

EXCESS BAGGAGE

REDUCING PLASTIC BAG WASTE IN MAJOR CITIES OF CAMBODIA

BEHAVIOUR CHANGE COMMUNICATION (BCC) CAMPAIGN

MARKET RESEARCH REPORT

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17 TRIGGERS

17 Triggers is a Social Innovation Lab that works with organisations across a variety of sectors to innovate like tech startups through human-centred design (HCD), behavioural science and design thinking methods. To see more of their work, please visit www.17triggers.com.

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INTRODUCTION

REDUCING PLASTIC BAG WASTE
IN MAJOR CITIES OF CAMBODIA

Reducing Plastic Bag Waste in Major Cities of Cambodia



Every minute of every day, two million bags are being used around the world. That equates to nearly three billion bags a day and one trillion bags a year¹.

As a chemical-rich, non-biodegradable material, our addiction to plastic bags poses a significant problem to human health and the health of our planet. Up to 80% of marine litter is now plastic², in some areas such as the Mediterranean, plastic bags account for more than 90% of that litter³.

In Cambodia, the situation is no less acute. Asia is the world's top polluter when it comes to plastic waste making its way into the ocean, with China and Indonesia in the lead⁴. A recent study in Indonesia found that 28% of fish sold in local wet markets contained plastic pieces in their stomachs⁵. This poses a high risk to consumers, particularly in Asian countries where fish is often eaten whole.

1. Earth Policy Institute, 2014. http://www.earth-policy.org/press_room/C68/plastic_bags_fact_sheet

2. Moore, C.J. 2008. Synthetic polymers in the marine environment: A rapidly increasing, long-term threat. in *Special Issue: The Plastic World. Environmental Research* 108(2): 131-139.

3. European Commission's Directorate-General Environment. 2011. Plastic Waste: Ecological and Human Health Impacts. *Science for Environment Policy: In-depth Reports*. Bristol, UK.

4. Jambeck, J.R., Geyer, R., Wilcox, C., Siegler, T.R., Perryman, M., Andrade, A. et al.. 2015. Plastic waste inputs from land into the ocean. *Science* 13 February (347) no. 6223:768-771

5. Rochman, C.M, Tahie, A., Williams, S.L., Baxa, D.V., Lam, R., Miller, J.T. et al. 2015. Anthropogenic debris in seafood: Plastic debris and fibers from textiles in fish and bivalves sold for human consumption. *Scientific Reports* 5, Article no. 14340

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INTRODUCTION

Reducing Plastic Bag Waste in Major Cities of Cambodia

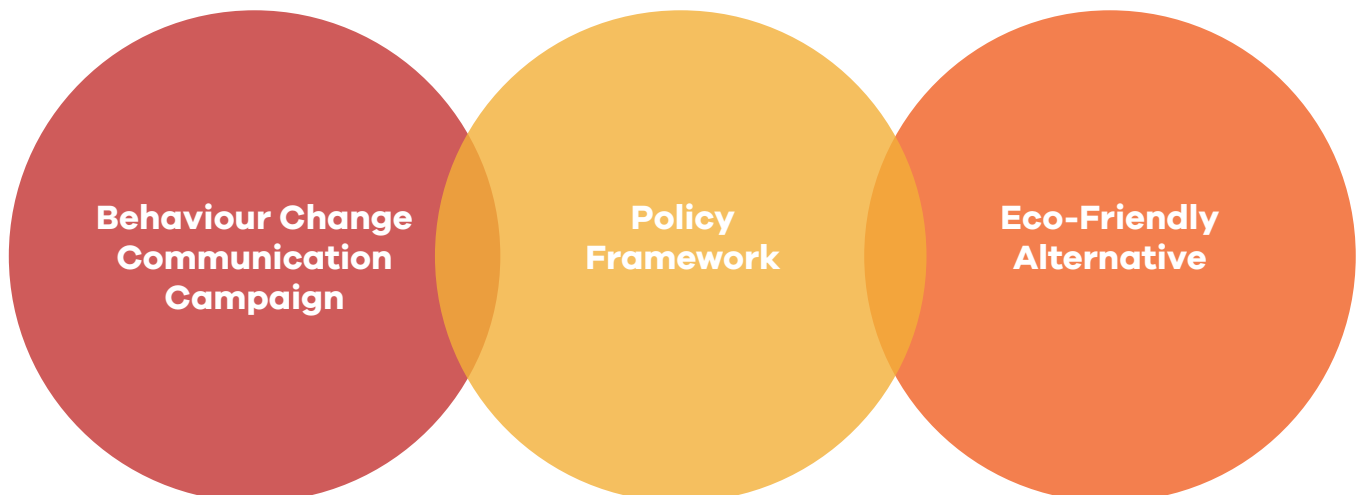
Although a small player compared to its neighbours, Cambodia's growing economy, paired with its limited capacity to manage plastic waste, puts it in a critical position to curb its plastic bag use and find better solutions for its disposal. It is with this in mind that the EU-funded Fondazione ACRA project, 'Reducing Plastic Bag Waste in Major Cities of Cambodia. set out with a three-pronged approach to tackling the problem:

- Conduct a behavioural change communication campaign that will help consumers in major Cambodian cities to adopt sustainable behaviours regarding the use and disposal of plastic bags;
- Meet the packaging needs of consumers and retailers in major Cambodian cities by providing eco-friendly alternatives to plastic bags that are viable, visible, accessible and affordable;
- Accompany the efforts of the Ministry of Environment to create an appropriate policy framework to minimize waste impact from plastic bags and substitute packaging.

