No Waste Coordinator has suggested that this problem also occurs when universities do their compost and reuse calculations during waste data analysis.

**X. Conclusion**

As Albert Einstein once said, “Not everything that counts can be counted, and not everything that can be counted counts.” My job at IUOS this year was to continue to tease out the difference between the two. Pictures may speak louder than words, but numbers are really what help IUB discern its sustainability status, form appropriate goals, and execute them. The online sustainability dashboard is significant accomplishment in the step towards monitoring, evaluating, and telling the story of sustainability at IUB.

*Special Thanks To:* Bill Brown, Vic Borden, Kim Milford, Emilie Rex, Jessica Plassman, Mark Milby, David Roedl, Peggy Maschino, Todd Reid, and Tom Fallwell.

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Appendix A: Sustainability Database Intern Job Description

**Job Title:** Sustainability Database Intern

**Job Description:** This intern will create an online database that allows IUOS to collect sustainability data from various campus stakeholders. He/she will conduct focus groups to identify stakeholders’ needs and usability concerns as well as lead workshops to explain data entry and database functions. The intern should also train IUOS staff and interns in database functions. Schedules, guidelines, and a manual may need to be created so future database users can learn how to use this tool.

**Candidate requirements:** Preferred candidate has taken Database Management Systems (V519) or has had previous coursework and experience in designing, implementing, and maintaining online databases. Excellent research and communication skills are a must. The ideal candidate will be comfortable speaking publically and be able to train individuals and groups who have little prior online database experience.

Appendix B: IUB GreenMetric Results

Overall  
Score: 6002  
Ranking in world: 45

Setting and Infrastructure  
Score: 540  
Ranking in world: 106

Energy and Climate Change  
Score: 1395  
Ranking in world: 68

Waste  
Score: 1275  
Ranking in world: 85

Water  
Score: 1000  
Ranking in world: 1

Transportation  
Score: 1300  
Ranking in world: 47
### Appendix C: Proposed Sustainability Dashboard Indicators

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<thead>
<tr>
<th>Working Group/Topic</th>
<th>Metric</th>
<th>2020 Goal</th>
</tr>
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<tbody>
<tr>
<td><strong>Academics</strong></td>
<td>Sustainability-focused classes</td>
<td></td>
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<tr>
<td></td>
<td>Sustainability-related classes</td>
<td></td>
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<tr>
<td></td>
<td>Faculty researchers</td>
<td></td>
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<tr>
<td><strong>Buildings &amp; Energy</strong></td>
<td>Greenhouse Gas Emissions</td>
<td>Reduce 30% from 2010</td>
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<tr>
<td></td>
<td>Energy cost by source</td>
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<tr>
<td></td>
<td>Total energy consumption</td>
<td>Reduce 20% from 2010</td>
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<tr>
<td></td>
<td>Total renewable energy</td>
<td>15% of total</td>
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<tr>
<td></td>
<td>Solar production (kWh)</td>
<td></td>
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<tr>
<td></td>
<td>LEED-certified buildings</td>
<td>Certify 20 existing buildings</td>
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<tr>
<td></td>
<td>Total water consumption</td>
<td>Reduce 40%</td>
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<tr>
<td><strong>Computing</strong></td>
<td>Total e-waste diverted</td>
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</tr>
<tr>
<td></td>
<td>Total recycled paper purchased</td>
<td></td>
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<tr>
<td></td>
<td>Total non-recycled paper purchased</td>
<td></td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>Trees planted/Trees lost</td>
<td>Plant 12,000 trees</td>
</tr>
<tr>
<td><strong>Food</strong></td>
<td>Local food purchases (% of total)</td>
<td>20% of total</td>
</tr>
<tr>
<td></td>
<td>Composting (total weight)</td>
<td></td>
</tr>
<tr>
<td><strong>Involvement</strong></td>
<td>Active Green Teams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Active Student Organizations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total volunteer hours</td>
<td></td>
</tr>
<tr>
<td><strong>Resource Use</strong></td>
<td>Waste diverted/waste to landfill</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total solid waste</td>
<td>Reduce 20% from 2010</td>
</tr>
<tr>
<td></td>
<td>Results of Hoosier to Hoosier</td>
<td></td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td>Bus ridership</td>
<td></td>
</tr>
<tr>
<td></td>
<td># of bike racks on campus</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student Commute Modal Split</td>
<td>Reduce demand for single occupancy vehicles by 20% from 2010</td>
</tr>
<tr>
<td></td>
<td>Faculty/Staff Commute Modal Split</td>
<td>Reduce demand for single occupancy vehicles by 20% from 2010</td>
</tr>
</tbody>
</table>
Appendix D: Sustainability Research Request and Questionnaire

Dear (Insert Director of Research Center/Department):

The IU Office of Sustainability (IUOS) is tracking various metrics to show IU’s progress in sustainability as we strive to accomplish our 2020 goals. One tool we use to track our progress is the Sustainability Tracking Assessment and Rating System (STARS)--a self-reporting tool for U.S. universities--as well as other national and international assessments. Another is the IUOS online dashboard. As IUOS gains more experience with these assessments and crafts its own dashboard, we continue to refine our data collection methods making them as robust and reliable as possible.

Many assessments require us to report on sustainability research; this indicator is so important that we want to include it on our IUOS sustainability dashboard as well. Because faculty doing research on sustainability are spread out over various research centers and departments, it is difficult to discern how much research is taking place at IU and by whom. We ask for your help in this pursuit. As a director of (Insert Center/Department) you have invaluable knowledge about research conducted at your center. We ask you to distribute the attached survey to faculty whose research could be categorized as focused on or related to sustainability which we define as:

- **A sustainability focused course** is one in which the primary focus is sustainability as an integrated concept, including its social, economic, and environmental dimensions. This focus must be explicit. Typically, this will be achieved by including “sustainability” or “sustainable” in the course title. At a minimum, sustainability must appear prominently in the course description. As sustainability is an interdisciplinary topic, such courses generally incorporate insights from multiple disciplines. These courses are also likely to have been created recently since sustainability is a relatively new field of study.

*Definition offered by Julian Dautremont-Smith, Chief Sustainability Officer, Alfred State College, AASHE member*

We understand that these definitions are imperfect and may not neatly categorize certain research. We just ask that faculty choose the definition, if any, that is most applicable to their research.

**Outline of Survey:**

How would you define your research?
1) sustainability-focused  2)sustainability-related  3)not applicable

How is your research funded? If you've received a grant, how much does it provide?

When did your project begin and when do you anticipate it ending?
Could you provide a short (1 paragraph maximum) summary of your research (abstracts acceptable)?

**Pertinent Research Centers:**


Integrated Program in the Environment: [http://environment.indiana.edu/](http://environment.indiana.edu/)

The Eppley Institute for Parks & Public Lands: [http://www.eppley.org/](http://www.eppley.org/)

Midwestern Regional Center-National Institute on Global Environment Change (NIGEC): [http://www.research.iu.edu/centers/mrcnigec.html](http://www.research.iu.edu/centers/mrcnigec.html)

The Population Institute for Research and Training (PIRT): [http://www.indiana.edu/~pirt/](http://www.indiana.edu/~pirt/)