

A BENCHmark for Sustainability: An Investigation into Sustainable Art

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APSC 261

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APSC 261 Final Report
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ABSTRACT

The new UBC Student Union Building (SUB) is projected to achieve a LEED Platinum+ standing upon completion. This world-renowned award acknowledges accomplishments in design and implementation of advanced eco-friendly buildings - a notable feat that SUB Design Committee would like to share with the public.

As such, this report proposes that the Design Committee commission an inspiring art piece to go on display in the atrium of the new Student Union Building. This investigation assesses the feasibility and sustainability of implementing such an art piece made from recycled items. In keeping with the Design Committee's goal of inspiration through human connection it is proposed that the design resemble a ubiquitous everyday object – something that will seamlessly transcend the field from action to reaction. Specifically, this entails the simple daily process of recycling and its integration into one's surroundings. This art piece intends to spark thinking amongst its onlookers into making the connection between the consumption of materials and their direct effect onto our surroundings, our planet, and future. Thus, it is intended that such inspiration be captured through the exhibition of a park bench. Justification of this design idea is conducted through a triple bottom line analysis that examines the environmental, economic and social impacts of commissioning a bench made from recycled materials. Based on the generated results, this report recommends that the inspiring art piece reflect the following three attributes:

1. The art piece will resemble a park bench and reflects a discernible amount of uniqueness.

The design of the bench will be selected through a campus wide design contest.

2. The materials used will comprise of 100% recycled plastic.
3. The size of the park bench will be approximately to scale (2m x 1m x 2m).

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Table 1: Comparison of recycled material costs

GLOSSARY

Bisphenol A:

An organic compound used to make certain types of plastics.

Landfill Gases:

Gases produced from the breaking down of waste material in landfills.

Leachate:

Water which transports dissolved substances from materials through which it has filtered. In the case of landfills, the dissolved substances are toxins absorbed from waste material.

Pthalates:

A group of chemicals added to plastics to increase their flexibility, transparency, and lifespan.

LIST OF ABBREVIATIONS

UBC:	The University of British Columbia
SUB:	Student Union Building
LEED:	Leadership in Energy and Environmental Design
AMS:	Alma Mater Society

1.0 INTRODUCTION

“Inspiration towards sustainability, through a reduction in material consumption is one of the goals propelling the design of the new Student Union Building (SUB) at UBC’s Point Grey campus,” (Alma Mater Society of UBC Vancouver 2010). The purpose of this report is to investigate the plausibility of commissioning an inspirational art piece to go on display in the Atrium of the new SUB; a study is conducted on implementing a life-sized park bench made from recycled plastic. Social integration by way of human contact is popular grounds for achieving such inspiration. As such, an art piece which motivates students, faculty, staff and UBC visitors to recycle can be a powerful tool to reduce our net ecological footprint. Evaluation to showcase a life-sized park bench made from recycled plastic is completed through a triple-bottom-line analysis that reviews the environmental, economic and social impact of the project.

2.0 TRIPLE-BOTTOM-LINE ANALYSIS

In the following sections, a triple-bottom-line analysis is performed on the recycled plastic park bench to determine its viability under the three primary criteria: environmental, economical, and social.

2.1 Environmental Impact

The first criterion covered in this triple-bottom-line analysis discusses the environmental impact of the proposed art piece.

2.1.1 Purpose

The purpose this aspect of the analysis is to determine whether or not the design will have a positive impact on the environment. From this viewpoint, it is important to consider two different parameters of the bench: the material used and the overall size of the art piece. Each of these parameters affects the sustainability of the design from an environmental perspective.

2.1.2 Methods

Although the main purpose of the design is to increase public awareness and participation in sustainable practices, the implementation of this art piece will have a direct effect on the environment as it is made entirely out of recycled material. In order to determine whether recycling the selected material, plastic, has a positive effect on the environment, it is necessary to understand the negative effects resulting from not recycling plastic. It should also be determined whether or not plastic is the best choice of material. The primary method of discovering this information is by performing background research; specifically, statistics must be collected which indicate relevant information.

The next important factor to consider, having determined what impact recycling the selected material will have, is to determine the magnitude of the impact. This is directly correlated to the size of the design; a larger design will result in more material being recycled and thus a larger impact. Statistics on the amounts of each type of material recycled annually in

Canada will provide insight on how great of an effect this design will have on the country. This information is also found through Stats Canada.

2.1.3 Results

The first concern that must be addressed is how important the effect of recycling plastic will be on the environment. There are four main locations that plastics end up at the end of their lifetime if they are not recycled: landfills, incinerators, oceans, and other water sources. At each of these locations, plastic has a very negative effect. Landfilling and incinerating are two intentional ways society deals with un-recycled plastic. Landfills are areas of land where waste is stored on a long-term basis. The problem with dumping plastics at these locations is that they result in leachate and landfill gases (Statistics Canada, 2005). Leachate is the result of water passing through piles of waste, where it collects toxic chemicals, and running into other water sources which become contaminated. Toxic gases, called landfill gases, are also often produced as a result of the waste and can have harmful effects on humans, wildlife and contribute to global warming. Incineration is the process of burning waste; however, this releases many pollutants into the atmosphere, especially when plastic is burned.

Not all plastic is disposed of according to intended methods; much of the plastic waste produced ends up in the oceans or other water sources. Many plastics, such as Phthalates and Bisphenol A (BPA), contain chemicals which are toxic to humans and other wildlife. When plastics end up in water sources, the contamination process can continue for a very long time since plastics take a very long time to break down (Zaman, 2010).