17 Triggers' role in the project is to lead the design of a behaviour change communication campaign to help consumers in three of Cambodia's largest cities – Phnom Penh, Siem Reap and Sihanoukville – to adopt sustainable behaviours regarding the use and disposal of plastic bags.

This is the first comprehensive project to specifically address the reduction of plastic bag use in Cambodia. Thus, in-depth market research was needed to understand the existing behaviours of various target groups with regards to reducing, reusing and the proper disposal of plastic bags. Research focused primarily on plastic bag behaviours related to the transaction of goods, and sought to understand the motivations behind current consumer-retailer practices and potential barriers to change.

This report provides a summary of the market research activities conducted by 17 Triggers in collaboration with research agency, TNS. The report begins with an overview of methodologies used during various phases of the research. This is followed by presentation of the key findings, recommendations and next steps. In addition, insights from Quicksand's study, the design research and innovation firm working on the eco-alternative component of the ACRA project, have also been used to inform the recommendations.



METHODOLOGY

MARKET RESEARCH

The overall objective of the market research was to gather key insights around consumer and retailer knowledge, attitudes and practices with regards to plastic bag use and disposal, as well as the factors that shape their behaviour and potential obstacles to change.

A number of research activities were completed from the period of July to November in 2015 – See Table 1.

Table 1: Summary of market research activities

Activity	Objectives and methods	Sampling/Output
1. Broad-brush Review	<p>Desk Review</p> <p>Investigate lessons learned from global campaigns on plastic bags, efforts undertaken locally in Cambodia, and identification of relevant policies, plans and potential partners to be involved in the behaviour change communication campaign.</p>	<ul style="list-style-type: none"> Two Pinterest boards created to aggregate findings related to experiences from campaigns around the world and log potential partners (government, youth groups, creators of eco-alternatives etc.) <p>http://bit.ly/1QhF2Z1 http://bit.ly/1kM3wwq</p> <ul style="list-style-type: none"> Over 25 campaigns, events or policies were identified for Cambodia, Malaysia, Thailand, the Philippines and Vietnam for further reference, analysis and inspiration.
2. Qualitative Research – Part One	<p>Ethnography</p> <p>Observe various in-context situations where plastic bags are used and disposed of. Examine triggers for behaviours and document how retail outlets encourage or discourage plastic bag use.</p> <p>Insights were used to inform the quantitative survey.</p>	<p>Ten hours of systematic observations including:</p> <ul style="list-style-type: none"> Three hours in commercial areas (public outdoor areas, indoor shopping centres etc.) to observe transactions involving plastic bags, alternatives, if any, and littering behaviour. Three hours in homes and around residential neighbourhoods to observe waste collection, disposal and usage of plastic bags. Four hours in retail outlets (e.g. mini marts, wet markets, supermarkets and neighbourhood <i>chab houys</i>⁶) to observe consumer-retailer behaviour.

⁶ *Chab houy* is the Cambodian term for small stores that sell all sorts of goods (mostly pre-packaged) for daily consumption such as drinks, eggs, shampoo, cigarettes etc. Usually family-run and a physical extension of the house, *chab houys* come in all shapes and sizes.

Table 1: Summary of market research activities

Activity	Objectives and methods	Sampling/Output
<p>2. Qualitative Research - Part One</p>	<p>Focus Group Discussions</p> <p>Gain in-depth insight into plastic bag users' current knowledge, attitudes and practices related to plastic bags and understand the factors that shape consumer behaviour as well as potential obstacles to change.</p> <p>Insights were used to inform the quantitative survey.</p>	<p>Three group discussions with 24 participants from Phnom Penh including:</p> <ul style="list-style-type: none"> • Group 1: Consumers that are aware of the harmful effects of plastic bags on health and/or environment; • Group 2: Consumers that are unaware of the effects of plastic bags on health and the environment; • Group 3: Mix of Groups 1 and 2 with four participants from each of the two groups.
	<p>In-depth interviews</p> <p>Understand current knowledge, attitudes, practices and factors that shape business owners' behaviour.</p> <p>Insights were used to inform the quantitative survey.</p>	<p>Six interviews with three types of business owners in Phnom Penh:</p> <ul style="list-style-type: none"> • Two <i>chab houys</i> • Two supermarkets/mini marts • Two wet market stalls
	<p>Key Informant Interviews</p> <p>Gain insights into the Cambodian context, past experiences from similar campaigns, as well as a better understanding of entry points for potential behaviour change interventions.</p>	<p>Eight interviews (in person or via Skype) with the following Key Informants⁷:</p> <ul style="list-style-type: none"> • Deputy Director General of the Environmental Education Department • Technical officers of the National Council on Sustainable Development • Representative of the National Committee for Clean City Assessment • Orussey Market Chief, Phnom Penh • Central Market Chief, Phnom Penh • Director of Sihanoukville Tourism Association • Marketing manager of Vital GoGreen project (bottled water company) • Cambodia ABOUTAsia Travel expert and Siem Reap restaurant owner

