

Driving recycling behaviour change in the Global South

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The plastic problem and recycling



Plastic waste chokes both environmental and human health. The chemicals found in plastics contribute to land and sea contamination, pose risks of consumption by organisms and cause various physical, developmental and cognitive illnesses.

However, the true costs of managing plastic waste—financial, cognitive, and behavioral—are often underestimated, resulting in inadequate disposal and waste management practices. It is estimated that over its life cycle, the true costs of plastic pollution are eight times higher for low- and middle-income countries than high-income countries¹. Recycling refers to the process and practice of converting waste materials into new, reusable products. This disproportionate burden arises from structural inequities and limited waste management capacity. As rates of global waste generation increase, it's clear that the problem of plastic waste is a big one and it is high time we tackle it.

Adhering to the 5 R's—Refuse, Reduce, Reuse, Repurpose, Recycle—is essential for sustainable living, benefiting the environment, community health and the economy². Government policies and recycling initiatives play a crucial role in reinforcing these practices through standardised systems and incentives like fees, landfill taxes, or deposit-refund schemes³. Such policies have successfully enhanced stakeholder engagement, raised awareness about responsible consumption, promoted resource reuse, minimised environmental damage, and helped alleviate poverty⁴⁵. However, there remain three key obstacles that are crucial to overcome to enhance waste management practices: improvement and increased reach of current strategies, the behavioural dynamics of recycling, and the necessity for contextual adaptation.

First, the impact of these governmental programs is often constrained by budget limitations, unstandardised waste management systems, poor recycling infrastructure, low environmental awareness, and insufficient participation from crucial groups like consumers and producers⁶. Educational initiatives and incentive mechanisms alone are insufficient to

<u>WWF, (2023)</u>
 <u>Target Recycling Services Inc, (2023)</u>
 <u>Yajnik, (2024)</u>
 <u>Zamorano, (Ed.)., (2008)</u>
 <u>Valenzuela-Levi, (2019)</u>
 Ding, Guo & Xue, (2023)

overcome these recycling challenges. Second, while limited access to plastic recycling services remains a challenge, equally pressing are behavioural problems related to social norms, habit formation, cognitive effort, convenience, salience, and mental models about waste management. Barriers such as social stigma, often associated with participation in waste collection, and resistance to making recycling a habit, limit the reach, uptake and engagement of recycling initiatives.

Third, these myriad challenges cannot be solved by just applying solutions from developed countries which overlook the socio-economic, cultural, environmental, and behavioural factors unique to the Global South. Challenges in the Global South range from widespread open dump sites and waste collectors working outside the formal system, to producers deciding between sustainable consumer preferencesbased packaging, and consumers who lack trust in recycling systems, harbour negative perceptions about waste management jobs, and have limited access to recycling services⁷. Yet, there is hope. Recycling and reusing is not an unknown concept —people routinely repurpose bags for buying vegetables, reuse coffee jars for storing spices, and find new uses for old clothes. While these practices

are not formally recognised as 'recycling,' they are a testament to the ingrained habit of managing waste daily. What's needed is a clearer presentation of recycling and waste management in a way that resonates with the local context of the Global South. As consumerism grows and the middle class expands, there is a pressing need for recycling solutions that are specifically tailored to meet the needs of low-income communities and emerging markets.

To identify the needs of these communities and to achieve a circular economy, it is essential to understand individual recycling behaviour, manage waste effectively, develop robust waste management infrastructure, and foster community awareness⁸. Behavioural science plays a critical role in this process by addressing the gap between knowledge and taking action. It can help create demand for recycling and encourage structural and behavioural changes that result in sustainable recycling practices. By providing insights into the barriers to recycling and offering tailored solutions, behavioural science enhances the reach and impact of recycling initiatives. This guide outlines several of these insights and provides guidance on how to apply them.



⁷ <u>Malhotra, (2020)</u> 8 <u>Gutberlet et al.,(2017)</u>

Who can use this playbook

This guide is designed for two primary audiences.



1

The first group includes implementers and practitioners working at different scales in the sustainability sector or small to medium-sized enterprises who can enhance their organisational practice by adopting these recycling programs.

2

The second group comprises **policymakers, researchers, and academics** in the sustainability field, who can use the insights provided in this playbook to develop more effective recycling programs.

What does this guide include

This guide outlines several insights into recycling behaviour and provides guidance on effectively addressing barriers to recycling through targeted interventions. The guide has five key sections:



We hope that this guide serves as a valuable resource to overcome barriers to participating in recycling initiatives and offers insights to improve the efficacy of recycling efforts at each stage of implementation, thereby contributing to a step in the right direction towards a sustainable future.

