

Hamenus Lixu Plástiku

Mercy Corps

Formative Research Report

**Attitudes, knowledge, behaviors,
and practices around plastic recycling
and waste management in Timor-Leste**



January 2022

Produced by



Contents

Introduction	1
Methodology	3
Findings	5
Current behaviors and future preferences	5
Knowledge, attitudes, control, commitment and future wishes	9
Barriers	11
Motivators	12
SBCC strategy guidance	13
Recommendations	15
Annexes	18

Disclaimer

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the authors and do not necessarily reflect the views of the European Union.



Formative Research Report: Attitudes, knowledge, behaviors, and practices around plastic recycling and waste management in Timor-Leste

Author: Emily Morrison, Sustainable Solutions Timor-Leste

Cover photo: Balide rubbish collection site in Dili, by Antonio Marques, December 2021, © SSTL

Prepared for: Hamenus Lixu Plástiku, Mercy Corps, 01/2022

Contact: info-timor@sustainablesolutions.consulting

Produced by: Sustainable Solutions Timor-Leste (SSTL)



Introduction

Hamenus Lixu Plástiku

Hamenus Lixu Plástiku (HLP), also known as Reducing Plastic Waste, is a three-year program aimed to limit the generation of plastic waste and support a Civil Society Organization (CSO)-inclusive circular economy for plastic waste resulting in a cleaner, healthier, and more prosperous Timor-Leste. HLP aims to achieve this through two parallel and linked interventions: 1) increase awareness of climate change and the environment, and support the circular economy of waste management through CSO supported initiatives and 2) establish the plastic waste circular economy through the support of CSOs and local businesses.

A critical aspect of this goal is for Mercy Corps to work with the Secretary of State for the Environment (SSE), Ministry of Education, Youth, and Sports (MOEYS), and CSOs to implement an evidence-based, nationally-endorsed, coordinated campaign to increase awareness of climate change and the environment and support plastic waste management. While past campaign efforts have generated participation and interest, the strategies were not evidence-based and generally lacked coordination among stakeholders. To address this, the HLP program aims to bring together diverse stakeholders under a CSO-inclusive group to create a coordinated and evidence-based approach to awareness raising and social behavior change (SBC).

Plastic Waste in Timor-Leste

Plastic waste is recognized as a significant and growing challenge in Timor-Leste.^{1,2} Around Dili especially, plastic waste is visible and increasingly causing blockages to storm drains and exacerbating damage caused by heavy rain falls.³

One billion plastic bags and 125 million plastic bottles are used and discarded annually in Timor-Leste through various waste-disposal means, including burning, littering and illegal dumping.^{4,5} Over 120 tons of waste is delivered to the Tibar dump site in Dili per day, of which plastics account for nearly 20% of all waste dumped; plastic bags alone are 13%.⁶ It is estimated that 8,000,000 plastic water bottles are imported into Timor-Leste every month⁷ and that plastic containers constitute between 4–6% of total waste based on mass.

These statistics show a clear need for concurrent waste management systems, infrastructure and practices,⁸ along with social and behavior change to help reduce the use of plastics and the negative impacts from not disposing of plastic waste responsibly. Whilst reducing plastic bag use alone will not address these problems, raising awareness *through* reducing single plastic use and improved individual practices around disposal have been shown to contribute to improved environmental practices more broadly, actively encouraging advocacy to improved government policies and practices.⁹

Social and Behavior Change

There have been few efforts in Timor-Leste at public awareness around reducing consumption and improving waste disposal, but these have largely been ad-hoc, not sustained, centered in Dili and not focused on social and behavioral change.¹⁰ The Ministry of Education lacks the resources to create tested Reduce, Re-use and Recycle (3Rs) educational materials and supporting options for reducing plastic waste and proper disposal are lacking.¹¹ The private sector has identified that high-potential, social impact-oriented business growth opportunities could fill this technical gap.¹²

The findings from this study are intended to be used by Mercy Corps, and relevant partners, to help inform social and behavior change communications strategies and materials.

CAUTION: Campaigns focused on reducing plastic bag use can have adverse and unintended consequences. These consequences have been seen globally with the use of cheap, reusable bags sold at supermarkets that are environmentally worse than single-use plastic bags (when only used a few times before disposing of them) and cotton bags from new materials. Any interventions should rely on repurposing existing materials and being explicit in that messaging.

The minimum number of times the following bags need to be reused in order not to have a higher 1) contribution to climate change and 2) overall environmental impact than a LDPE (plastic) bag that was used in a shop and then reused as a waste bin bag.



Type of bag	Impact on climate change	Overall environmental impact
Non-woven polypropylene (PP) bags	6 times	52 times
Woven polypropylene (PP) bags	5 times	45 times
Recycled polyethylene terephthalate (PET) bags	6 times	52 times
Polyester bags	2 times	35 times
Biopolymer bags	0 times	42 times
Unbleached paper bags	0 times	43 times
Conventional cotton bags	52 times	7,100 times
Organic cotton bags	149 times	20,000 times

Table 1. Type of bags and impact

Image 1. Rubbish washed up after rains in an empty field usually used for playing soccer in Beto Tasi, Dili, by Antonio Marques, December 2021, © SSTL

Any campaign should also consider the broader context.

The majority of waste collected in Timor-Leste is organic and biodegradable, if treated correctly; campaigns should provide viable options for people to reduce waste overall.



Waste type taken to Tibar	Average
Green/Garden waste	33.0%
Paper/Cardboard	18.0%
Plastic bags	13.0%
Food waste	12.0%
Soil and dirt	11.2%
Other Plastic	5.0%
Miscellaneous	5.0%
Glass	2.1%
Other Metal	1.1%
Builders Waste	0.6%
Aluminum	0.2%
Hazardous Waste	0.0%

Table 2. Waste taken to Tibar by category

Methodology

Objectives

The study aimed to identify enablers, barriers and current behaviors about plastic use, disposal and social activism through a mixed methods approach. The objective of the study was to get a better understanding into what types of people are more likely to be early adopters, and what factors are important in early adoption.