7. Key Informant interviews will continue throughout the strategy development stage as needed.

Table 1: Summary of market research activities

Activity	Objectives and methods	Sampling/Output
<p>3. Quantitative Research</p>	<p>Quantitative Survey</p> <p>Understand current attitudes and behaviours of consumers and retailers surrounding plastic bag use and disposal.</p>	<p>60-minute surveys with 606 respondents:</p> <p>Phnom Penh Total sample: 201 Consumers: 126, Retailers: 76</p> <p>Siem Reap Total sample: 201 Consumers: 126, Retailers: 75</p> <p>Sihanoukville Total sample: 203 Consumers: 126, Retailers: 77</p>
<p>4. Qualitative Research - Part Two</p>	<p>Field Immersion</p> <p>One-week field research to answer outstanding questions not addressed in previous research methods.</p>	<p>Observations and interviews with consumers and vendors in six markets (BKK, Central, Kandal, Olympic, Orussey and Russian Market) and ten <i>chab houys</i> in Phnom Penh⁸.</p> <p>Interviews included:</p> <ul style="list-style-type: none"> • Three plastic bag vendors • Nine <i>chab houy</i> owners • 17 <i>chab houy</i> customers • 11 fruit and vegetable market stall owners • 37 market customers, including 'positive deviants', i.e. customers who bring their own bag or basket.

8. Further field research to be conducted during pre-concept testing in Siem Reap and Sihanoukville.

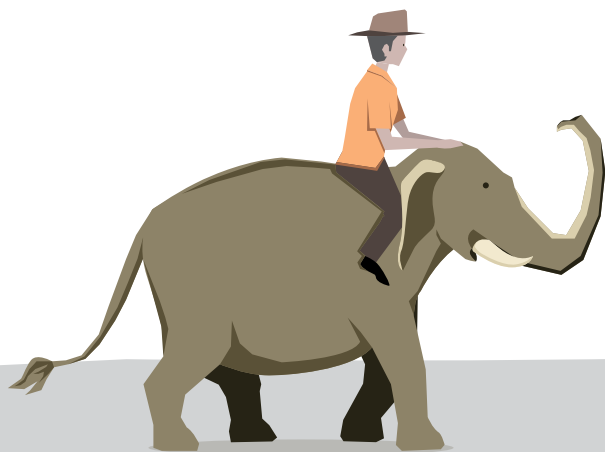
DATA ANALYSIS

TRIGGER MAPPING

Analysis and synthesis of research findings were conducted throughout the research process, in particular following the completion of Activities 1-3 and again after Activity 4. Trigger Mapping (a visualisation process coined by 17 Triggers) was, in this case, used for data synthesis, bringing out key findings and identifying knowledge gaps. Trigger Mapping was also used to identify the factors that can inhibit or facilitate change. Four personas and customer journeys were developed to better understand behaviours in specific 'ecosystems', namely markets and *chab houys*. Two bag decision matrixes were also created to determine the factors that influence vendors and their plastic bag choices.

While the primary behaviour change framework used for analysis is grounded in the 'Elephant Rider Path' methodology developed by Chip and Dan Heath in their book, *Switch*⁹ (see box on right), other behaviour change communication frameworks such as FOAM (Focus on Opportunity, Ability, and Motivation)¹⁰ and Duhigg's Habit Loop framework¹¹ were used to provide additional tools to examine plastic bag use and disposal behaviour.

Behavioural determinants to reduce plastic bag consumption and increase the reuse of plastic bags have been classified and mapped in Table 2.



Elephant Rider Path in a nutshell

The Elephant Rider represents the rational side of the person whose behaviour you are seeking to change. The Rider must be clearly directed on where to go and the action(s) to take in order to reach their goal. For example, the action may be wearing a helmet when they ride their motorcycle. The reason is clear — if you get into an accident, wearing a helmet could save your life.

But the choices that people make are not strictly governed by logic. The Elephant, which represents the emotional side of human beings, needs to be motivated. The Rider can train the Elephant to go in a specific direction, but if the elephant is thirsty, for example, it will go to the river regardless of what the Rider tries to do. Let's go back to the example of the helmet. We know that we should wear a helmet to prevent serious accidents, yet we find excuses not to — our hair might get messy, or it is only a short distance so it doesn't matter. Emotions have a strong influence on our actions and often prevent us from implementing the more rational decision.

Then there is a third element, which is the Path. The Path represents the situational and environmental context that makes it either easy or difficult to change. If there is a law that fines motorcycle drivers for not wearing a helmet, people will start to wear it. On the other hand, if good quality helmets are not available or too expensive, there is a limit to who can adopt that behaviour. The Path can sometimes be a quick fix and at other times be completely out of our control. In essence, all three elements are needed to move towards behaviour change.

9. Heath, C. and Heath, D. 2010. *Switch: How to Change Things When Change is Hard*. Random House, New York.

10. Coombes, Y. and Devine, J. 2010. *Introducing FOAM: A Framework to Analyze Handwashing Behaviours to Design Effective Handwashing Programs*. World Bank Water and Sanitation Program (WSP), Washington D.C.