Plastics which end up in the ocean also have severe effects; marine animals often die when they either become entangled in floating pieces of plastic or consume it, mistaking it for food (Allsopp, Johnston, Santillo, & Walters, 2011). This is already a widespread problem; 267 marine species are known to have suffered this fate, and there are an estimated 13000 pieces of floating plastic on every square kilometer of ocean (Allsopp et al., 2011).

It is apparent that plastic which is not recycled has very harmful effects on the environment; however, it is also necessary to determine both the direct and indirect effect the proposed art piece will have on the recycling industry, as well as whether there is a better material to select for its construction. According to Stats Canada, over 7.7 million tonnes of

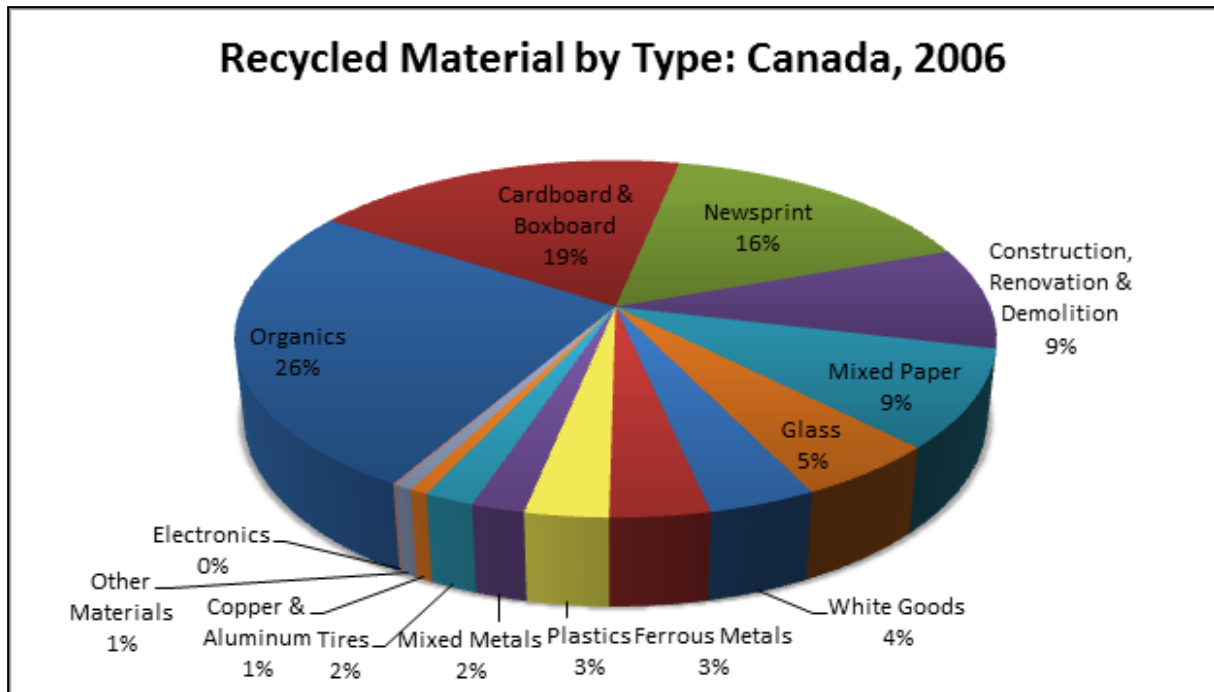


Figure 2: Recycled Mass of Different Materials in Canada in 2006

material was recycled in Canada in 2006 (Statistics Canada, 2008). Of this amount, only 232,339 tonnes was plastic material. The division of the recycled materials is shown in Figure 1. The figure shows that plastic is among the least recycled materials in Canada. This verifies that plastic is a wise choice for the design material, since it is apparent that an improved effort needs to be made in this area of recycling.

The direct effect that this art piece will have on the environment can be measured by the increase of recycled plastic in Canada due to its implementation. Assuming the weight of the bench will be approximately 100 kg, the increase in Canadian plastic recycling (based on the 2006 statistics) would be 0.000043%. This is clearly not a sufficient amount to justify the implementation of such an art piece by direct environmental impact alone.

The indirect environmental impact of the proposed design is difficult, if not impossible, to measure. Since the purpose of the art piece is to increase awareness and participation in sustainable practices, this impact is directly tied up with the social impact the design has. UBC currently has a population of 54,125 students – 7,570 of whom are international students from

over 145 countries (University of British Columbia, 2010). It is unclear exactly how much recycling at UBC will increase as a result of this project. However, a population as large and diverse as this one has the potential to spread ideas and practices at an alarmingly high exponential rate.

2.1.4 Conclusion

Although the direct impact on the environment is rather insignificant in comparison to the plastic recycling effort already underway by Canada, the implementation of the proposed piece of artwork for the new SUB atrium has the potential to create a large positive change indirectly. Because of the extremely negative effects that unrecycled plastic has on the environment, it is important that actions are taken to improve the sustainability of a lifestyle at UBC.

2.2 Economic Impact

This next criterion of the analysis discusses the economic viability of the proposed project.

2.2.1 Purpose

As the primary positive aspect of this bench is its social impact, the economic impact plays a less crucial role. Nonetheless, as part of a triple-bottom-line analysis, the economic impact must be considered. Since the bench will be an art piece, it is not expected to generate income nor will it have any particular cost-saving benefits; thus, the primary goal here is to evaluate the most cost-effective method of implementing this bench. In this case, the use of recycled materials and unique design contribute to this reduced cost. In addition, the size and shape of the bench may affect the ultimate cost of the project. There are several recycled materials that were considered to be used in the design of this bench: plastic, paper, and metal.