How to use this playbook



The playbook is intended to be used without any prior knowledge of behavioural science. You can pick this book up when developing your own recycling intervention or consult it to enhance an already launched recycling program or even to seek guidance on solving a recycling challenge. It contains ideas and interventions across multiple stages of the recycling journey and targets various recycling stakeholders that might be at the centre of your intervention. The only thing you need to know before applying and adapting these behavioural science interventions is that the solutions depend on the context. This means that for all the interventions, consider how they might work in your region or where you are planning to implement it, what might need to be changed to make it better fit the context and how others in that community might view the intervention. If you are still unsure, conduct some investigative research or reach out to us so that we can help make your program a success.

This playbook primarily focuses on enhancing recycling-related behaviours among consumers. However, we have included a few interventions that target waste pickers, scrap dealers and recycling enterprises. While improving recycling infrastructure is essential for promoting recycling, the behavioural interventions in this playbook focus on improving recycling participation by addressing barriers to it. In case you encounter structural issues such as lack of waste bins or waste collection facilities, make sure you address these first before addressing behavioural barriers. Insights from these interventions may also be relevant for other sustainability-related challenges that face similar barriers. While not all interventions are directly applicable, the playbook can provide a starting point to identify and address similar barriers and behavioural interventions.

It is our hope that this guide proves to be a useful tool in the road towards sustainability and we look forward to seeing how you extend the application of the ideas from this book.

How the playbook was made

Ethical Approval August, 2022

We applied for and received ethical approval from the Indian and Kenyan Ethics Review Committee

Co-Design Workshop March, 2023

We facilitated 8 co-design and prioritisation workshops in both India and Kenya, with project staff and different recycling stakeholders such as experts, consumers, waste pickers, scrap dealers and recycling enterprises. Through these workshops, we co-created 150+ ideas for the uptake of recycling behaviour, which were subsequently refined and narrowed down to 20-25 complete design ideas.

Experimental Study October- December, 2023

We tested the efficacy of the 5 nudges through a field experiment in India and a laboratory experiment in Kenya with over 900 consumers across both countries. Our analysis focused on identifying the impact of these nudges on increasing recycling and waste segregation behaviours.

Desk Research June - July. 2022

We conducted desk research on the recycling landscape in the Global South, recycling initiatives and research on the barriers and facilitators to recycling in Kenya, India and the Global South. Moreover, we also conducted interviews with 8 recycling experts working in the field of sustainability.

Qualitative Research August, 2022

We conducted in-depth interviews in India (92 respondents) and Kenya (74 respondents), with recycling stakeholders such as consumers, producers, waste pickers, scrap dealers and recycling enterprises.

Rapid User Testing May - June, 2023

We developed virtual prototypes of the 19 interventions and rapidly tested them using a qualitative questionnaire and 2 focus group discussions with 80 consumers in both India and Kenya. Through this process, we were able to prioritise the 5 most effective interventions for promoting recycling behaviour.

Playbook Creation April - May, 2024

In total, this playbook provides 16 evidence-based interventions to encourage recycling behaviour and the uptake of recycling initiatives among consumers as well as the broader community. It provides 57 strategies to engage waste pickers, scrap dealers and recycling enterprises. The playbook has been reviewed by key stakeholders and their feedback has been incorporated into the final version.

Behavioural science for sustainability

The central theme in this playbook, alongside recycling, is behavioural science. This field studies the factors influencing human behaviour and decision-making, such as cognitive processing and socio-cultural influences. Researchers in the Global South focus on how behavioural mechanisms may vary in developing contexts, considering effects of low income and stress on risk seeking and decision-making⁹.

Human behaviour impacts sustainable development, and behavioural science offers insights into the cognitive, social and environmental factors driving these behaviours. Despite aims for a sustainable future, engagement in practices like recycling is often low. Applying behavioural science to environmental challenges helps understand decision-making, boost engagement in sustainability programs, and redirect unsustainable behaviours¹⁰.



⁹ <u>Haushofer & Fehr, (2014)</u>
¹⁰ Rankine & Khosravi, (2021)

The behavioural perspective on recycling draws on three insights:

Our behaviour depends on a long chain of events

Whether we decide to engage in a behaviour at a given moment or not, depends on a series of decisions taking place beforehand. For example, "before I leave this marketplace, I will remember to recycle this plastic bottle." Even if the intention to follow-through on what we want to do is present, we need to remember to recycle, locate the bin, understand the signage on the waste bins, decide which bin it should go into, among other things. All these decisions need to be made positively and correctly in order for recycling to occur, and even one slip-up can break the journey and prevent the behaviour from taking place.