11. Duhigg, C. 2014. *The Power of Habit: Why We Do What We Do in Life and Business*. Random House, New York.

KEY FINDINGS

TAKE-AWAYS AND
BAG BEHAVIOURS



The market research explored three behaviours: consumption, reuse and proper disposal of plastic bags. This section starts with some key take-aways from our research, followed by findings within each of the three behaviours.

A. Take-aways

Plastic Bags are Too Easy

Plastic bags are ridiculously easy. No matter which way you look at it, plastic is probably the most ubiquitous, highly versatile, cost-effective product invented in the 20th century. No one we interviewed could find fault in its functional traits: it's cheap, waterproof, dust-proof, easy to use for transporting goods, easy to store, lightweight, and available – everywhere.

Plastic bags are not just one product, but many. A rich diversity of sizes, quality, costs and designs are available to consumers and retailers. Plastic bags serve multiple purposes and few other materials

can rival its tactile familiarity. Years of practice means that everybody knows its features and its convenience. Reducing plastic bags requires breaking an ingrained habit, which is a challenge when the counter-path is so easy. To date, the only global campaigns that have managed to reduce plastic bag use (to some extent) has been charging customers a fee¹².

Awareness is high, but does not translate into improved behaviour

Eighty-five per cent of all consumers were able to suggest a negative health or environmental impact related to plastic bags without being prompted. Most people associate it as an unnatural product that does not degrade in the environment and causes problems.

In terms of negative health impacts, the majority of respondents refer to the damage caused to the respiratory system (97%) and brain (67%) from burning bags.

12. Earth Policy Institute 2014: http://www.earth-policy.org/plan_b_updates/2014/update123

A significant amount of people interviewed mentioned plastic bags' role in destroying the ozone layer or contributing to climate change and flooding. While many people have some negative association with plastic bags, few are able to link their own behaviour with these negative impacts.

As expected, there was no correlation between awareness and behaviour towards plastic bag use and disposal. On the contrary, students, who demonstrated the highest awareness of the harmful effects of plastic bags, were also the most likely to litter.

It's a woman's world

Wet markets are the highest users and distributors of plastic bags, with consumers receiving an average of five bags per visit and 10% of respondents stating that they receive ten bags per visit. The market is dominated by women. Seven out of ten vendors are women, particularly in the fruit and vegetable section, and most customers are women.

Markets in Cambodia also have a dry goods section that is dominated by clothing stalls with a higher percentage of female shoppers. *Chab houys* are also mostly managed by women, even though husbands are often involved in stocking supplies.



Some good practices are already in place

Reuse of some types of plastic bags is high. Despite the lack of solid waste management and infrastructure, most people drop their litter off in designated areas and like to keep the area around their homes clean.

But not all bags are equal. While big, clean bags are often reused, the small, low-quality, coloured bags that are cheapest for retailers are the least valued by consumers.

Chab houys also represent an ecosystem where both vendors and consumers neither give nor take a bag when purchasing single items such as cigarettes, water or snacks.

It's somebody else's problem

Is it chicken or egg? Is it the consumer's responsibility to initiate reduction or the retailer's responsibility? Plastic bag behaviour is a blame game in which retailers feel pressured to give more bags to consumers and consumers feel they are given a bag before they have time to refuse, at which stage they feel it is impolite to say 'no'. With no ownership of the behaviour, plastic bag use does not get addressed.

Likewise, with littering, picking up after yourself is perceived as somebody else's job, and the necessary infrastructure to facilitate proper and convenient disposal, i.e. rubbish bins, is currently not available.

B. Current Plastic Bag Behaviours

Behaviour I: Consumption of plastic bags

Key research question: How are people using and acquiring plastic bags, where are the majority of plastic bag transactions happening, and who is doing what?



Consumption of plastic bags in Cambodian cities is extremely high. Our findings estimate that an urban Cambodian consumes 2,158 plastic bags per person per year; 2,700 if they are a housewife.

Plastic bags are used for everything ranging from protecting clothes from dust and rain, to acting as beverage containers paired with a straw. Traditional eco-alternatives such as banana leaves and lotus leaves are no longer cheap or practical and their use is limited to food products where there is a specific functional attribute such as taste.

While plastic bags can be exchanged anywhere, for the purposes of this report, findings are presented for the three 'ecosystems' where the largest number of bags transactions take place. These ecosystems include markets, *chab houys* and street food vendors¹³.

Markets

In terms of scale, wet markets are by far the biggest distributors of plastic bags to consumers, providing 50% of all bags received by consumers (an average of five plastic bags per visit). This is almost twice as many bags as *chab houys* and street food vendors who provide two to three bags per visit.

Cambodians value their fresh food and housewives, or those responsible for food preparation, visit wet markets daily. This daily shopping is necessary because many urban households do not have refrigeration at home and electricity costs are high (the highest in Southeast Asia at 30 cents/kilowatt). As a result, housewives receive on average of 27 bags per week from markets alone.