2.2.2 Methods

To determine the viability of a material, the economic cost of obtaining and using that material must be considered. An analysis of three different materials will be performed to determine the total cost involved in obtaining the material and constructing the bench with that material. The primary method of research will be a comparison of the raw material costs. This establishes some common ground between such a different set of materials; the cost to obtain each type will roughly translate to the economic viability of this project. Since the design will be based off a student design, it is not expected to be detailed enough to be usable to a builder or artist; rather, a professional artist would be able to use that design as a guideline to construct the actual bench.

2.2.3 Results

Conventional benches are usually constructed from wood or concrete frames, but to promote sustainability, the material used in this bench design will be composed entirely of some recyclable material. Because it is an art piece, it is not required to be structurally capable of supporting human weight; this would require the bench to be verified by a construction manager or engineer before it is allowed to be built. As a result, the recyclable material that is cheapest to obtain should be used. A comparison is shown here of the raw material cost of three different types of recycled plastic, recycled paper, as well as aluminum and steel.

Material	Cost(\$/metric ton)
Polypropylene	1826 ~ 1958
Polyethylene (HDPE)	1584 ~ 1716
Polycarbonate	1848 ~ 2090
Paper	200.35 ~ 226.18
Aluminum	2068 ~ 2090
Steel	529.99 ~ 559.97

Table 2: Comparison of recycled material costs

Retrieved from [1], [2], [3]. Source data calculated into equivalent USD per metric ton

From the above data, it is clear that recycled paper is considerably cheaper to obtain compared to recycled plastic or metal. Therefore, in terms of economic evaluation, it is recommended that this art piece be constructed entirely out of paper. Were this design to be implemented into an actual working bench rather than an art piece, paper would not be a likely choice due to its lack of structural integrity; in order for a paper bench to be stable it would need to be composed into significantly denser proportions than an equivalently stable bench made of plastic or metal, resulting in a higher cost. Moreover, when comparing the longevity of the materials in the bench itself, the advantages of recycled plastic make it a more appealing choice compared to other materials such as steel. Despite the higher cost, recycled plastic does not decay, is low maintenance, and is fully recyclable (Alvarado, I. et al, 2008).

In addition to the material price of the bench, some of the cost of construction will be affected by its shape and size. The bench has roughly the shape and dimensions of a typical bench, but many alternative designs are possible. Figure 2 and 3 show a sketch of the “earth dome”, the winning entry in our design contest.

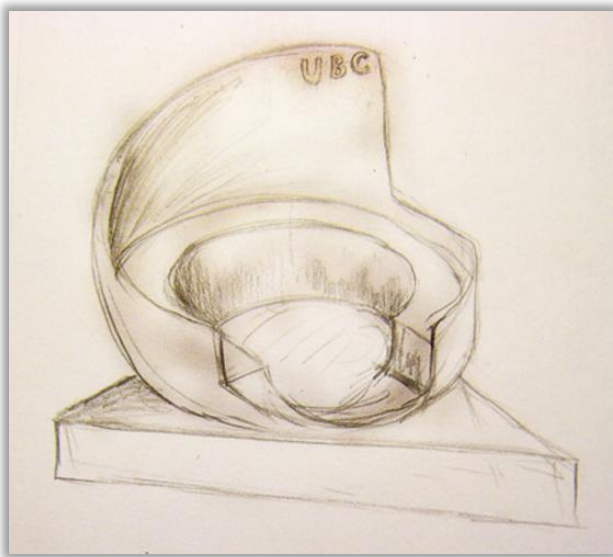


Figure 2: Earth-Dome (Front view)

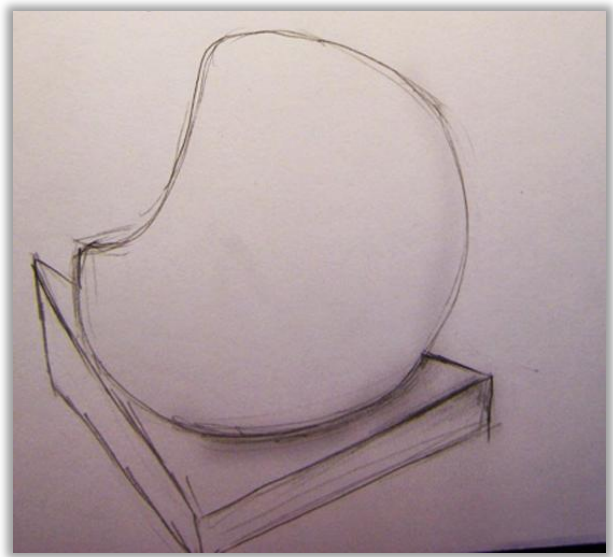


Figure 3: Earth-Dome (Rear view)

As this is a contest open to any UBC student, their designs are not expected to be the same level of quality and detail as that of a professional design artist; part of what makes the contest so accessible is that there are few restrictions on the design itself to encourage the

development of ideas, which are the most important part of the design submissions. The dimensions of the chosen design - the earth-dome piece - are reasonable in size at 3 meters in diameter and a uniform spherical shape. These modest parameters would not be difficult to implement but in general, a professional design artist or architect will be required for a particular design to be realized. Since the sketch in the design submission is not likely to be up to the standards of detail expected of an architect, it will only provide a guideline for their actual work. The actual cost of hiring a design architect to create this art piece is more subjective and would depend largely on the design itself.

