
AUTHORS

KARNPITCHA CHANGTRAKUL	CAMILA DI FINO NAPOLITANO
KAYLEAH GRIFFEN	MADELEINE LONGO
SLOCHA SAPASAKULVANIT	PARICHAYA SRAKAE0
PAKWAN OU-UDOMYING	JULIA WHITE

INSPIRING WASTE REDUCTION IN BANG MOD

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An Interactive Qualifying Project Submitted to the Faculty of Worcester Polytechnic Institute and the Faculty of Science at Chulalongkorn University in partial fulfillment of the requirements for the Degree of Bachelor of Science by Karnpitcha Changtrakul, Camila Di Fino Napolitano, Kayleah Griffen, Madeleine Longo, Slocha Sapasakulvanit, Parichaya Srakao, Pakwan Ou-Udomying, and Julia White.

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Sponsored by
Assistant Professor M.L. Siripastr Jayanta &

Can Do Team

Submitted by
Karnpitcha Changtrakul, Camila Di Fino Napolitano, Kayleah Griffen, Madeleine Longo,
Slocha Sapasakulvanit, Parichaya Srakao, Pakwan Ou-Udomying, Julia White

Submitted to
Professor Melissa Belz, Worcester Polytechnic Institute
Professor Daniel Dimassa, Worcester Polytechnic Institute
Professor Patchanita Thamyongkit, Chulalongkorn University

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Abstract

Plastic is ubiquitous, and its use is propagating a range of negative consequences. Overuse of plastic within the Phutthabucha Temple market in Bang Mod, Bangkok is harming a central community resource: the canal. Based on the needs of the community, we presented low-cost and convenient options to motivate and equip the community to reduce their plastic use. We designed a multi-phase campaign called “Let’s Reduce for Bang Mod” to inspire action through posters, social media, and an incentive program. We also suggested providing reusable bags through a bag share program and eliminating the need for takeaway bags by including an eating area in the market. The provided solutions can be spread to markets throughout Thailand to positively impact the environment and human health.

Executive Summary

The Problem

Plastic bags are used for an average of 12 minutes before they are discarded (Center for Biological Diversity, n.d.), yet even the thinnest bags take 10-20 years to decompose (National Park Service, n.d.). Harmful impacts on humans and the environment are growing from this disproportionate rate of plastic waste production to decomposition (Boadi & Kuitunen, 2005; Jayakrishnan, Jeeja, & Bhaskar, 2013). In Thailand, 14% of trash produced is plastic (Shekdar, 2009) compared to the global average of 10%. In Bang Mod, Bangkok, the increase in waste production has strained the waste management system (Saravut K., Personal com., Jan. 18, 2017) and damaged the natural community resources such as the Bang Mod canal.

Our Goal

To solve the growing problem of plastic overuse, we collaborated with the Can Do Team on our joint goal of creating a campaign for long-term behavioral change that encourages vendors and consumers in the Phutthabucha Temple market to reduce the consumption of single-use bags.

Our Plan

Our first objective was understanding the motivations behind plastic bag use within the market. We visited the market to observe and conduct interviews with vendors and consumers on the needs plastic bags were fulfilling.

Our second objective was to evaluate past waste reduction strategies in Southeast Asia because of the similar situations and cultures the campaigns faced. We interviewed Excess Baggage Cambodia, which reduces plastic bag use across Cambodia, for

feedback on our campaign; Chula Zero Waste, which powers an ongoing waste reduction campaign at Chulalongkorn University, about their use of policy to implement plastic bag taxes; and Carrotmob, which harnesses consumer power for sustainable change, on how to maintain such changes. We made a chart of each campaign's overall plan, campaign strategies, resources, and obstacles faced to understand their ideation processes and better inform our own campaign strategy.

Our third objective was to develop campaign strategies that motivate the reduction of single-use bags within the market. We interviewed the market manager to understand the structure of the market and the feasibility of implementing policy changes and created a decision matrix to narrow the potential strategies. The resulting strategies were divided into three phases with progressively greater time and resource requirements. We surveyed the market consumers and vendors to determine the effectiveness and potential improvements of each campaign strategy, then created a campaign logo with a tangerine – the icon of Bang Mod – behind a superhero holding a reusable bag (Figure 1). The slogan reads “Let’s Reduce for Bang Mod.”



Figure 1: “Let’s Reduce for Bang Mod” campaign logo

Our fourth objective was to field test the campaign strategies to determine the most viable approach. We held a focus group with the Can Do Team and received feedback on our initial strategies and discussed how they would continue with the campaign after we finished our project. We also received feedback from the Bang Mod community on our campaign posters in a booth at the Bang Mod Festival. Finally, we created a long-term campaign plan that was feasible for the Can Do Team to maintain.