The high distribution of plastic bags at wet markets can also be attributed to a culture of keeping things separate and clean. Each item bought is given its own bag and all purchases are gathered together into one larger carrier bag. Vendors have very clear ideas about what items can be paired with what. For example, harder, dry items such as dragon fruit and pears can be put into the same bag, but soft items (even different lettuce varieties), are put in separate bags to prevent leaves from going brown and "to keep things tidy". To some extent, fruit vendors give out fewer bags than vegetable vendors as more items can be packed together, but they are also more likely to double-bag when fruits are heavy.

Plastic bags help define good customer service and new customers are often given more bags to entice them to revisit the stall. Vendors expressed discomfort with asking customers if they could put everything in one bag for fear of seeming stingy, despite the fact that they spend a lot of money on plastic bags. Some stalls go through 2-3 kilos a day, which quickly adds up to about \$20/week. Fundamentally, consumers feel that they have the right to a 'free' plastic bag with each purchase.

The type of transportation used is a determining factor for both markets and *chab houys*. Many consumers travel to these vendors by motorcycle. The inconvenience of having to carry a bag in a vehicle with little to no trunk space, as well as the fear of bag snatching, may deter people from bringing their own bags. Those that walk to the market or are dropped off seem to be more likely to bring a basket¹⁴, however this acts mostly as a carrier bag to consolidate purchases and results in very little reduction of bags.

13. Since less than 1% of the 606 respondents interviewed in the quantitative survey visited supermarkets and mini marts on a regular basis, they were excluded from the analysis.

14. Low base size

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KEY FINDINGS

Current Plastic Bag Behaviours

Chab houys

Chab houys are the Cambodian convenience store and the most visited retail outlet regardless of occupation. Most people buy something at a *chab houy* every day although there is some differentiation in what they are buying. Students mostly buy soft drinks and snacks, while housewives often buy eggs and condensed milk. Plastic bag consumption is less per visit mostly because consumers often go to the *chab houy* for a quick stop to buy one or two pre-packaged goods that are easy to carry without a bag. Observations during the Field Immersion revealed that customers were willing to forego a bag when they only had one item. One exception is drive-by motorcycles where vendors automatically offer a bag for customers to hang on their bike handles. The other common item is cold drinks, where customers are given a bag to prevent the condensation from getting on their hands.

Street Food Vendors

Blue-collar workers and students are the most frequent visitors to street food vendors, and fuel a lifestyle of eating out with friends and on-the-go. Although plastic bag use per visit is low, many visits mean that consumers are still receiving an average of ten plastic bags each week from street food vendors. The majority of these bags are immediately disposed of due to being soiled by food and condiments. Although beyond the scope of this project, street food vendors supply other sorts of plastic and styrofoam packaging, which are highly degrading to the environment.

In summary, on any given day, consumers will likely visit at least one – but likely more – of the above ‘ecosystems’. This is illustrated firstly in the graphic below that shows the frequency of visits per week to each ‘ecosystem’ by consumer profile (as defined by occupation). Secondly, Table 2 presents the number of plastic bags received per week by consumer profile taking into account the frequency with which they visit the ‘ecosystems’ as well as the total bags received per visit.



Graph 1: Average frequency of visiting each type of outlet (days per week) – by occupation

Table 2: Consumer profiles

Occupation	Behaviour	# of plastic bags received per week	# plastic bags per visit by 'ecosystem'
Housewife	<p>Food preparation is likely to take place at home, but not all meals are cooked since housewives visit street food vendors at least 3 times a week, including for breakfast.</p> <p>Frequent visits to the wet market and <i>chab houys</i> indicates a division of purchase type – fresh ingredients at the market; smaller, pre-packaged purchases at <i>chab houys</i>. Respondents confirmed buying at the market daily after having decided what to cook for the day.</p> <p>Lack of refrigeration and tropical weather increases the need for ice and cold drinks, which may increase the number of visits to <i>chab houys</i> and street food vendors.</p>	<ul style="list-style-type: none"> • 27 bags from wet market (5 visits) • 14 bags from <i>chab houys</i> (5 visits) • 11 bags from street food vendors (3 visits) <p>Total trips = 13</p> <p>Total bags/week = 52</p>	<p>5.4</p> <p>2.8</p> <p>3.6</p>
Blue-collar worker (factory workers, tuk tuk drivers)	<p>Due to the nature of their work and living conditions, blue-collar workers are a highly mobile population with long hours and limited time or space to shop and cook.</p> <p>Likely to purchase pre-made food at <i>chab houys</i> or from street food vendors. Blue-collar workers only make 3 visits to the wet market (where perishables are available) versus 10 visits to venues with pre-made, ready food.</p>	<ul style="list-style-type: none"> • 20 bags from wet market (3 visits) • 14 bags from <i>chab houys</i> (6 visits) • 11 bags from street food vendors (4 visits) <p>Total trips = 13 trips</p> <p>Total bags/week = 45</p>	<p>6.6</p> <p>2.3</p> <p>2.8</p>
Student	<p>Students are also highly mobile, with limited time or interest in cooking or shopping for perishables. Their presence at the market is mostly in the lifestyle and dry goods section or the 'food court'.</p> <p>Students exhibit the same food consumption patterns as blue-collar workers with only 3 visits to wet markets, but 10 visits to <i>chab houys</i> and street food vendors per week.</p>	<ul style="list-style-type: none"> • 14 bags from wet market (3 visits) • 14 bags from <i>chab houys</i> (6 visits) • 10 bags from street food vendors (4 visits) <p>Total trips= 13 trips</p> <p>Total bags/week = 38</p>	<p>4.6</p> <p>2.3</p> <p>2.5</p>