2.2.4 Conclusion

Within this section, it has been concluded that recycled paper is the more economical choice to use in the construction of this art piece in terms of cost per metric ton. As this bench is an art piece, the material is not required to be structurally capable of supporting human weight, as that is outside the scope of what this art piece is intended to accomplish. However, the idea of this unique bench design could encourage the construction of usable, structurally sound benches to be created in or around the new SUB, to further promote the image of sustainability that UBC is renowned for.

2.3 Social Impact

The final criterion in this analysis examines the social impact of the bench with respect to the new Student Union Building.

2.3.1 Purpose

Conducting this BENCHMARK for sustainability project consisted of three central social aspects: assessing the current state of recycling on campus, involving the UBC community and proposing a piece of art to enhance the new SUB atrium.

2.3.2 Methods

A survey about sustainability and recycling was conducted in the current SUB. The survey consisted of five questions and was answered by 102 students. It can be found in Appendix: A. To generate creative design ideas and involve the UBC community, an art contest was held throughout the month of November. The parameters for the design contest submissions were fairly general. Each submission had to be a concept for a unique park bench made from 100% recycled plastic with approximate dimensions for length, width and height of 2m, 1m and 2m respectively. The design contest advertising poster can be found in Appendix: B. To promote awareness of the contest 110 posters were displayed all around campus as well as a Facebook group that was shared with over 250 UBC students. As for the results of this contest, attached to this report are the top five designs in Appendix: A. Prize money for the design contest was granted from the AMS Sustainability Projects Fund and the application can be found in Appendix: C. An additional method that was used to increase the social impact of this project was a blog submission for the AMS Sustainability Blog which can be found in Appendix E. The blog entry informed readers of the different features and progress of this project as well as the purpose behind it.

2.3.3 Results

The results of the survey concluded that there is very little awareness of sustainability features of the new SUB. Figure 4 displays that 88% of students surveyed could not name one sustainable feature of the new SUB. When it comes to the success of sustainability and recycling practices on campus public awareness is essential. The intention of this art piece is to increase awareness of sustainability features with a central focus on recycling plastic.

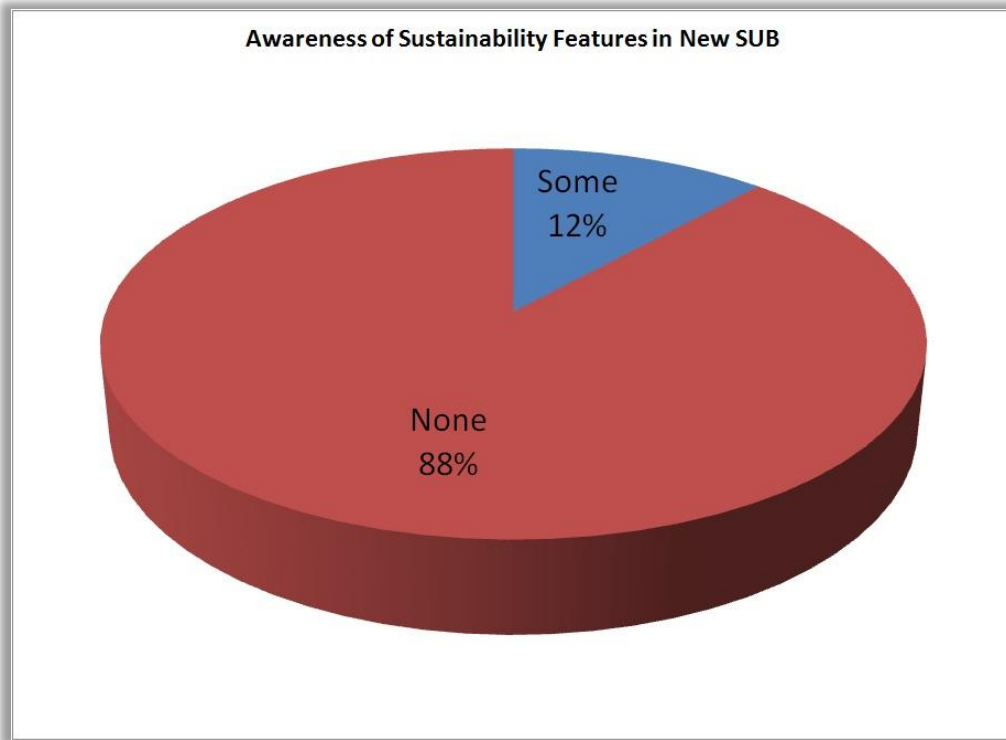


Figure 4: Survey results – Awareness of sustainability features in the New SUB

Firstly, a social assessment of the state of recycling on campus was investigated through a survey and additional online research. Recycling in the current SUB is superior to most other buildings around Vancouver because of the convenience of the recycling and composting receptacles. There are many of them and they are well located. The results of the survey as demonstrated in Figure 5 below display that the major limiting factors when it comes to reasons for not recycling more often are knowledge and convenience.

