

COMMUNITY-BASED SOCIAL MARKETING STRATEGY TO BOOST ZERO WASTE AT BCIT

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ABSTRACT:

Part of BCIT's Greening Campuses Plan is to achieve zero waste. Using community-based social marketing, our research identified recycling and composting as areas with low participation among students and with the largest potential impact on waste diversion. Four strategies were recommended to BCIT in reaching its goal.

PURPOSE:

- 1) Examine the current attitudes of students regarding sustainable habits.
- 2) Evaluate potential barriers of four non-divisible waste behaviours.
- 3) Develop strategies based on two behaviours that would make the biggest impact on waste diversion and zero waste.

Table 1. Material Stream Characteristics

Category	Weekly tonnage (%)	Weekly tonnage (metric tonne/wk)	Comments
Potentially compostable	25%	2.04	Food scraps (19%), food waste (4%)
Potentially recyclable	49%	4.00	All others
Potentially garbage	14%	1.14	Trash (12%), liquids (2%)
Other uses	12%	0.98	Lignocellulosic (4%), DLC* (8%)
	100%	8.16	

This table shows the distribution of weekly tonnage of waste at BCIT that goes to the landfill (adopted from SymbiAudit Sustainability Consultants, 2012). * DLC = demolition land clearing and construction

SELECTED BEHAVIOURS:

Based on the 2012 waste audit, successful campaigns at other post-secondary institutions, and penetration levels obtained from a previous study, we included the following four behaviours on our survey:

1. Bring and use a reusable water bottle
2. Bring and use a reusable hot beverage container
3. Place appropriate recyclables in recycling bin
4. Put organics in compost bins

IDENTIFIED BARRIERS AND BENEFITS:

Surveying was the principal method used to assess and observe the current state of students disposal habits at BCIT. Results were gathered from 161 students and instructors. Based on a population of 47,000 students and faculty, the results are statistically significant with a confidence interval of 95% and a margin of error of 7.7%. The results of our surveys indicated that recycling and composting are two behaviours that could be improved at BCIT.

Table 2. Impact level of four examined behaviours.

Behaviour	Survey Respondents that could benefit from CBSM strategy	Weekly tonnage (metric tonne/wk)
1) Reusable water bottles	7%	0.11
2) Reusable mugs	15%	0.01
3) Recycling	45%	4.00
4) Composting (consumer perspective)	49%	2.04

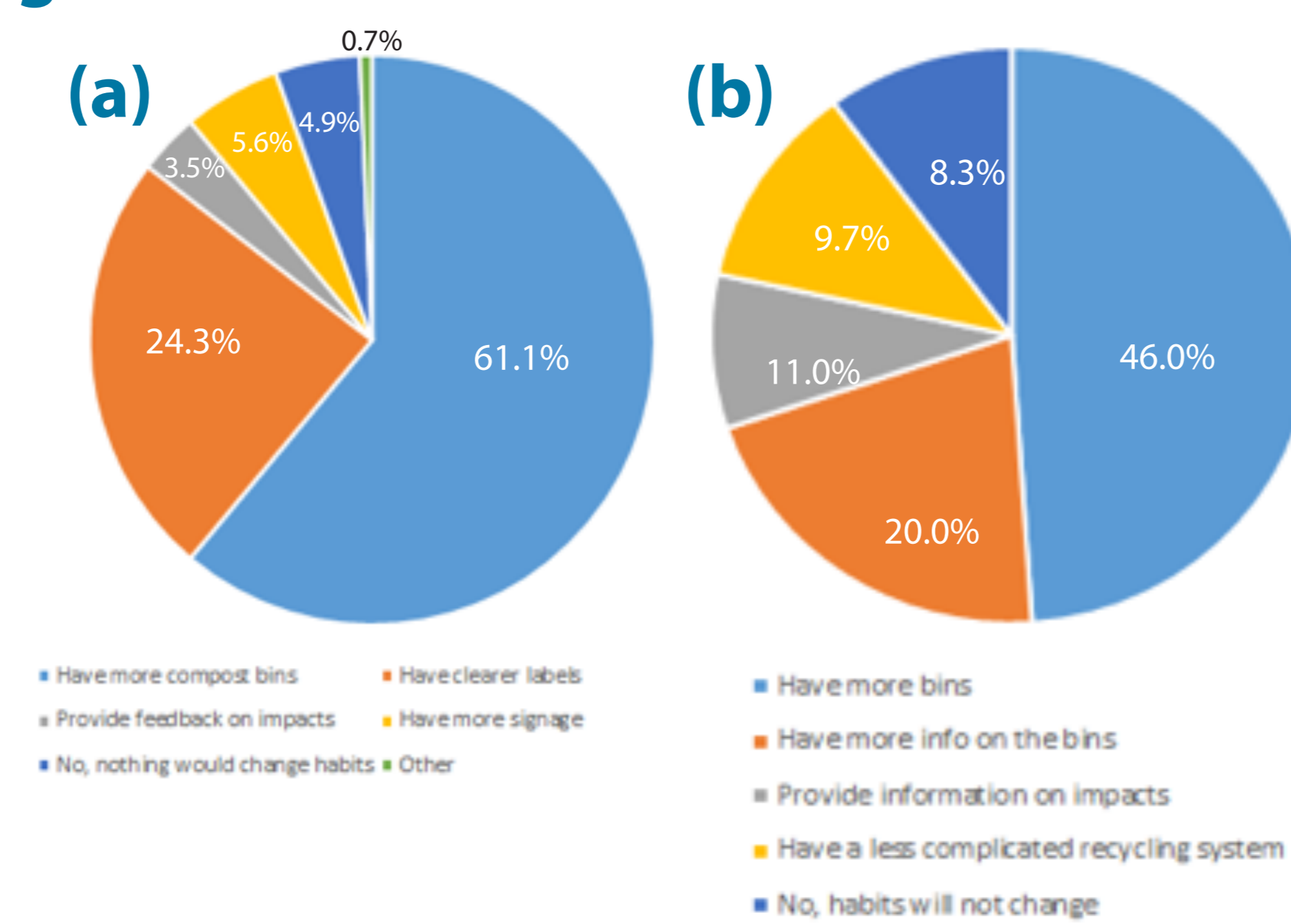
This table shows the proportion of people that may benefit from CBSM encouragement and the weekly tonnage produced for each criterion.