Table 2: Consumer profiles

Occupation	Behaviour	# of plastic bags received per week	# plastic bags per visit by 'ecosystem'
White-collar worker	Consumption pattern is similar to housewife but with less frequency.	<ul style="list-style-type: none"> • 20 bags from wet market (4 visits) • 6 bags from <i>chab houys</i> (4 visits) • 5 bags from street food vendors (3 visits) <p>Total trips = 11 trips</p> <p>Total bags/week = 31</p>	<p>5.4</p> <p>2.8</p> <p>3.6</p>

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KEY FINDINGS

Current Plastic Bag Behaviours

Behaviour II: Reuse of plastic bags

Key research question: Are people already reusing plastic bags and, if so, how and at what levels?

Plastic bag reuse is already happening at high levels, with about half of consumers reusing their bags at least once and 40% reusing bags twice. Bags are predominantly reused for household rubbish bin liners, which largely explains the ability to only reuse bags one time. Some consumers, especially women, are motivated to reuse plastic bags to save money from buying them, so much so that several retailers expressed that customers sometimes ask for an extra bag even when they only purchase one item.

Reuse is highly dependent on the type of bag received during a transaction. Big, strong bags with handles that are clean after first use are the most coveted by re-users. High quality, branded or 'pretty' bags are more likely to be reused for other purposes such as storing goods, packing clothes when traveling or even for shopping outings. One student interviewed commented on reusing his Adidas plastic bag again and again due to its high quality and "to show people that I am modern and well off." This is supported by the practice of many lifestyle good vendors purchasing fancier, more expensive bags from Thailand to differentiate themselves from other stalls, sometimes at up to \$5/kg.

Problematically, the least reused bags – small, thin, coloured bags – are used frequently in wet markets since they are easy for sorting produce and are also cheaper for vendors to buy, approximately \$1.50/kg compared to \$2.50/kg for the translucent bags. These bags are also the highest in colourants and additives, which make them more toxic to the environment.

Black bags, which are often given out by vendors to hide embarrassing purchases such as sanitary napkins or small quantities of rice (less than 1 kg), are also less commonly reused as consumers find them 'smelly'. Bags from street food vendors are the least likely to be reused, except to throw away food that has just been eaten, as they have often become dirty from the food or sauces packed in it.

As far as vendors are concerned, bags are reused in their own stores to sort and pack goods, but virtually all vendors (99%) only provide new plastic bags to customers. While most vendors are aware that reuse could be a cost-saving strategy and more environmentally friendly, they do not feel that providing used bags to consumers would reflect good customer service.

Table 3 illustrates the likelihood that a plastic bag is reused or thrown away immediately, depending on the type of bag and its attributes.



Table 3: Plastic bags most likely or unlikely to be reused by consumers (% of respondents)

	Bags that are reused	%	Bag that are thrown away immediately	%
1	Big plastic bags that remain clean after first use	81	Small plastic bags that are stained/ dirty after first use	90
2	Big, thick plastic bags with handles	73	Big plastic bags that are stained/ dirty after first use	84
3	Branded small plastic bags with handles (e.g. Lucky etc.)	63	Small, thin plastic bags with handles	69
4	Big, black plastic bags	60	Small, thin transparent plastic bags	67
5	Small plastic bags that remain clean after first use	59	Small, black plastic bags	59
6	Branded big plastic bags with handles (e.g. Lucky etc.)	59	Small, thin plastic bags without handles	56
7	Big, thin plastic bags with handles	57	Small, thick plastic bags with handles	54

Current Plastic Bag Behaviours

Behaviour III: Proper disposal of plastic bags

Key research question: How are people disposing of plastic bags and what is the infrastructure available to support proper disposal?

Disposal of plastic bags comes in several forms – littering, burning, burying and recycling. The biggest challenge to proper disposal is that Cambodia’s waste management system is still in its infancy. While roughly 80% of residents put their rubbish in designated areas on their street, few rubbish bins exist in the cities, and homes and businesses are expected to purchase their own rubbish bins for waste collection. Many people have little choice but to litter, burn or bury their rubbish, particularly in more isolated parts of the city where private waste collection companies – CINTRI and GAEA – visit less frequently or not at all.



Waste pickers form part of an informal recycling system in Cambodia, which mostly exports recyclables to Vietnam, Thailand or Malaysia. Phnom Penh alone is home to about 2,000 waste pickers who are active both at dump sites and on city streets. However, plastic bags have little recycling value – only 200 riel (5 cents) is made for every 1 kg – so they are often ignored in favour of bottles and metal cans, which are higher in value.

Littering

Littering in Cambodian cities occurs often, with 36% of all consumers admitting to littering from time to time. Despite higher awareness of the negative environmental or health impacts of plastic bags, 45% of students report littering plastic bags after use.

Consumers have a higher propensity to litter in outdoor public spaces, near street food vendors and after a quick snack from a *chab houy*, particularly when they are alone (33%). Being with family stood out as the least likely time to litter in public areas, suggesting there is some social stigma associated with littering. The Environmental Education Department suggested that Buddhist monks could be a means to encourage good behaviour in older generations whereas celebrities or TV dramas may be more influential on younger and female audiences.