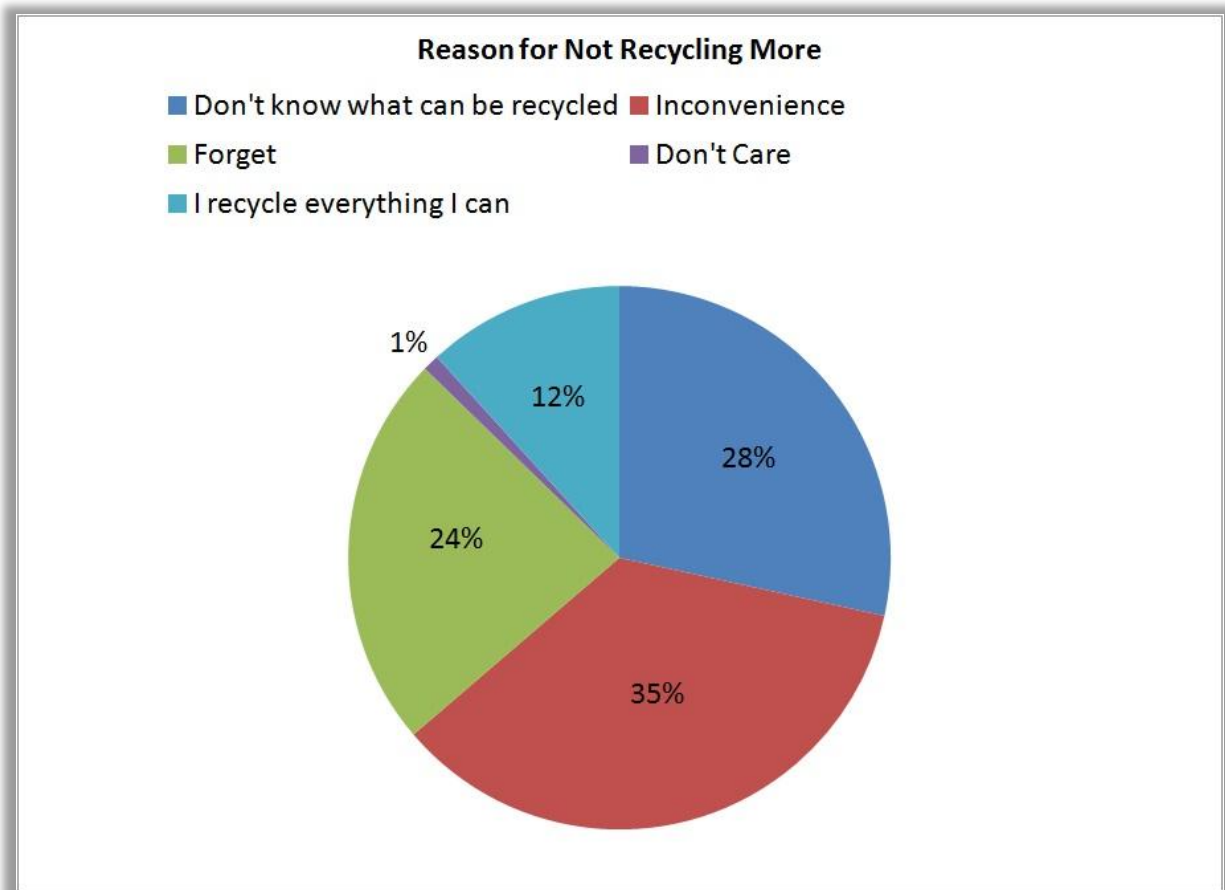


Figure 5: Survey results – Reasons for not recycling more often

The materials that are being recycled most on campus are paper products and plastic products according to the individuals surveyed. Figure 6 below is a bar graph displaying that paper (as yielded by 71 responses) was recycled slightly more than plastic (as yielded by 69 responses); individuals who were surveyed responded that they recycled metal products the most infrequently. Out of the participants surveyed, 31/102 individuals responded that plastic was not their highest priority for recycling. This drives the need for increased awareness for this aspect of sustainable practices.