Table 3. Level of penetration of four examined behaviours.

Behaviour	Current Penetration of Behaviours	Comments to increase participation (top suggestions)
1) Reusable water bottles	93%	- More refill stations - Free reusable water bottle from BCIT - Ban on sale of single-use water bottles
2) Reusable mugs	75%	- Cheaper price if using reusable mug - Free reusable travel mug
3) Recycling	55%	- More bins - More information on bins
4) Composting (consumer perspective)	51%	- More bins - Clearer labels

This table shows the current penetration levels of the four non-divisible behaviours examined through our survey.

Figure 1.



(a) Survey results: What could BCIT do to encourage your participation in composting? 61.1% of respondents indicate that increasing the number of compost bins would encourage their participation. **(b) Survey results: What could BCIT do to encourage your participation in recycling?** 46.0% of respondents indicate that increasing the number of recycling bins would encourage their participation.

DEVELOPED STRATEGIES:

Our recommended CBSM strategy looks to increase the desired behaviours by simultaneously addressing the behaviours to be discouraged, and is comprised of the following projects and programs: (I.D.E.A)

IMPROVE INFRASTRUCTURE:

Create standard disposal stations (plastic recycling, paper recycling, compost and waste) that are strategically located across campus and remove individual waste bins.

DESIGN A COMMUNICATIONS STRATEGY:

Design a clear and transparent communications strategy that educates BCIT students and staff on proper recycling and composting practices.

EXISTENCE OF A SOCIAL NORM:

Once the necessary infrastructure is in place and participation rates rise to 75%, BCIT can market recycling and composting as a social norm.

ASSESSMENT AND REPORTING:

Assess the success of infrastructure changes and CBSM strategy through 1) follow-up surveys to students, 2) focus groups 3) waste audit to quantify changes in diversion rates.

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CONCLUSIONS:

Based on the first three steps of the CBSM methodology, we found the following:

- There is a willingness from students and staff to participate in waste diversion at BCIT.
- Recycling and composting were the lowest practiced behaviours with the greatest potential impact on waste diversion.
- The most significant barriers to address were 1) a lack of bins, 2) unknown location of bins, and 3) insufficient signage/communication.
- Waste diversion rates are likely to increase if proposed strategies were to be adopted.
- Costs of implementing strategies would be offset by annual savings on tipping fees.

ZERO WASTE



FUTURE WORK:

CBSM is a five step methodology. For the purpose of this project, we developed the first three steps but the two final remain to be developed. The following steps are to test the strategies proposed by scrutinizing them with focus groups, pilot testing them in a small scale and finally broad implementation of strategies throughout campus.

REFERENCES

- [1] BCIT. Sustainability at BCIT: Ecological Footprint at BCIT. www.bcit.ca/sustainability/ecofootprint.shtml. Website accessed 14 Oct. 2014.
- [2] McKenzie-Mohr, D., & Smith, W. (1999). *Fostering sustainable behaviour: An introduction to community-based social marketing*. Gabriola Island, B.C: New Society Pub.
- [3] Moore, J. & Wong, J. (n.d.). *British Columbia Institute of Technology Campus Master Plan: A Living Laboratory of Sustainability*. Retrieved from: http://www.bcit.ca/files/sustainability/pdf/bcit_campus_living_lab_for_sustainability.pdf
- [4] SymbiAudit Sustainability Consultants Inc. (2013). "British Columbia Institute of Technology Burnaby Campus: Benchmark Materials-Flow Assessment and Recommendations." Retrieved from: http://www.bcit.ca/files/facilities/facilitieserv/pdf/facilities_campus_materials_flow_audit_report.pdf