The cleanliness of the surrounding environment is a strong influencing factor on littering. The majority of consumers litter in areas that are already dirty or where rubbish is piled together. Both consumers and retailers (particularly street food vendors and *chab houys*) voiced the lack of rubbish bins to aggregate their rubbish for collection by waste management companies. They were particularly disgruntled when their own customers littered directly outside their shop. Indoor spaces and modern shopping malls like AEON and Sorya mall are considered premium places for hanging out and therefore the locations where consumers are least likely to litter.

Markets have systems in place for littering and keeping the venue clean. Orussey Market has a fining system in place for market stalls, which includes two warnings, followed by a 10,000 riel fine (\$2.50) for the third violation and threat of closure for fourth-time offenders. Community clean ups are held every few weeks (some organised in collaboration with the Ministry of Tourism, Ministry of Environment and youth groups), and most markets have a depot area for rubbish to be collected. Solid waste and organic waste is separated to make it easier for local waste pickers to collect bottles and metals for recycling.

Interestingly, respondents in Sihanoukville were three times as likely to litter because they felt that somebody else would pick it up. This could be due to the existence of hired street cleaners, but there may be some social status associated with collecting rubbish. Eco-school programmes in Siem Reap report that some parents opposed waste separation education in schools asking: “Why are you teaching my child to be a waste picker?”

Table 4 summarizes factors that affect littering.

4

KEY FINDINGS

Current Plastic Bag Behaviours

Burning

In general, however, awareness that burning bags is bad for you is extremely high. Eighty-five per cent of all consumers interviewed could identify one health or environmental disadvantage to plastic bags without being prompted, of which 97% cited respiratory diseases as the primary health impact.

Respondents also voiced disliking the smell of burning bags and were afraid of starting a neighbourhood fire by accident. Many stated that more regular waste collection by CINTRI and GAEA would reduce their need to burn. This is supported by significantly lower burning rates in Phnom Penh (11%) compared to Siem Reap (91%), likely due to the availability of better waste collection services and a more educated population. Similar to littering, environmental circumstances are a stronger motivator than awareness.



Photo credit: Alexandra Moss

Table 4: Factors that affect littering

Physical Environment	Social Norms	Attitudes
Convenience (availability of rubbish bins nearby)	Example set by others (area full of litter, see others littering)	Somebody else's problem
Cleanliness	Won't be judged (litter when alone and less likely when with family)	Apathy - "I don't care"

RECOMMENDATIONS

Based on the findings and analysis presented above, recommendations for the upcoming behaviour change communication campaign to address plastic bags are:

1. Prioritise key behaviours for more targeted messaging

The key behaviour to address at this time is reducing the consumption of plastic bags with some emphasis on reuse. Why?

- To date, little effort has been put in reducing plastic bag consumption on a large scale. Eco-bags have had minimal success in supermarkets and Cambodians in these three cities use an extortionate amount of bags per transaction.
- Reuse is already occurring at high levels whenever bags retain their functionality after the first use, therefore messaging around this behaviour is redundant. However, reuse could be advocated to consumers as a carrier bag to bring back to the market a second time. While the reduction in plastic bags will be minimal (1-2 bags per visit), this reinforces positive behaviour and gets people into the mindset of reuse.
- Disposal is a difficult behaviour to address via behaviour change communication alone because a key reason that people litter or burn their plastic bags is due to a lack of appropriate infrastructure – no rubbish bins and unreliable waste collection schedules. Interviews reveal that vendors want to properly dispose of their rubbish and value cleanliness in and around their shop. Independent efforts to set up bins for collection has thus far had limited success. Some bins put in place by the Sihanoukville Tourism Association were actually removed by businesses who felt they congregated smelly rubbish in their vicinity. Therefore, fully addressing proper disposal requires multiple structural interventions led by the government including the provision of more bins, making adjustments to current contracts with waste collection service providers and establishing a more comprehensive solid waste management and recycling system.

- Many programmes and institutions already advocate for cleaner cities and regularly organise clean-up days to raise awareness on the issue. They include the government's National Clean City Assessment programme and civil society groups such as the Union of Youth Federations of Cambodia and 'Clean and Green Up Temple Town'. In centrally-managed venues such as markets, littering is not an issue as institutions have developed their own waste management systems.
- Addressing littering is a popular behaviour to target because it is highly visible – photos of a location after a clean-up event are easy to share on social media and in reports. The government also strongly advocates this message, Prime Minister Hung Sen is frequently quoted for his dream of seeing a “clean city without plastic bags scattering in the air”. However, without supportive infrastructure in place, the impact of a behaviour change communication campaign on proper disposal will be minimal.

2. Prioritise ecosystems

There are a variety of ecosystems where plastic bags are exchanged. The majority of plastic bag behaviours are centred on the purchase of food and consumer goods at specific locations. Table 5 highlights the three ecosystems that we perceive as the most amenable to change via a behaviour change communication campaign, with markets as a lead priority (both the perishables and lifestyle goods sections).