The quantitative survey developed for the purpose of the study focused on three key areas:

1. Consumption of single-use plastics, and specifically plastic bags: this was done with the assumption that plastic bag use is an indicator of willingness to adopt environmentally conscious attitudes and actions, providing insights into other areas
2. Waste disposal – specifically looking at burning plastic
3. Informing Mercy Corps' social and behavior change communication (SBCC) strategy on reducing plastic waste

Study framework

HLP's social and behavior change (SBC) approach aims to understand, through evidence-based approaches: current attitudes, knowledge, behaviors, and practices around recycling and waste management in Timor-Leste; the behaviors HLP is attempting to change; the influencers, barriers and facilitating factors over these behaviors; and the core target audience for its future campaign efforts. To develop this understanding a landscape analysis and literature review was first completed (July 2021), which guided the design of this formative research into current behaviors, and enablers and barriers to change.

The landscape review assessed the study context and found behavioral economics and applied behavioral change theories¹³ to be the most relevant frameworks to guide the study. The study was then designed with reference to the model of social and behavioral change components as described in Figure 1 and Table 3.

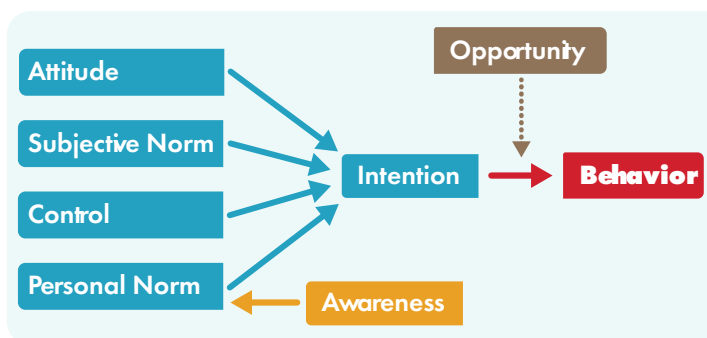


Figure 1. Adapted from a model of social and behavioral change

Table 3. Social and behavioral change components considered in this study

Current behaviors	<i>what are people currently doing and what is driving people who are very active in positive environmental behaviors?</i>
Attitudes	<i>what kind of attitudes do people have and are some barriers and/or enablers?</i>
Subjective and descriptive norms	<i>what are they and what impact can we see them having on their behaviors?</i>
Sense of control/agency	<i>do people feel that they can be part of the solution?</i>
Personal norms	<i>what are the norms of people who are active? Can we identify early adopters and their characteristics?</i>
Awareness (knowledge)	<i>does this have an influence on intention or behavior?</i>
Intentions (commitment & future wishes)	<i>Are people generally committed? What are some of the factors that influence people's commitments and intentions?</i>
Opportunities	<i>what do people need to translate intention into behavior?</i>
Personal norms (PN) – what I think I should do	
Subjective norms (SN) – what I think other people think I should do	
Descriptive norms (DN) – what I think other people do	

Social behavioral change theories highlight that for most people, subjective norms are the most motivating factor. Innovators and early adopters are usually motivated strongly by personal norms and less so by descriptive norms. Descriptive norms are more important for the rest of the population (especially late adopters) and start to have a real effect when a tipping point is reached, and enough people start to adopt the behavior. Many SBC communication (SBCC) strategies focus on the late majority, putting in a lot of effort for little reward by not having targeted campaigns.¹⁴

The study was designed in the context of Mercy Corps' aims and within the diffusion of innovation curve framework: the study looked primarily at what the personal norms are because that's what early adopters are motivated by and that's who any SBCC strategy needs to be targeting. The study also tested the impact of subjective and descriptive norms in the context of their importance as the most motivating factor for the early and late majority of people (adopters).

Innovators: will design products such as repurposed plastic goods, they are highly influenced by personal norms

Early adopters: will have a high take up of innovators' designs, influence other people and set trends

Early majority: will follow the lead of the early adopters when it becomes easy and they have the opportunity. They will be influenced by social and subjective norms, but need the opportunity.

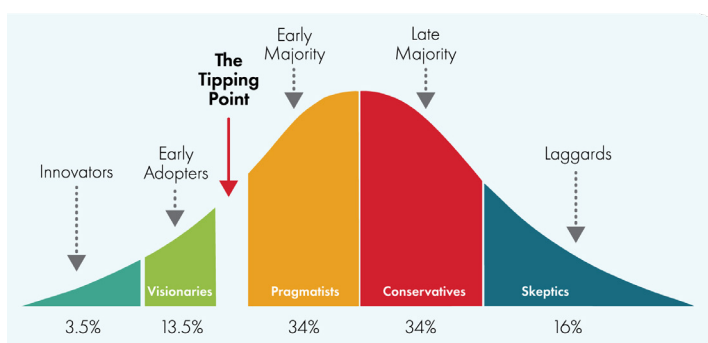


Figure 2. Adaptation of the diffusion of innovation curve

Study design

The study used a mixed development and data collection approach combining a quantitative survey, field observations and key informant interviews.

Behavior questions were developed in a collaborative process, through consultations and in-depth interviews with international and local NGOs engaged in environmental management (Mercy Corps, UNDP, Permatil and Rotary Club Timor-Leste), as well as volunteer environmental groups involved in reducing single-use plastics and beach clean-ups (May–December 2021). Guiding questions were identified and then specific questions were written and refined through piloting. All development was done in Tetun language.

Images were incorporated into the survey to gauge emotional responses, known to be important in plastic-waste campaigns,¹⁵ and add more depth to the understanding of personal norms. Graphics developed for use in the survey are shown in Annex 1.

Opportunistic interviews targeting consumers investigated why they did or did not use plastic bags, and what they thought about efforts to reduce plastic, and interviews with stakeholders involved in environmental issues contributed to a broader understanding of the context and existing initiatives.

1. Data Collection

The quantitative survey (13–18 October 2021) used both multiple choice and ranking questions (see Annex 2 for full list of questions). The survey utilized the Kobo Toolbox online platform to share the survey easily through mobile phones, which was especially useful during Covid-19-related restrictions. Surveys were shared through NGO, volunteer, personal and professional networks including through social media (Facebook, WhatsApp).

Observations were conducted at shopping sites throughout Dili (November–December 2021), including supermarkets (W4, Leader, Lita, Centro and Mie Mart) and local markets (Taibesi, Manleuana, Bidau).

Data analysis methods are available in Annex 3.