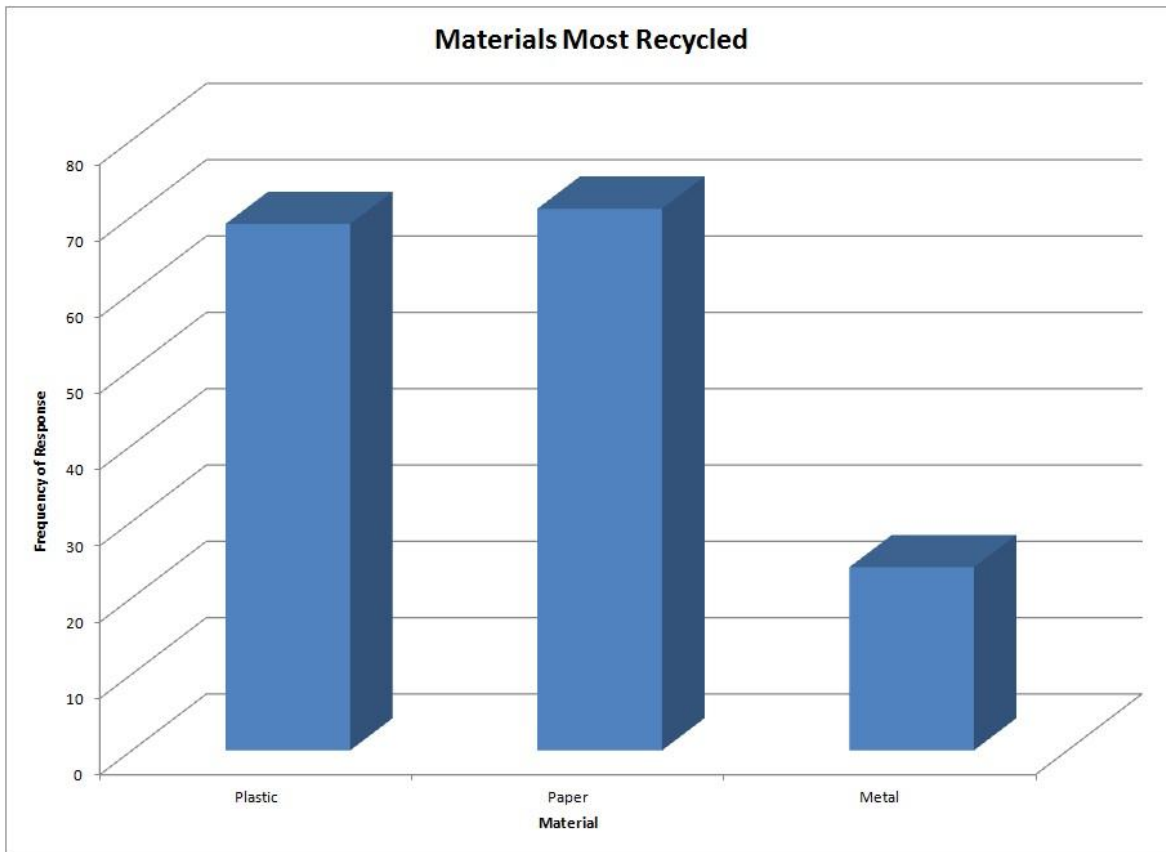


Figure 6: Survey results – Materials most commonly recycled by public

With respect to the design contest, including the UBC students, faculty and staff in the design process not only raised awareness about the topics of recycling and sustainability but also reduced the initial design cost. Having a student create the inspiring art piece gives it added value because it will be located inside the main student building on campus. Using local resources is part of the sustainability mentality as it draws from locally produced talent. Holding a design contest on campus encouraged talent from within our community and inspired true roots to UBC and the city of Vancouver.

Moreover, having an inspiring art piece located in the SUB atrium will enhance the space because of its visual appeal as well as convey a positive message about recycling. This bench provides a reason to stop and think about the waste products being producing everyday and how behaviour can be altered to reduce the negative impact on this planet one small, manageable step at a time. Almost 25% of individuals surveyed claimed that their main reason for not recycling

more was forgetfulness; but, with this bench as a constant reminder that number will hopefully be reduced significantly.

Furthermore, the design contest winner was the “Earth Dome” design, as seen in Figure 2 and Figure 3. A detailed description of this design can be found in Appendix A . Additional aspects can be included to increase awareness about recycling, such as facts engraved or printed on the dome. The outer surface would be similar to a globe in that there would be raised areas representing different continents. The idea behind the “Earth Dome” is that everyone inhabits the earth and must consider the their impact on it. This earth can also signify the fact that UBC students are from all around the world and this school and more specifically the SUB is a hub. In this hub items such as this inspiring art piece can be used to plant and spread the seed of knowledge that slight changes in behaviour that can be made to help this world become a better place.

2.3.4 Conclusion

In a study that investigated the social impact of public art by Hall and Robertson (2001) they found that public art develops a sense of identity and community, provides educational value, addresses community needs and promotes social change. With the “BENCHmark for Sustainability” all these issues are addressed. Being designed by an individual of the student body, it fosters a metamorphosis in sustainable practises as a community. By bringing the idea of sustainable actions down from it’s pedestal it can be placed in the hands of UBC students, faculty and staff. Thus encouraging waste reduction not as a concept but rather a frequent daily action, rooting from the multitude viewers from UBC’s community and visitors to the new SUB. It will serve as a statement of the dedication that UBC has to a sustainable present and future.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on this investigation of social, environmental and economic aspects, commissioning a park bench made from recycled plastic would have an invaluable impact on promoting waste reduction and showcasing UBC as a leader in sustainable practises. Such an art piece would serve as inspiration by way of human contact, thus motivating students, faculty, staff and UBC visitors to reduce their ecological footprint.

The “Earth Dome”, which has been drafted by the winner of an art contest, is a bench in the shape of a sphere representing a globe and is made entirely out of recycled plastic. Although the results yielded by the economic analysis recommends against plastic, the final recommendation is to implement the proposed design due to the positive impact it will have from both an environmental and social stance. The purpose of the design is to increase awareness and participation in sustainable practices, specifically the recycling of plastic at UBC. The research described in this report indicates that the proposed solution will, indeed, achieve this goal. The benefits from a social and environmental stance do more than just offset the economic cost of the project. To state it differently, the overall cost of implementing this design is much less than the overall cost of not implementing the design, when considered from a truly sustainable vantage point.

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Appendix A: Design contest entries

The following appendix outlines in further detail the top five design entries received in the design contest. A description of each candidate design is provided, along with a clarification of what aspects make it appealing and, in the case of the winning design, a list of recommended changes before implementation.

Design 1: “Earth Dome”

Description: Provided by entrant.

Appealing Aspects: This unique design mixes functional design with high aesthetic appeal. Its spherical shape representing the earth is eye-catching and it sets a welcoming tone to its immediate surroundings. Although somewhat plain, some colourful patterns on the outer surface or perhaps a depiction of the earth along the exterior may have made this design more visually stimulating. However, the overall design was nonetheless the most impressive and has been chosen as first place in the design contest.

Design 2: “Signboard Bench”

Description: Provided by entrant

Appealing Aspects: Simple both in conceptual design and construction, this design has more emphasis on functionality rather than artistic creativity. It offers numerous practical benefits to partons of the bench such as high-back seating and a slot for placing bikes. Despite these advantages, this design somewhat abstracts from the main point of the contest, which is a design which promotes sustainability in an artistic way; this design lacks the artistic aspect, but is an otherwise very solid design, landing it in second place in the design contest.

Design 3: “Bubble Bench”

Description: Four ellipses joined together to provide seating for four individuals. The depth of these seats or “Bubbles” can range from 6-12 inches and are each supported by individual stands. The bubbles would be where the main concentration of recycled materials would be. They could be made out of a variety of plastic materials including coloured straws, plastic drink containers or a wide variety of other plastic materials keeping visual appeal in mind.