Due to its low relevance to the Cambodian consumer, supermarkets and mini marts are not considered below as a target outlet, although final messaging around consumer behaviours will not exclude this location.

3. Develop communication messages for both audiences

One of the key findings from our research is that neither consumer nor vendor feels that it is his or her responsibility to reduce plastic bag consumption. As plastic bags behaviours are centred around transactions involving two actors, the campaign must therefore address both parties so that each one feels empowered or obligated to initiate the change.

Table 5: Ecosystems and their criteria

ECOSYSTEMS	CRITERIA			
	Large # (Scale)	Easy to reach	Behaviours that could be addressed	Other Challenges
<p>Perishables at the market</p>	<p>Extremely large scale: up to 50,000 customers a day in some markets. The majority of Cambodians buy fresh food this way.</p> <p>Calculations indicate that Orussey market alone goes through 250,000 bags a day (more than 1,000 bags per market customer per year).</p> <p>Largest volume of plastic bag exchanged based on total volume and # of bags per transaction.</p>	<p>Centralised management by market chiefs provides opportunities for communication and interpersonal communication campaigns.</p> <p>Structural changes to the way the market is run could be discussed with chief.</p> <p>Market chiefs from different markets also regularly meet to discuss issues: 25 in Phnom Penh, 4 in Siem Reap, 1 main (several small) in Sihanoukville.</p> <p>Market chiefs crave recognition from the government and frequently post events on social media.</p> <p>Markets have good spaces for campaigns and events that are currently underutilised.</p>	<ul style="list-style-type: none"> • Offering less bags • Putting more items together in one bag • Taking less bags • Bringing your own bag/basket • Reusing bags • Encouraging existing paper packaging from old, misprinted text books • Not taking a bag for certain items, e.g. for bananas, this is already the case • Checking before double-bagging. 	<p>Vendors habits are deeply ingrained and have practical reasons behind them (sorting, cleanliness, transportation).</p>

Table 5: Ecosystems and their criteria

ECOSYSTEMS	CRITERIA			
	Large # (Scale)	Easy to reach	Behaviours that could be addressed	Other Challenges
<p>Lifestyle goods at the market where clothing, jewellery, electronics and household goods are purchased in a separate section of the market.</p>	<p>Largest section of most big markets and large number of vendors.</p> <p># of bags per transaction small, perhaps only 1-2 bags.</p>	<p>Yes, same as perishables.</p> <p>Vendors and consumers in the lifestyle goods section already use social media to promote their goods and could welcome a show-and-tell style campaign .</p>	<ul style="list-style-type: none"> • Offering less bags • Taking less bags • Putting items into your own purse • Bringing your own bag • Promoting fancy eco-alternative(s). 	<p>Customers are paying for higher ticket items and may not want to forego a bag, especially if it can be reused or is attractive.</p> <p>Some vendors buy pretty bags from Thailand to differentiate themselves from competitors and see the bag as crucial to the transaction.</p>
<p>Chab houys</p>	<p>Scale is large because they are all over the city. Consumer volume is high and they are visited by every demographic.</p> <p>Bags are usually given out whenever more than one item is purchased, when the customer is mobile, or when a bag-requiring item is purchased, e.g. sanitary napkins, cold drinks.</p> <p>Greatest diversity of bags are provided here.</p>	<p>No, decentralised and highly diverse in size, goods stocked and management style.</p> <p>Achieving scale would be difficult and probably only feasible through a mass media campaign.</p>	<ul style="list-style-type: none"> • Offering bag only when more than one item purchased • Offering only one bag per transaction • Taking less bags • Bringing your own bag • Encouraging regular customers not to take bags or reuse • Avoiding small, coloured bags altogether. 	<p>Drive-by customers are common and unlikely to forego a bag.</p> <p>Consumers purchasing embarrassing items may still want a bag unless they bring their own.</p>

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ECOSYSTEMS	CRITERIA			
	Large # (Scale)	Easy to reach	Behaviours that could be addressed	Other Challenges
Street food vendors	<p>Large due to high number of vendors.</p> <p>Number of bags of different sizes per transaction is high, as well as other plastic and styrofoam packaging, which is beyond scope of the project.</p>	<p>Same as <i>chab houys</i> but even greater challenge because some are mobile and may not be in the same location each day.</p> <p>Opportunity lies with branded franchise vendors serving mobile coffee.</p>	<ul style="list-style-type: none"> • Reducing carrier bags when customers are eating or drinking nearby • Asking before giving out complimentary sauce bags and cutlery 	<p>Both vendors and customers will not forego a plastic bag because it contains food or drinks.</p> <p>Large percentage of take-away orders makes it difficult to go bag-free.</p> <p>Availability of alternative packaging is needed and would have higher impact than a behaviour change communication campaign.</p>

NEXT STEPS



The above findings form the backbone of the evidence-based behaviour change communication strategy to be developed by 17 Triggers for the ACRA project, 'Reducing Plastic Bag Waste in Major Cities in Cambodia'. The strategy will guide the ideation phase of the project where several concepts and prototypes will be market tested to assess their ability to reduce consumers' and retailers' plastic bag use. Finally, a behaviour change communication toolkit will be created for the implementation of a fully-fledged campaign.

For more information on the research studies, please contact Lillian Diaz - lillian@17triggers.com