2. Sampling

The sample for the survey had the following characteristics:

Area	Dili
Age	17–45
Sex & gender	All
Education	High school/university
Environment	Some awareness, care
Occupation	Studying, working or some qualifications
Social media fluency	Literate, use often

A total of 103 survey responses were considered valid and analyzed. Full characteristics of respondents are available in Annex 4.

Over 60 consumers were observed and a total of 28 short interviews were completed with consumers.

3. Limitations

The sample size does not reflect a representative sample, but provides insight into the knowledge, attitudes, behaviors and intentions of people. Covid-19 restrictions that were in place throughout the duration of the study period limited opportunities for in-person data collection methods and the overall sample size. During observations, many people declined to participate in short interviews as they were busy or had children with them. Opportunistic interviewing is considered likely to be more effective if people asking the questions are in uniform and clearly associated with an NGO.

Findings

The findings section is organized around the applied behavior framework, looking at the findings on current behavior (plastic use and disposal), knowledge, attitudes and norms, control and intentions. These are then looked at with a more focused lens as barriers and motivators. The final section of the report provides some strategic and specific recommendations based on the findings.

Current behaviors and future preferences

1. Use of plastic bags

Whilst the majority of respondents did not regularly accept plastic bags, knowledge about plastic did *not* correlate to refusing to use a plastic bag but having a sense of control did have an influence. When people think that their own actions count, they are more likely to take positive action. See Annex 5 for further details of correlations between actions taken and SBC components.



Figure 3. Accepting of a plastic bag when shopping

When asked why people didn't want to take a bag, pollution was by far the most common reason and forgetting was the most common reason for accepting a plastic bag when shopping.

Those people observed as **more likely not to take a plastic bag from the shop** were:

- Women
- With a car and/or children
- Appearance and time of shopping suggesting returning home from work

Observations and 28 interviews at different supermarkets and markets around Dili support the findings, with roughly the same percentage not taking plastic bags.

- Only a few people purchased point of sale (POS) bags
- Most took their own bags or if only getting a few items, carried them in their hands
- POS: people are asked whether they would like to purchase a bag (*a change from past practices of just putting them in the bags and adding the cost onto the purchase*). Lita store regularly asks people if they would like cardboard boxes where they have a large number of items.

Over 15 people were observed at markets, and all but one took plastic bags from the vendors. Observations suggested that paying for reusable bags had much less influence than just being asked if they wanted one. However, the cost of a bag may be a significant factor in Timor-Leste where the price equivalent could be a small meal or bunch of vegetables.

Bags at supermarkets aren't free anymore, you need to think about the cost of buying them again and again. My parents often give me money to pay for vegetables and other things, so I should really just take my own bag (male, student, 22 years old)

2. Waste disposal

What do you do with your rubbish currently?	%	Why do you choose this option? (select up to 3, unranked)				
		Very Easy	People always do it	It's the cleanest way	Gets rid of plastic	Nearby
Throw out (rubbish bin)	83%	42%	12%	45%	23%	16%
Bury	6%	67%	0%	67%	17%	0%
Burn ¹	6%	33%	0%	33%	33%	0%
Repurpose*	3%	0%	0%	0%	0%	0%
Recycle*	2%	0%	0%	0%	0%	0%

*these categories were not in the question and therefore 'why?' was not asked. The question intended to capture what people did with most of their waste, with subsequent questions addressing recycling.

Table 4. Survey responses to questions about current methods of waste disposal

- The majority of respondents use a rubbish bin and see it as being **easy and clean** (see highlights in Table 4)
- The other disposal methods are under-represented, but the **ease** of the method is important for many, as well as being **clean**.
 - Especially burying scores high on those reasons, 67% for each of clean and easy
 - There is a belief that burning rubbish gets rid of plastic

¹ Compared to the Mercy Corps HLP Baseline, respondents are half as likely to burn their rubbish (baseline = 12%). The difference in methodology (the baseline collected household information, whereas this survey asked for individual actions) may account for this difference and reveal conditional preferences for not burning waste (that is, their household might burn their waste, but these respondents would prefer not to if they have a choice).

Future preferences for waste disposal

	No (n=41)	Yes (n=62)	Said would change, but doesn't suggest a different disposal method (n=57)
Would you prefer to do something else with your trash than this?	39.8%	60.2%	47%
In the future what would you prefer to do with your rubbish? (n = 62)	%	Of the 51 people who currently throw out their rubbish into bins but are wanting to change, 28 said that they would like to throw their rubbish into bins. It's possible that although they want change, they do not know what the alternative or possibilities are. They do show an interest in recycling and repurposing. While the numbers are low, people saying that they would prefer to burn/bury in the future suggests that	
Throw out (rubbish bin)	55%		
Recycle	15%		
Repurpose	13%		
Burn	10%		
Bury	8%		
Throw out (street/river)	0%		
Other	0%		
See Annex 6 for correlations with current behavior			

Table 5. Respondents' future preferences for waste disposal

Of the 51 people who currently throw out their rubbish into bins but are wanting to change, 28 said that they would like to throw their rubbish into bins. It's possible that although they want change, they do not know what the alternative or possibilities are. They do show an interest in recycling and repurposing.

While the numbers are low, people saying that they would prefer to burn/bury in the future suggests that people see burning and burying rubbish as a suitable and favorable method of disposing rubbish, including plastic waste.

Responses suggest that people are not completely satisfied with current waste disposal through throwing into bins. Interviews with people suggest they are not happy about most of the roadside rubbish collection points – they're often overflowing and not well maintained, animals pick up the rubbish and scatter it all over the place and rains often wash it into roads, drainage areas and other private and public spaces.

Image 2. An overflowing roadside rubbish collection point in Kampung Baru, Dili. Antonio Marques, December 2021, © SSTL

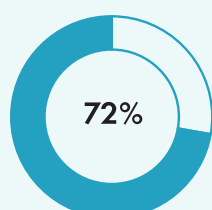


3. Recycling & repurposing

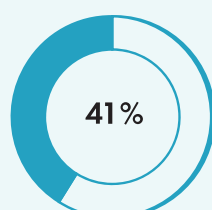
There is a clear interest in recycling, but also a clear difference between people who have heard of recycling options and those who have taken waste to a recycling point. This is consistent with the baseline² finding, that most people who recycle have people coming to their house to pick the waste up. The results indicate that people want to recycle but don't know where, when and how.