Appealing Aspects: The sleek modern look of the bubbles would work well in the atmosphere of the new SUB. The basic elliptical shape of the bubbles leaves a range of materials available for the construction of the seat section. This design has been chosen as third place in the design contest.

Design 4: “Contrast Bench”

Description: Provided by entrant.

Appealing Aspects: This design sends a strong message to onlookers however, the repulsive side of the bench may not be a good permanent feature to suggest for the new “clean” building on campus. The “Choose your side” written above the bench is a very clear statement that would likely cause many individuals to think twice before throwing out an item that could be recycled. Overall it was a well thought out design and it was chosen for an honourable mention.

Design 5: “Recycling Box Bench”

Description: Provided by entrant.

Appealing Aspects: The fact that the entire bench is a large model of a real recycling bin also sends a clear message to SUB users about the importance of recycling, however it would not be as visually appealing as a standalone art piece. The fact that there will be numerous other recycling receptacles in the new SUB reduces the need for the need of a visual reminder that there are places to put recyclable materials. The simplicity of this design and interesting idea that this “recycling box” could be filled with recyclable materials and just covered by a clear plastic top was enticing and the design earned itself an honourable mention.

Appendix B: Sample Survey

The following survey was created to gather information pertaining to the social impact of the design project. 102 students in various locations around the current Student Union Building participated in the survey. Each of the questions was phrased to determine specific information, which is used in the social component of the analysis.

Survey- Sustainability and the New SUB

- Student Faculty/Staff

*Are you aware of any sustainability features in the new SUB?

- Yes No

If yes, which ones

*Would you support having a piece of art promoting sustainability in the new SUB through the use of recycled material?

- Yes No

*On campus what material do you recycle most?

- Plastic (*drink containers, food containers etc.*)
 Paper (*paper cups, cardboard etc.*)
 Metal (*pop cans etc.*)
 Other _____

Reason you don't recycle more....

- Don't know what can be recycled
 Inconvenience
 Forget
 Don't care

Appendix C: Design Contest Poster

The following poster was designed to advertise the art contest. 110 of these posters were put in various locations around the campus, primarily at the SUB and in the Buchanan building, to encourage student participation.

The poster features a green and black color scheme. On the left, a grid of 24 clear plastic water bottles is shown. To the right, a simple line drawing of a park bench is displayed. The text is arranged in several sections: a title 'Design a Bench', a prize list in an orange rounded rectangle, a deadline in a green rounded rectangle, a large 'DESIGN CONTEST' title in a black rounded rectangle, and a detailed description of the contest requirements in a black rounded rectangle at the bottom.

Design a Bench

Your design could be chosen to go on display in the **New SUB Atrium !!!**

WIN
1ST PRIZE \$250
2ND PRIZE \$100
3RD PRIZE \$50

DEADLINE
11/22/11

DESIGN CONTEST

DO YOU WANT A CHANCE TO WIN \$250 ?

Submit a **CONCEPT** for a unique park bench made from recycled plastic, and **YOUR** design could go on display in the **New SUB Atrium !!!**

Requirements:

- Must be created out of **100% Recycled Plastic**
- Dimensions approximately: **1m(W) x 2m(H) x 2m(L)**
- Detailed **sketch** of your design with a brief description
- Submission format: pdf, jpeg, doc, docx

Submit entries to **UBCbench@hotmail.com**

Confused? Direct all inquiries to: **UBCbench@hotmail.com** with Subject Heading: "Question"

Appendix D: AMS Sustainability Projects Fund Application Submission

The AMS Sustainability Projects Fund offers small grant opportunities for student-led projects which promote an ecologically sound campus (Alma Mater Society of UBC Vancouver, n.d.).

A request for a \$500 grant was submitted and later accepted by the AMS. Of the \$500 awarded, \$400 was allotted as prize money for the winners of the design contest, and \$100 allocated to advertising costs. Below is the AMS Sustainability Projects Fund Application Submission.

Primary Contact (Required)

Full Name (include initial) : Jeffrey M Schroeder

Student Number : 69634087

Address: 2951 Laurel Street

Vancouver BC, V5Z 3T4

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How many members are there in your project team? 4

Project information (Required)

Project Title: Analysis to Commission An Inspiring Art Piece In The New SUB Atrium

What amount of funding are you requesting?: \$500

Is this a grant or a loan?: Grant

Are you submitting to one of our designated funds? (descriptions can be found on our website)

UNA/AMS Campus Community Fund UBC/AMS Social Solutions Fund: No

How did you hear about the SPF?: Through our APSC 261 tutorial instructor, Dr. Christina Gyenge.

Project Description (Describe the overall purpose/goal(s) of your project):

We will be conducting a triple bottom analysis on commissioning an inspiring art piece to go on display in the new SUB atrium. This art piece aims to showcase UBC as a sustainable leader in the

community. To achieve this we will be exploring possible materials, location, size, and the overall cost-benefit with respect to its potential social impact. Lacking time and artistic abilities, our project team will turn to the more artistically inclined students of UBC to aid in the design. As such we are proposing to hold an art contest open to all UBC students, staff and faculty. The theme for the art contest entails creating a life sized park bench from recycled materials, with messages of sustainability integrated into the design. Given time constraints, design ideas will be accepted in the form of digital or hard-copy drawings, or scale models. Pending the acceptance of our grant request, the winner (as chosen by our project team) will receive a \$450 cash prize. This winning design will be submitted in conjunction with our triple bottom analysis to the AMS council for consideration.