Perceptions around the behaviour influence our decision to perform that behaviour

Based on existing factors in our surroundings, we have notions about the behaviour we might be performing. For example - are others around me also recycling? Is the bin located too far away to be convenient? Will it take too much time to recycle my waste? Do I have the right knowledge to recycle the waste? Do I have other things to prioritise over recycling waste? Is it even my job to recycle? How will one person not recycling make any difference? Any of these factors can act as a barrier and prevent us from performing a given action or making a decision related to recycling. This prevents us from engaging in actions that we want to do or that will benefit us.



We perform the behaviour if we have the capability, opportunity or motivation to perform it

The COM-B (Capability, Opportunity, Motivation, Behaviour) Model is a framework which helps us understand how behaviours can be changed 11. For example, recycling faces capability challenges such as absence of waste segregation skills or lack of knowledge about what items can be recycled. Opportunityrelated barriers include lack of social support when it comes to recycling and limited number of recycling bins. Motivation-related barriers include negative attitudes towards recycling efforts and the deprioritisation of recycling. Understanding the type of barriers to recycling behaviours can help identify the kind of solutions which could help overcome them. This playbook uses the COM-B model to classify the barriers to recycling and make recommendations on recycling interventions which target them.

Journey of plastic waste through the ecosystem

The life cycle of plastic waste is multifaceted, encompassing production, distribution, consumer use, recycling initiatives, and salvage operations by waste pickers and scrap dealers. However, this journey is not linear—it involves cyclical movements across numerous stakeholders and despite diligent recycling efforts, some plastics still slip through, contributing to environmental pollution and ecosystem threats. Below, we illustrate this complex journey through the ecosystem:



The typical consumer recycling journey unfolds in five stages: becoming aware of recycling practices, purchasing a product, using and deciding whether to recycle it, the act of recycling itself, and finally, obtaining feedback on the outcome of recycling.

However, consumers encounter numerous obstacles along this path, ranging from behavioural to structural challenges. Below, we've illustrated this journey and pinpointed the specific barriers at each stage.

Recycling journey for a consumer



Awareness

Gaining knowledge on waste management and recycling through existing programs, educational interventions, government initiatives and community discussions

Purchase

Obtaining a plastic product from a retailer

Use/Consideration

Using the plastic product and the process of deciding how to use or dispose of the waste

Recycling

Managing the plastic waste either through segregation or recycling at home or disposing the waste by giving it to other recycling stakeholders

Follow-Up/Feedback

Seeking information from other recycling stakeholders on what was done with the plastic waste and its impact on the environment

- Limited knowledge on the recycling process
- Lack of recycling culture
- Lack of clarity on what is recyclable
- Misconceptions about recycling
- Hoarding
- Underestimation of the plastic challenge and individual responsibility
- Higher perceived costs
- Deprioritisation
- Fixed waste management roles
- Forgetfulness
- Inadequate systems in place
- Low compensation for the plastic waste

- Limited knowledge on the next steps
- Lack of action after recycling

The Recycling Playbook / Barriers



Barriers

When designing recycling programs, it's crucial to address behavioural barriers, as they significantly influence participation. Overcoming these barriers are often immediately actionable. However, structural barriers must be addressed first to enhance overall participation in recycling.

In this section, we identify 8 structural and 17 behavioural barriers, classify them using the COM-B model, provide real-life examples, and suggest interventions to overcome these barriers.

,	SNAPSHOT OF BAI	ARRIERS		
	Stakeholder	Structural Barriers	Behavioural Barriers	
	Consumers	Inadequate systems	Limited knowledge on waste item recyclability and disposal Insufficient understanding of the recycling process and outcomes Underestimation Hoarding High perceived cost Deprioritisation Lack of Recycling Culture Forgetfulness Low Monetary Compensation Misconceptions about recycling Fixed Waste Management Roles	
	Waste Pickers	Lack of formalisation Safety concerns Lack of storage and transportation facilities	Stigma and discrimination Low worker motivation and dignity Occupational Inheritance	
	Scrap Dealers	Poor waste disposal systems Lack of an enabling environment	Low motivation and identity Exploitation	
	Recycling Enterprises	High operational costs Unfavourable government policies	Unwillingness to increase awareness around recycling	

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Using the COM-B model to understand recycling barriers

The COM-B model posits that behavior (B) arises from a blend of Capability (C), Opportunity (O), and Motivation (M). To engage in any behavior, individuals need the physical or psychological capability, suitable social and physical opportunities, and sufficient motivation—whether reflective (intentions, desires) or automatic (habits, emotions).