Percentage of survey respondents who:

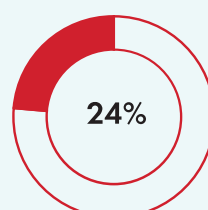
had heard of the recycling plant



had previously taken waste to a recycling point



currently or would like to recycle and had not heard of the recycling plant in Dili



are interested in taking their rubbish to a recycling point

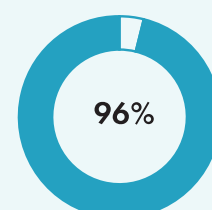


Figure 4. Survey respondents recycling knowledge, behavior and future preferences

² Throughout this report, 'baseline' refers to the Mercy Corps Hamenus Lixu Plástiku Household Baseline, February - March 2020

Repurposing for use or art was raised by a number of respondents, with flowerpots being among the favored options. Follow-up on repurposing showed that people get satisfaction from being creative and contributing to reducing waste, and being considered as innovators.

Image 3. Plastics repurposed as flowerpots around Dili. © SSTL



Positive actions to reduce plastic use and waste

Compared to the baseline, the respondents were *4 times more likely* to take positive actions to reduce plastic use (the baseline didn't ask about current actions to reduce plastic waste). This finding suggests that the sample demographic is more likely to be proactive in reducing and addressing plastic waste, and therefore be early adopters who can influence others.

Respondents were more likely to engage in positive actions to reduce plastic waste than plastic use, suggesting that people focus on reducing plastic use, and/or less awareness about how individual actions can contribute to reducing plastic waste.

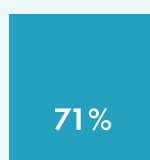
These findings reveal opportunities for SBC communication to focus on where people are taking some action (taking their own bag and bottle rated highest) but could be doing more, i.e., increasing awareness of possible actions and transforming awareness into action.

RESPONDENTS WHO REPORTED MORE ACTIONS TO REDUCE PLASTIC USE

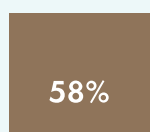
(see Annex 7)

- **People aged 30-34 reported the highest number of actions** to reduce plastic use (2.54 actions per person)
- **Women reported a higher number of actions to reduce plastic use than men** (2.33 actions per person)
- While more younger people responded that they always do more to reduce plastic, older people take a higher variety of and more actions.
- Salaried workers have the highest variety of activities to reduce use and waste (2.54 actions)
- Unpaid working people score high on always doing something (73%)
- Across all the variables, university students do a bit better than secondary school graduates

Why do you think plastic pollution happens?

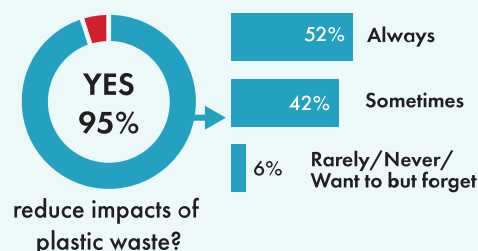
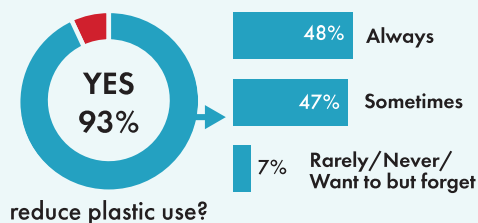


Because people litter



Because people use too much plastic

Do you take positive actions to...



Actions to reduce plastic use		% who took this action
Take own bag	30%	69%
Take own bottle	24%	52%
Refuse plastic bag	16%	35%
Avoid styrofoam/similar containers	12%	26%
Choose non-plastic packaging	12%	25%
Refuse plastic straws	6%	13%

Actions to reduce impact of plastic waste		% who took this action
Not littering		83%
When I see plastic waste, I pick it and throw in proper waste bins		53%
Reuse plastic		48%
Clean-up beach/other places		28%
Not throw cigarette butts on the ground		16%
Other (awareness raising, reusing for plants or art)		4%

Figure 5. Survey responses to: *Why do you think plastic pollution happens?* (Image-based, multiple-choice question); and *Do you take positive actions to reduce plastic use/impacts of plastic waste?* (Yes/No, multiple-choice question for types of actions)

Knowledge

People had high knowledge about the negative impacts of plastic generally, but not specifically with regards to the amount of plastic they used or impact on wildlife (see Annex 8 for full knowledge scores).

Knowledge has some correlation with taking positive actions, which might suggest that an increase in knowledge will also lead to an increase in positive actions. Overall, people had stronger knowledge on mitigating plastic waste on an individual basis, rather than systematic approaches or reducing plastic use.³ Respondents think it's really important for people to act themselves, with quite low expectations of the government taking action – just over half think that government control could contribute to a cleaner environment. Encouragingly, only 4% expressed the belief that a clean environment is not possible. Annex 5 details the results of correlations analysis between actions and SBC components.

An important question raised by these findings is whether further knowledge would correlate to more actions, or actions being taken more frequently. This could be the focus of a pilot program, where people in the demographic are invited to receive training to responding to plastic-waste, including increasing awareness about:

- ▶ what plastic is and what it's made from
- ▶ amount of rubbish dumped every day
- ▶ length of time it takes for plastic to break down
- ▶ impact on wildlife

Most importantly though, people need more information on what they can do to reduce plastic use and waste – individual actions, collective actions and advocacy to government.

What do you think about this image?



Figure 6. Image used of burning trash and multiple-choice answers

Most people recognized burning trash as an unfavorable option but concerning a large minority of people think that burning rubbish is clean and eliminates trash (Figure 6).

Attitudes

The survey demographic can be considered as:

- ✓ motivated
- ✓ likely to be innovators and/or early adopters, and
- ✓ have a desire to influence other people as well as take action.

The results give some good insights into attitudes and norms that encourage positive actions:

- ▶ Most people often thought about plastic waste (Figure 7), showing a broad awareness of plastic waste, and also indicative of how visually prominent plastic waste is in Dili.
- ▶ Correlations were found between positive attitudes and actions – people who had a sense that change could happen were more likely to engage in positive actions.
- ▶ Those who did the highest number of actions had negative views on what other people do (descriptive norms), reinforcing that personal norms are a much stronger motivating force, along with subjective norms – what we think other people expect us to do.