Findings & Recommendations

Our interviews, surveys, and observations generated several key findings. First, **we found that individuals defer responsibility for plastic use because they feel a lack of control over the situation.** When interviewing all the stakeholders, we came across a cycle of blame. In the market, many parties – including vendors, consumers, and the manager – place the responsibility for the over-use of plastic bags on each other (Figure 2).

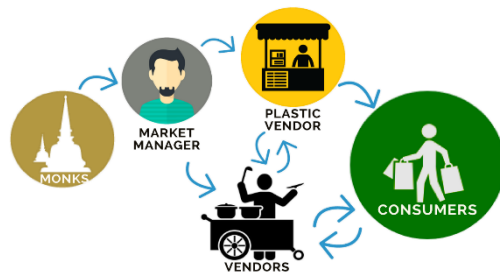


Figure 2: Plastic use blame deferment

Stakeholders were concerned with how their change would impact their consumers: the market manager was concerned the vendors would leave the market if there was a policy on plastic bags and vendors feared that using alternatives would increase prices and leave customers unsatisfied. Consumers were reluctant to initiate change because the usage of plastic was so ingrained that

it was difficult to refuse. Every group was waiting for another to change because they viewed change as uncomfortable or feared it would affect them monetarily. Stakeholder interviews revealed that consumers have the most power to drive plastic reduction. For this reason, **we recommend a campaign targeting consumers that utilizes their control over demand to drive a reduction of single-use bags.**

Through our interview with the formal waste management system, **we found that the profits from recycling plastics overshadow the benefits of reuse and waste reduction.** Many people who recycle do not realize that most of the profit from recycling goes to waste managers, nor do they know the economic benefits of reuse. Reuse is a more environmentally sustainable and economical solution, but recycling is the base of an entire industry and is thus more attractive. The campaign designed needs to make reuse as attractive as recycling by showcasing the benefits for all involved.

Through our observations and interviews with the market manager and reference organizations, **we found that a lack of funding and manpower hinders the startup and success of campaigns.** Mr. Jo, the market manager, believed there was no way to organize a market with an inconsistent set of vendors. With limited manpower, he lacked the resources and interest to change the market. The nearby King Mongkut's University of Technology Thonburi (KMUTT) has volunteers who can provide the help needed. For this reason, **we recommend a partnership between the Can Do Team and volunteers from KMUTT to work with market consumers.**

From our interactions with the vendors, consumers, and Bang Mod community members, we found that incentives are a necessary step to garner public participation in initial stages of campaigns and we found perceived convenience is the primary

motivator for bag choice. We designed campaign strategies around convenience and incentives because they were the two most common responses to consumer surveys on what would be most likely to change their behavior. Further interviews with a small sample of consumers indicated that a prize-oriented program for reusable bag users would be helpful for most consumers. We recommend an incentive program to reward consumers for refusing plastic bags.

We presented our data at the Bang Mod Festival, which gave us valuable feedback on the knowledge and perspectives of the Bang Mod community. **We found that campaigns that address the needs of a variety of community members are the most successful for plastic bag reduction** because they are crafted to benefit all stakeholders. In the Bang Mod community, posters – especially ones with health-related messages (Figure 3) – were most appropriate.



Figure 3: Poster on plastic consumption by fish

Adults misunderstood campaign posters that left information to be interpreted; for example, after learning that fish ingested plastic, they were motivated to stop eating fish rather than reduce plastic use. **We found in order to motivate personal plastic reduction, campaign tools must clearly explain the impacts of plastic overuse and reference specific changes people can make.**

We drafted a plan for recruiting volunteers, both from the local university and from the consumers in the market, to spark change in the market. We designed colorful posters with direct messages. We delivered a detailed outline on a reusable bag share program for the market as well as an arrangement change that would contribute to plastic reduction by encouraging consumers to combine purchases into one bag. Ultimately, we were able to create a plan for a campaign designed to encourage the local Bang Mod community to reduce their use of plastic.



Figure 4.3: Plastic Woman interacting with Bang Mod community member



“Plastic Woman” mascot with local



Chula volunteer with children at fishing game



Taking a local through the poster presentation



Poster 1: "Reduce for the King"



Poster 2: "We eat fish that eats our plastic"



Poster 3: "Plastic in our food"



Poster 4: "Life cycle of plastic bag"

1. "อยากให้คนไทยเห็นว่า ถ้าเราอยู่ใกล้ชิดกับขยะพลาสติกมากจนเกินไปจะเป็นอย่างไร และปริมาณขยะที่แต่ละสร้างขึ้นในแต่ละวัน บวกกับการโฆษณาให้คนมาร่วมสนุกในบูธเราด้วยค่ะ" ตัวแทนกลุ่มนิสิต