Drawing on research by Allison et. Al. (2021, 2022a, 2022b), the COM-B model proves instrumental in identifying factors that may drive, hinder, or influence recycling behaviors. It provides a robust framework for crafting targeted interventions. In this section, we analyze the barriers to recycling for each stakeholder using the COM-B model and outline proposed interventions to address these barriers and encourage sustained behavioral change.

> Allison et. al. (2021) Allison et. al. (2022a) Allison et. al. (2022b)

Detailed view of barriers

BehaviouralStructural

Consumers

CAPABILITY Limited knowledge on waste item recyclability and disposal	MOTIVATION	OPPORTUNITY
	Hoarding Deprioritisation	Lack of Recycling Culture
Insufficient understanding of the	Low Monetary Compensation	. ,
recycling process and ourcomes	Fixed Waste Management Roles	
Underestimation	Forgetfulness	
Misconce recycling	eptions about 9	

Detailed view of barriers

Behavioural

😑 Structural

Waste Pickers, Scrap Dealers, Recycling Enterprises

CAPABILITY	OPPORTUNITY	MOTIVATION
	Lack of formalisation	Low Worker Motivation
	Lack of storage and	and Identity
	transportation facilities	Exploitation
	Poor waste disposal systems	Forgetfulness
	Unfavourable government policies	Unwillingness to increase
	Lack of Recycling Culture	awareness around recyclina
	.	
	High Opera	ational Cost
	Lack of an enabling environment	
	Stigma and D	Discrimination
	Occupationa	I Inheritance
ŀ·····		•
Safety C		

Consumers

Plastic consumers consist of the people who purchase plastic goods and products for personal use.

Behavioural

Structural



CAPABILITY

Limited knowledge on waste item recyclability and disposal

Many people are unaware of which waste items can be recycled and which bins to use for disposal. This confusion is often due to unclear and ineffective recycling education. As a result, sorting and disposing of waste require more time and effort.

What this might sound like

"I wish I knew which items are recyclable. It feels like a guessing game every time I go to throw something away."

"Paper cups are often lined with plastic so would they go in the paper waste bin or plastic waste bin?"

Interventions

- → Deploy Effective Recycling Labels
- → Nudge at the Point of Waste Disposal
- → Create At-Home Recycling Guides
- → Gamify the Recycling Process
- → Provide Recycling Feedback

Insufficient understanding of the recycling process and outcomes

Many people don't fully understand the recycling process, how waste disposal systems work, or what happens to their waste after disposal. This lack of knowledge can make it hard for them to see the positive effects of recycling or trust that their waste is being managed effectively, potentially reducing their involvement and trust in recycling practices.

"I wish I understood the recycling process better. It's hard to make eco-friendly choices when I'm not sure what happens to my waste."

"I don't even know what happens to the plastic waste I collect and give to my waste picker. It probably does not get recycled so I might as well stop engaging in this process."

- → Create At-Home Recycling Guides
- → Provide Recycling Feedback

Plastic consumers consist of the people who purchase plastic goods and products for personal use.

Behavioural

Structural

CAPABILITY

High Perceived Cost

People believe that recycling is costly in terms of time - to identify recycling facilities and recycle waste, labour - in sorting and segregating waste, and in terms of the cognitive effort needed to correctly sort, dispose and recycle waste. These perceptions make recycling inconvenient, effortful and burdensome, leading to avoidance and nonparticipation.

What this might sound like



"I always thought recycling would be easy, but the more I learn, the more difficult it seems. I realise it's not just about throwing things in a bin."

"I need to know how to recycle, what to recycle and where to recycle, it just seems like so much of a task to learn about all of this."

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Underestimation

"We don't need to recycle, I don't think we are using that much plastic as a community."

Perceived as distant future concerns, plastic

pollution, sustainability, and climate change

lead people to mentally distance themselves from these issues and underestimate their own

role and responsibilities. Many feel that their

large-scale challenges. As a result, the urgency

individual actions are underestimated, leading to reduced participation in recycling efforts.

individual actions have little impact on such

of these issues and the potential impact of

"Climate change will only impact us 50 years later, how will my recycling behaviour make any difference."