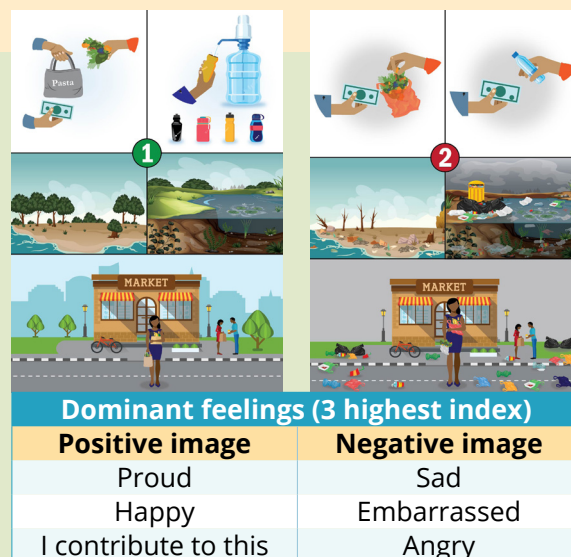


Figure 7. Positive and negative imagery in survey⁴

I often think about plastic



Figure 8. Whether people often think about plastic

3 See Annex 9 for image-based questions on knowledge

4 See Annex 10 for image-based questions on attitudes

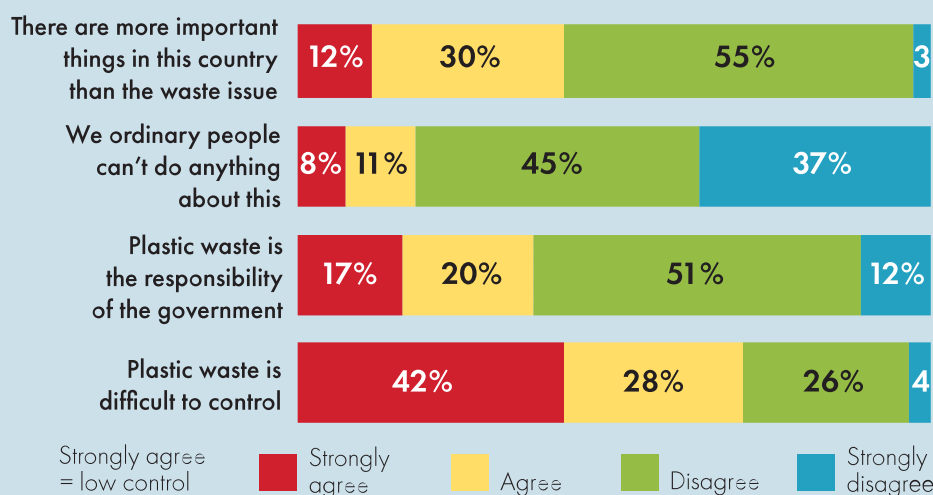


Figure 9. Responses to questions around control over plastic waste

The low number of responses saying that the government should be responsible also indicates that people are unlikely to take on advocacy or activism aimed at changing government responses (Figures 9 & 10).

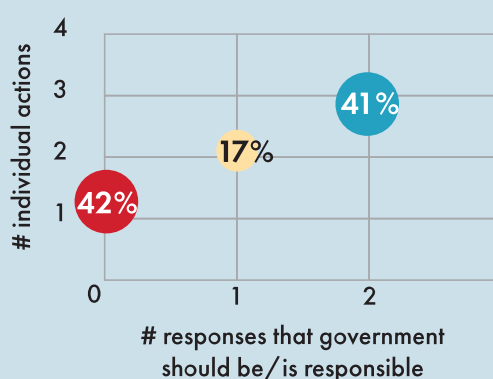


Figure 10. Correlation between taking individual actions and belief that governments should be responsible

Having a sense of agency is an important aspect of behavior change – if people feel that the situation is hopeless, then they are less likely to take personal action or engage in advocacy.⁵ Respondents who believed that their actions made a difference were more likely to take personal action, and more likely to attribute responsibility to the government as well as individuals. Encouragingly, people are optimistic that change can happen and that plastic waste management is a high priority.

The average number of individual actions taken is higher for people that say the government is and/or should be responsible, showing a positive correlation between taking action and belief that governments should be responsible (Figure 10).



Commitment & future wishes

Respondents are highly committed to wanting to take future action – wanting to do more than they currently are:

I want to make a commitment to reduce plastic waste (can select all relevant)	%	%	%
	100%	Committed and are already doing	Intention but not doing yet
Committed to activism (aggregate)	98%		
Use reusable water bottles	98%	69%	29%
Not accept plastic bags/ use tote/own Bags	95%	90%	6%
Telling others about the impact of plastic	95%		
Cleaning the beach/other places	90%	28%	63%
Not to burn plastic/waste	80%		
Advocating to the government	77%		
Reusing plastic items	76%		

Table 6. Respondents' future preferences around waste

5 See Annex 11 for control index score

Barriers

The social norms that were tested showed that the majority of respondents already have positive social norms around reducing plastic waste. Other people not engaging in a behavior was also not a barrier (see Annex 12 for a full list of tested social norms).

1. Barriers to reducing plastic use

The key barriers that emerged from the survey for reducing plastic use were forgetting and, for both use and waste, not feeling like it would make a difference and needing options to be convenient and easy.

2. Barriers to not using plastic bags

The survey findings are supported by the observations and interviews with people who purchased or asked for plastic bags⁶:

- Forgot own bag
- Hard to carry things on a motorbike without a bag
- Most were aware of environmental impacts and didn't want to contribute to the problem, but took a plastic bag when there was not an alternative.

Plastic bags weren't seen as particularly favorable, but free, convenient and sometimes they can be used for other purposes.⁷ People didn't really care if other people saw what they had bought, so that is unlikely to be a factor in changing behavior.

3. Barriers to reducing the impacts of plastic waste

The top three reasons when people answered 'no' to committing to an individual action⁸ (n=58) are shown in Figure 11. A lack of a sense of agency (control) emerged as a key barrier to taking action, with some consideration for how easy it is (convenience). Taking action is also seen to be 'hard' (17% responses).