Describe how your project address each of the following criteria:

Reduction of Ecological Footprint Increased Student Engagement:

We would like the art piece to be constructed mostly (or solely) from recycled materials, and ideally have minimal carbon footprint. The "park bench" will also display messages supporting sustainability and discouraging waste. In ideal design will incorporate some sort of visual juxtaposition between wastage and recycling similar to that of black & white, good & evil.

To engage the UBC community, we will hold an art contest for the design of the art piece. This contest will require entrants to create a physical structure that resembles a park bench. In conjunction with this requirement, entrants will need to rely mostly on recycled items for construction materials, and are encouraged to incorporate a written message pertaining to reducing waste and increasing recycling.

Education and Outreach:

The art piece will reside in the SUB atrium as a permanent feature, thus impacting any occupants of the building at any given time. The goal for this piece is to immediately engage people's attention as they enter the building; to instill a general feeling of environmental sustainability as soon as they walk in.

This is an APSC-261 project and we invite future students to analyze our recommendations and implement similar projects in other areas of UBC. Because this is a student project, drawing on other UBC students for the design, and (if commissioned) will be viewed by thousands of students each

day, we believe this art piece would have a significant social impact.

Sustainability and Feasibility:

We hope for our project not only to be an inspiring feature of the new SUB atrium, but to also be a destination for UBC visitors and students.

In our analysis we will explore the feasibility of commissioning such a project. At this point however, the cost for materials will likely be minimal given the high component of recycled goods. Further, the winning design will likely come from a student whom may be willing to build their design free of charge.

Impact at UBC:

The art piece will be permanently showcased in the SUB atrium, thus making it viewable at all times by UBC students, faculty, staff and visitors. It will become part of the SUB and set a tone of sustainability as soon as people enter the building.

What will be the process for implementing your project? Describe key steps and components of your project.

The major steps of our project include holding an art contest.

Upon establishing design parameters we can proceed to create, print, and display posters/flyers around high activity regions at UBC. Once the design submission deadline has passed, we will select a winner. The feasibility of commissioning an art piece will be conducted during the next month and submitted in conjunction with the winning design to be reviewed by the AMS council.

Does your project tie into any broader campus sustainability initiatives? (reference the UBC Climate Action Plan, Waste and Water Action Plans (provide links))

No

Project Stakeholders

Which aspects of the university administration will be impacted by your project?

Our project has minimal impact on the UBC administration. The major associating factor will be

AMS providing us with a grant.

Have you contacted these units(if yes list contact you spoke with as well as there emails so they can receive approval forms)

No

If you are an individual student being sponsored by a campus department, adviser or community organization please explain their involvement and include their contact information.

No

How much of your project will involve students? What roles will students play in your project? Does your project target involvement of a certain section of the student body?

Our project involves the many create minds at UBC, as we are holding a campus wide art contest. Students will hopefully see this as an opportunity to have an impact on sustainability and potentially have their art piece (and name) showcased for many years. We are specifically targeting the people with artistic abilities, all faculties are welcome.

What is your plan for publicizing your project on campus?

Our project will be advertised through the design contest posters/flyers. We will limit the advertising to these posters as our project serves only as a recommendation to the AMS council.

APPENDIX E: AMS Sustainability Blog Submission

Found below is the blog entry we submitted to the AMS Sustainability Blog on November 25th, 2011.

BENCHmark For Sustainability – *An Investigation Into Sustainable Art*

The new UBC Student Union Building (SUB) is projected to achieve a LEED Platinum+ standing upon completion. This world-renowned award acknowledges accomplishments in design and implementation of advanced eco-friendly buildings - a notable feat that SUB Design Committee would like to share with the public.

As such, a team of engineering students are proposing that the Design Committee commission an inspiring art piece to go on display in the atrium of the new Student Union Building. An investigation, currently being carried out, assesses the feasibility and sustainability of implementing such an art piece made from recycled items. In keeping with the Design Committee's goal of inspiration through human connection this team has proposed that the design resemble a ubiquitous everyday object – something that will seamlessly transcend the field from action to reaction. Specifically, something that captures the simple daily process of recycling and its integration into one's surroundings. With intentions of sparking thought towards one's consumption of materials and their repercussive effects on the environment, this art piece hopes to illustrate that although our actions may not show immediate results, recycling has a cyclical effect – a bottle today could become furniture tomorrow. Thus, it is intended that such inspiration be captured through the exhibition of a park bench.

In seeking the most aesthetically pleasing design, the team has called upon the talent of UBC students, faculty and staff through a campus wide design contest. The contest has just recently closed and project members are in the process of selecting the top three design entries. Attached is the poster advert for the project; 110 posters were erected across campus.

BENCHmark for Recycling

Design Concept

By: Crystal Ngai

Concept

The earth dome is a unique design meant to be an artistic statement for sustainability and enjoyment. The outer shell is designed to resemble the earth with an interior that can comfortably seat 5-6 people.

Etched on the inside of the structure is UBC's logo with the slogan "A place of mind," beneath it.

The enclosed seating arrangement is supposed to remind students of their place in this world and their combined effort to sustainability.

Dimensions

*(Measurements subject to change)
Approximately 2.5-3 metres in diameter
Triangular support structure: 5m x 5m x 5 inches.

Materials

Because this design is meant to be made entirely of plastic, only recyclable plastics may be used. Some of these materials include: Polyethylene (PE), Polypropylene (PP), Polystyrene (PS), or Polyvinyl Chloride (PVC). They are extremely malleable in production and can accommodate the unique spherical structure of the bench.