Interventions

- → Deploy Effective Recycling Labels
- Nudge at the Point of Waste Disposal
- → Create At-Home Recycling Guides
- → Gamify the Recycling Process

- → Make Recycling Information more Visual
- → Connect Recycling to Tangible Rewards
- Optimise Messaging to Promote an Environmental Mindset
- → Highlight Recycling Success Stories
- → Make Recycling a Community Activity

Plastic consumers consist of the people who purchase plastic goods and products for personal use.

Behavioural

Structural

MOTIVATION

Hoarding

People frequently purchase small amounts of plastic, making it difficult to perceive the total amount used. Many hold onto items with the intention of reusing them, but often don't, leading to hoarding. The imperceptible quantities of plastic within homes and the habit of holding onto these items makes it difficult for individuals to adopt recycling behaviours.

Deprioritisation

People prioritise urgent household tasks or immediate needs like health and finances over recycling because the benefits are immediate and visible, unlike the long-term and less tangible benefits of recycling, such as environmental preservation. The reasons for deprioritisation can vary across income groups. For instance, individuals in low-income groups are less likely to learn new skills or recognise the long-term impact of their actions. Hence, they are less likely to make choices aligned with achieving future goals - such as recycling. This combination of delayed benefits and limited perception and decision-making ability often results in the deprioritisation of recycling activities.

What this might sound like

99

"I keep holding onto plastic waste containers every time I buy something, I think they'll come in handy later."

"I collect waste items like bottles and containers but do not really end up using it again."

Interventions

- → Connect Recycling to Tangible Rewards
- → Have Shopkeepers Host Recycling Schemes

"I mean, sure, recycling is important and all, but when I've got a sink full of dishes, a crying baby and laundry piled up, it's just not a priority."

"If I get only one day off in a week, I will use to to rest or attend to family matters. managing waste and recycling it is not as important."

- → Make Recycling Information more Visual
- → Create At-Home Recycling Guides
- Optimise Messaging to Promote an Environmental Mindset
- → Make Recycling a Community Activity

Plastic consumers consist of the people who purchase plastic goods and products for personal use.

Behavioural

Structural

MOTIVATION

Low Monetary Compensation

Compensation for recycling plastic waste is often low, which discourages individuals from participating in recycling programs. The financial incentives provided are typically minimal, failing to adequately reward the effort and cost of collecting, sorting, and transporting plastic waste. This lack of substantial financial return reduces motivation among potential recyclers, contributing to lower recycling rates.

Fixed Waste Management Roles

Distinct roles assigned to stakeholders, such as women and children, in waste management pose significant barriers to recycling. Women, often tasked with household management, may prioritise immediate disposal needs over long-term recycling strategies due to time constraints. Children, despite their enthusiasm, lack the authority or resources to recycle without adult support. Delegating waste management to household staff can make other family members feel less responsible for participation. In public spaces, these fixed roles can discourage involvement from those not typically engaged in waste management, undermining the success of community-wide recycling efforts.

"I wish my family members could help with

recycling. I have so many chores around the house and don't have the time to sort through our

rubbish everyday. Maybe my husband could help

What this might sound like

"The money I get for participating in recycling programs is too low, recycling just isn't worth it."

"I took my waste to the recycling point and then they paid me close to nothing for it!"

"For the amount of money I get in return for participating in recycling programs, it just isn't worth the time and energy."

Interventions

→ Connect Recycling to Tangible Rewards → Create At-Home Recycling Guides

me when I am too busy."

Plastic consumers consist of the people who purchase plastic goods and products for personal use.

Behavioural

Structural

MOTIVATION

Forgetfulness

When recycling isn't a habit and visible prompts and reminders are lacking, such as conveniently located recycling bins, people forget to recycle. Even those who start, struggle to maintain the habit amidst other priorities. Integrating recycling into daily routines and providing visible prompts can help overcome this barrier.

What this might sound like

"I tried to get into recycling, you know? I'd remember to do it for a few days but then I'd forget and before I knew it, it just slipped my mind completely."

"I'm not used to recycling, so I forget. It's just not a habit for me."

"I started recycling and sorting waste items. But life got busy and I forgot about it. I thought I would get back to it but I never did."