4. Barriers to improved waste disposal

Most people are aware that burning waste is dangerous, although a significant minority also didn't know the harmful effects of burning plastic waste. Increased awareness may contribute to a reduction in people burning waste but it's important that this is combined with an alternative that is practical and reliable.

It's encouraging that most people would like to dispose of their waste responsibly; and at the same time, curious that some people who are currently disposing of their waste in collection points said they would prefer burning and/or burying. Interviews with a local environmental NGO might help to explain this (see quote at right).

"I usually take my own bag or if I'm buying a lot of vegetables, take an empty rice sack. But sometimes you just need to buy one if you end up getting more than you expected."
(Female, business owner, 40 years old)

"Your plan to get rid of plastic waste is good, but it's impossible because we can't get rid of plastic from this world. If you want to take the initiative to get rid of plastic, then maybe you should try making sure that your water bottles and cans aren't made of plastic!"
(Survey respondent)

Why taking a plastic bag? (can select multiple options)	n	%	% who selected this
Forgot to bring own bag	21	30%	66%
The shop owner just gives them	16	23%	50%
It's easy to carry	14	20%	44%

Table 7. Reasons for receiving a plastic bag

The government must take responsibility for this	31%
I don't believe that I myself can change anything	27%
There's nothing that I can do individually	18%

Figure 11. Reasons for not committing to individual actions

"It's better to burn the rubbish in a place that's a bit remote – that way we can get rid of it. Otherwise, it goes to the dumpsite in Tibar, gets mixed up with all the other rubbish and burnt – the pollution from this is bad for the communities around it, and creates so much smoke and air-pollution. We encourage people to bring their own water bottles, but there's always some rubbish: some plastic bottles, cigarette butts, instant noodle and other packaging, plastic bags, cans and cartons from drinks – so we dig a hole and burn it to be more environmentally friendly."

⁶ See Annex 13 for full list

⁷ See Annex 14 for responses to "What is good about plastic bags?"

⁸ See Annex 15 for full list



“Buying bags can be a good contribution for the people selling them because some are selling bags at the market like the ones you get at the supermarket and by buying them, you’re helping them earn some money. But the bags at the supermarket are 15 or 25 cents, so I always take my own bag.”

(Female, business owner, 40 years old)

Why not taking a plastic bag? (can select multiple options)	n	%	% who selected this
Don't want to use plastic/pollute the environment	56	40%	79%
It's easy to carry in my hand	36	26%	51%
I don't like use plastic	20	14%	28%
It's not heavy at all	12	9%	17%
Taking my own bag	7	5%	10%
If I'm going to drink it straight away, I don't need one	5	4%	7%
Other	3	2%	4%

Table 8. Reasons for not taking a plastic bag



Options that are clean and convenient were the dominant motivators for reducing plastic waste, as well as a sense of contributing to positive outcomes.

1. Motivators for reducing plastic use

For people who are already always or sometimes taking positive actions, the two dominant feelings were “proud” and “I contribute to this”. The importance of peer group influence was high for people who were already using their own bags. As motivated early adopters, they also have a desire to influence their friends and take action (Annex 10).

2. Motivators for not using plastic bags

Being prepared and planning to go shopping was a factor for the majority of people who took their own bags, and saying they hadn’t planned on shopping for those who forgot. Observations suggested paying for reusable bags was less of a motivator for shoppers than being asked if they want one, although some respondents indicated that the cost of a bag is a consideration for some people in Timor-Leste. For those that would *not* take a plastic bag when offered, environmental concerns ranked as the highest.

3. Motivators for reducing the impacts of plastic waste

Knowledge about the impact of plastic waste is important to understand the plastic waste problem, however knowledge on its own doesn’t translate into action. Personal and subjective (peer group) norms were more strongly correlated than knowledge with positive actions; descriptive norms (what we think most people do) do not correlate to action. There are positive correlations between the number of actions taken and:

- People’s sense of control/agency (positive correlation, high)
- People saying the government should take responsibility (positive correlation, high), and
- Knowledge (positive correlation, medium) (Annex 5).

4. Motivators for improved waste disposal

Waste disposal is something that people do think about, and they want ‘**clean**’ and ‘**easy**’ options for waste disposal. When planning recycling or repurposing initiatives, this existing consciousness provides an existing opportunity: people want to do it, especially if they know it’s the most effective way to reduce plastic waste – BUT there should be a convenience to it and they need to have enough information about how to do it.

SBCC Strategy Guidance

The findings from this study about how the different elements that contribute to behavioral change relate to reducing plastic use and waste are intended to guide the design and development of Mercy Corps' SBCC strategy.

SBCC should target the demographic identified as early adopters, who:

- are highly motivated and already care about the environment,
- want to be more active in reducing plastic use and waste, and
- are likely to follow their friends' lead and to influence their peers.

Attention should be on shifting people to 'always' engage in positive behaviors through increasing the SBC elements of awareness, attitude, control and subjective and personal norms.

Remember that taking action needs to be easy, convenient and known to be effective.

COMPONENT	FINDINGS	IMPLICATIONS FOR SBCCS
AWARENESS	Subjective knowledge is high, factual knowledge is fairly low	Increasing knowledge about the negative impacts of plastic on the environment and wildlife, as well as health, <i>together with alternatives</i> is likely to influence and drive positive action, including advocacy to others.
ATTITUDE	Correlation between positive attitudes and actions	Increase sense of positivity through focusing on what change is possible.
CONTROL	Correlation between sense of control and action	Increasing people's sense of agency and control will likely lead to an increase in positive behaviors, including influencing others. Campaigns should include advocacy to the government and private sector, as well as behavioral change, and link reducing plastic use to larger initiatives.
SUBJECTIVE NORM	Strong association between subjective norms and behavior	Target specific groups using images of their peers; initiatives supporting collective activities not just targeting individual action; encourage peer activism.
PERSONAL NORM	Strong association with personal norms and action	Feelings of pride and positively contributing to change are influential; SBCC can leverage these emotions to drive behavior change.
INTENTION	High	People need guidance on what they can do, tips on how to do it and reminders and/or nudges along the way – stickers on the front door to take a bag, messages at POS, and frequent, visible reminders.
OPPORTUNITY	Correlation between awareness of options and having opportunity and taking action	Those with more opportunity were more likely to engage in positive behaviors. This will probably contribute to translating 'sometimes' taking actions into 'always', and intentions into behaviors by providing clear examples of what people can do.

SBCC Focus

The three factors that have the most influence over behavior are Awareness, Control and Opportunity. These factors should be the key focus of the SBCC strategy as the necessary preconditions for desired behavior change. Broadly, these factors can be addressed through:

- Raising awareness to strengthen personal norms
- Including holistic approaches to increase sense of control, i.e., advocacy to government
- Translating intention into behavior through presenting opportunities for conversion

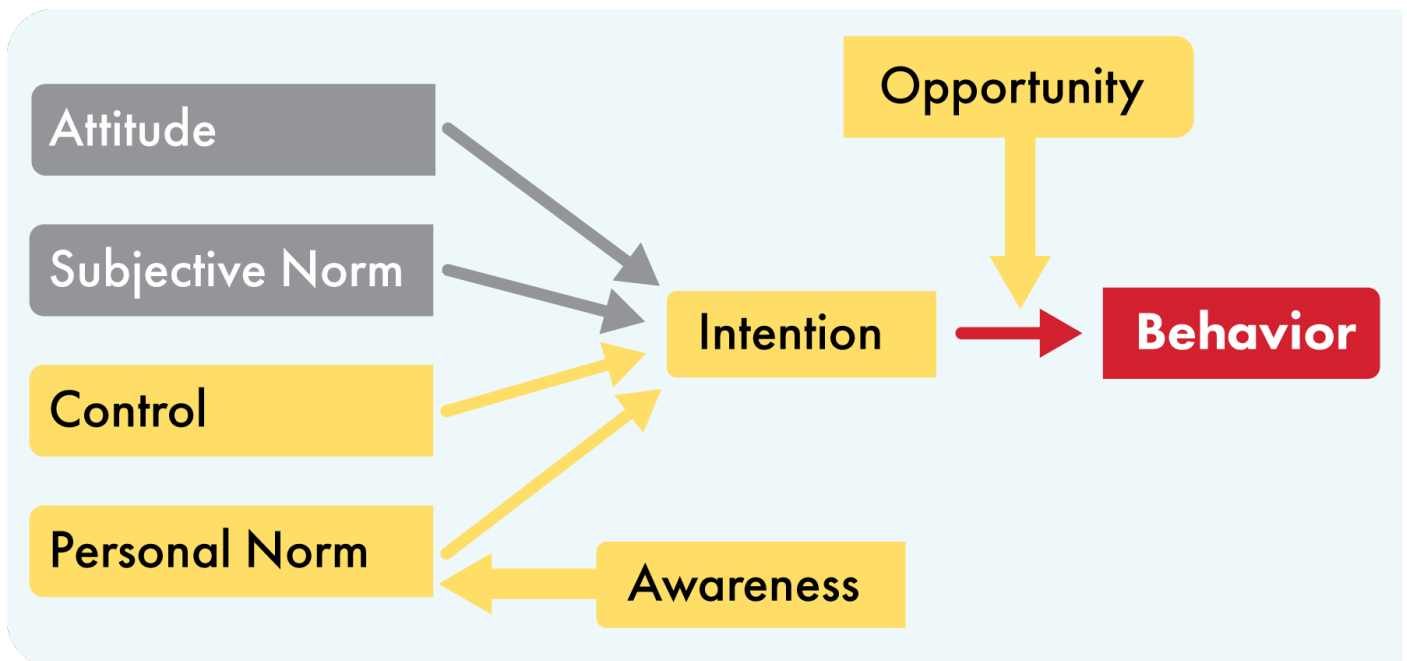


Figure 12. Key components of the SBC model for the SBCC strategy

How do we know if SBCC is working?

Monitoring is essential to look at whether change is actually happening, rather than only measuring outputs. It is crucial to identify some key indicators for strategic approaches that can be measured easily and regularly over time, such as the number of actions people are undertaking or actioned commitments from government and the private sector. Importantly, effects need to be long-term and sustained, involving local groups who will take ownership of the action beyond the project lifespan.

Recommendations

#1 Targeting the most likely early adopters

- Professionals, with existing environmental concerns, aged 24–45, women
- Workplaces such as larger NGOs that have a high population of the above
- University and high school students
- Run a pilot program, inviting people in the target demographic to receive awareness training to respond to plastic waste, including: what plastic is and what it's made from; length of time it takes for plastic to break down; characteristics and amount of rubbish dumped every day; and impact on wildlife

#2 Customizing communications

- Develop specific SBCC for different target groups considering design, language and media
- Promote materials through strategic networks and locations to reach specific audiences
- Learn from successful SBC campaigns for plastic waste and use reduction, and adapt all SBC campaign and communications design and approaches to be distinctly Timorese
- Use consistent messaging and terminology with other related government and civil society campaigns, where possible, to reinforce messages¹⁶
- Use images and people that are similar to the target group to reinforce identification (e.g., for school students, use images of other students; for older, professional audiences, show relatable people with a car/motorbike, office wear, etc.)
- Continue raising awareness in schools with materials designed to educate children and young adults

#3 Specifying action

- Provide concrete examples of individual actions
 - Promote recycle/repurpose images and ideas to motivate individual actions
 - Creative upcycling and repurposing ideas for the home (e.g., using bags, boxes, sacks, etc.)
- Practical information materials should show clear alternatives to poor plastic use and disposal:
 - separating types of waste can reduce overall waste (organic waste can be treated differently to plastic and other toxic wastes)
 - what can (garden waste) and shouldn't (plastic, tin, etc.) be burnt and alternative disposal methods
 - what can be recycled and where to take recyclables
- Advocacy and activism
 - Encourage people to be activists to their peers and family
 - Provide ways to advocate to government and private sector
 - Use case studies of what has worked in other countries to support advocacy efforts

#4 Promoting good norms

- Being environmentally aware and contributing to social change
- Use positive images and messaging
- Tap into the dominant pro-active emotions of 'pride' and 'contributing'
- Promote good norms at shopping-outlet decision points targeting consumers and proprietors
 - Posters/painted images at POS with messages such as '*Do you really need that bag?*'
 - Awareness raising for retail managers and staff building on the positive gains achieved to date
 - Encourage uptake of using discarded boxes and packaging at POS
 - Cost/benefit in SBC communications – '*What's the cost of a plastic bag?*' (images of environmental pollution and alternatives)

#5 Catalyzing commitments

- Engagement in public events and recognition through social media
 - Leverage public and beach cleanup days to generate visibility and motivate commitments
- Public declarations and follow-through from visible companies, groups and individuals
- Maintain commitments through long-term positive reinforcement SBC messaging (five-year strategy rather than one-off or short-term trending campaigns)
- Distribute reminder materials
 - Stickers for people to put on their front doors *'Remember to take your bag!'*
 - Images reminding people to always take a reusable bag *'just in case'* (e.g., keep one in their school, work or personal bag, or in their vehicle)
- Connect actions to broader advocacy and initiatives (e.g., recycling, advocacy to government or retailers for commitments to change)

#6 Showing it matters

- Learn from successful campaigns connecting individual actions to global change (*'Think global, act local'*; *'It's only 1 straw, said 6 billion people'*)
- Contextualize plastic use and waste as part of a larger plastic problem and show solutions
 - Images that show successful repurposing/remanufacturing (e.g., the number of plastic bottles repurposed into pavement materials, or other future products)
 - Recycling messages that focus on taking responsibility for plastic use (*'When you can't avoid using plastics, you can avoid them ending up on the streets'*)
- Focus on the cumulative effect of many positive actions (*'Be the change you want to see'*, *'Be part of the solution'*)
 - Visually demonstrate the combined effect of multiple individual actions, e.g., taking own bag + reusable water bottle + refusing plastic straws, etc.
- Reward positive actions and initiatives through competitions and media
- Test visual materials that clearly show the negative impacts of plastics with alternatives:
 - On animals from discarded plastic
 - On the environment due to break-down process (micro-plastics are never completely gone)
 - On sanitation and health (entering food chain, pollution, etc.)

#7 Promoting a circular waste economy

- Advocate to government for better management of waste collection sites and/or improved community management
 - Maintenance of collection points and reducing overspill
- Advocate to private sector and government for the creation of recyclables collection points at large employment sites and shopping centers
- Involve local artists to paint clear and attractive signage to raise awareness and generate interest in collection points for recycling
- Support production of stylized reusable bags with hooks that can be put on key rings
- Support and promote groups to re-purpose plastic banners (*spandok*), second-hand clothes, cloth bags, rice sacks and other materials that can be obtained cheaply or for free
- Encourage and connect retailers with suppliers to make re-purposed cloth bags available at POS

Endnotes

- 1 GHD report for the Asian Development Bank (2015). Preparing the Urban Services Improvement Sector Project: Final report (Part A), p. 17
- 2 Da Costa, Z and de Jesus, B (2018). Urban Solid Waste Management in Dili Community, TAJST-Vol 1
- 3 GHD report for the Asian Development Bank (2015). Preparing the Urban Services Improvement Sector Project: Final report (Part A), p. 20 & p. 24
- 4 Ibid, p. 3.
- 5 Hamenus Lixu Plástiku: Household Baseline, Mercy Corps (2020). p.9.
- 6 GHD report for the Asian Development Bank (2015). Preparing the Urban Services Improvement Sector Project: Final report (Part A), p. 1
- 7 Ibid, p. 21
- 8 Ibid, p. 19
- 9 Reducing Plastic Pollution: Campaigns That Work, Insights and examples to maximize the effectiveness of campaigns for sustainable plastic consumption by the One Planet Network provides some excellent insights into factoring in emotions and responses when developing campaigns
- 10 SSTL Landscape Review produced for Mercy Corps (2021)
- 11 Hamenus Lixu Plástiku: Household Baseline, Mercy Corps (2020). p. 10
- 12 Ibid. p. 10; see also <https://earthbound.report/2021/07/27/timor-leste-the-first-plastic-neutral-country/>
- 13 Hasan, S., Harun, R., and Hock, L. (2015), Application of theory of planned behavior in measuring the behavior to reduce plastic consumption among students at Universiti Putra Malaysia, Malaysia. Procedia Environmental Sciences 30 (2015) 195 – 200
- 14 Reducing Plastic Pollution: Campaigns That Work, Insights and examples to maximize the effectiveness of campaigns for sustainable plastic consumption by the One Planet Network provides some excellent insights into factoring in emotions and responses when developing campaigns
- 15 Septianto, Felix and Lee, Michael S.W. (2019). Emotional responses to plastic waste: Matching image and message framing in encouraging consumers to reduce plastic consumption. Australasian Marketing Journal 28 (2020) 18–29
- 16 UNDP are currently using the 4 Rs “Refuse, Reduce, Recycle and Recover” https://www.tl.undp.org/content/timor_leste/en/home/stories/2022/enhancing-recycled-products-to-meet-local-demand.html
- 17 UNDP are currently using the 4 Rs “Refuse, Reduce, Recycle and Recover” https://www.tl.undp.org/content/timor_leste/en/home/stories/2022/enhancing-recycled-products-to-meet-local-demand.html
- 18 UNDP are currently using the 4 Rs “Refuse, Reduce, Recycle and Recover” https://www.tl.undp.org/content/timor_leste/en/home/stories/2022/enhancing-recycled-products-to-meet-local-demand.html

Annexes

Annex 1: Images used in the survey

Annex 2: Survey questions

Annex 3: Data analysis methods

Annex 4: Respondent characteristics

Annex 5: Correlations between actions taken and SBC components

Annex 6: Correlations with current behavior

Annex 7: Characteristics and actions to reduce plastic use and waste

Annex 8: Knowledge scores

Annex 9: Image-based questions on knowledge

Annex 10: Image-based questions on attitudes

Annex 11: Control index score

Annex 12: Tested social norms

Annex 13: Reasons for taking a plastic bag

Annex 14: Attitudes about plastic bags

Annex 15: Reasons for not committing to individual actions



Mercy Corps is a leading global organization
powered by the belief that a better world is possible.
In disaster, in hardship, in more than 40 countries around the world,
we partner to put bold solutions into action —
helping people triumph over adversity
and build stronger communities from within.
Now, and for the future.