Interventions

- → Deploy Effective Recycling Labels
- → Nudge at the Point of Waste Disposal
- → Create At-Home Recycling Guides
- → Optimise Messaging to Promote an Environmental Mindset
- → Make Recycling a Community Activity

MOTIVATION + CAPABILITY

Misconceptions about recycling

Recycling is often viewed as a dirty, menial and inconvenient task, typically associated with lowerincome groups. Common misconceptions deter participation, including underestimating pollution severity, misunderstanding the biodegradability of waste items, believing large quantities of waste are necessary for recycling, fearing harm from reusing plastics, assuming special equipment is needed for home recycling, and thinking that it takes too much of a hassle to sell waste to waste pickers.

"Why should I recycle my waste? I don't belong to the community that does this kind of work."

"I don't give my waste to waste pickers because they only take big loads. So, I just throw it in the bin."

"I don't have the equipment to recycle."

- → Make Recycling Information more Visual
- → Gamify the Recycling Process
- → Have Shopkeepers Host Recycling Schemes
- Optimise Messaging to Promote an Environmental Mindset
- → Highlight Recycling Success Stories

Plastic consumers consist of the people who purchase plastic goods and products for personal use.

Behavioural

Structural

OPPORTUNITY

Lack of Recycling Culture

In communities where people don't actively recycle, talk about recycling and where recycling behaviours are not promoted, individuals lack the necessary motivation or awareness to participate in recycling initiatives. Without clear social norms encouraging recycling, individuals perceive recycling as optional or unimportant, reducing their involvement in waste management practices.

What this might sound like

"I guess around here, recycling just isn't a thing. Nobody really talks about it or does it, so it's not like anyone feels pressured to start."

"Recycling isn't such a big deal here. I don't see any one else recycling and managing their waste properly or be careful about where they are throwing their waste." " Т

waste handlina.

Inadequate Systems

"It's a real pain trying to recycle around here. There are no bins and the garbage collection is never on time."

Limited access and inadequate infrastructure pose

collection services exacerbate the issue of improper

significant challenges to recycling. Insufficient disposal

sites, restricted access to recycling facilities, inconsistent waste management practices, and irregular garbage

> "Recycling is frustrating! There's only one recycling drop-off point near me, and the bins are always overflowing with garbage."

"You try to do the right thing and separate your trash but then you realise there's barely any places to actually drop off your recyclables."

Interventions

- → Nudge at the Point of Waste Disposal
- → Provide Recycling Feedback
- → Connect Recycling to Tangible Rewards
- → Have Shopkeepers Host Recycling Schemes
- → Highlight Recycling Success Stories
- → Make Recycling a Community Activity

- → Connect Recycling to Tangible Rewards
- → Have Shopkeepers Host Recycling Schemes
- → Make Recycling a Community Activity

Waste Pickers

Waste Pickers consist of those individuals that salvage recyclable and reusable materials disposed by others.

Behavioural

Structural



OPPORTUNITY + MOTIVATION

Stigma and Discrimination

Waste picking is often associated with individuals of lower income levels, leading to stigmatisation and low societal regard for the profession. Perceived as dirty and menial, waste pickers endure discrimination and consequently, diminished self-esteem in their work. Moreover, they are unfairly branded as thieves and regarded as unsafe, exacerbating the challenges they face in their occupation.

Occupational Inheritance

Often, waste pickers' income is not sufficient to sustain their livelihood. Despite this instability, some waste pickers feel a sense of belonging to this profession since they have seen their parents work as waste pickers. Hence, they feel compelled to pursue a livelihood as waste pickers.

What this might sound like



"People insult me on the streets. No one respects me."

"People shout insults at me, call me dirty and even accuse me of stealing! I'm just trying to earn an honest living."

Interventions

→ Give Waste Workers a Voice

- "My father used to be a waste picker and he used to take me along in the mornings to collect waste."
 - "My family has been in this business for ages."

"This is all that I have known."

→ Organise Local Associations or Cooperatives

WASTE PICKERS

Waste Pickers consist of those individuals that salvage recyclable and reusable materials disposed by others.

Behavioural

Structural

MOTIVATION

Low Worker Motivation and Dignity

The absence of formal labour laws governing unskilled labour leaves waste pickers feeling vulnerable and neglected. This sense of neglect leads them to feel undervalued, with their work seemingly unrecognised, fostering low motivation and diminishing their sense of dignity.

What this might sound like



"I am not appreciated for my work."

"The work I do isn't appreciated or recognised, it's like no one cares about my work."

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"I got cut and my wound got infected when I was sorting waste. I was sick for a long time and could not work."

Interventions

- → Organise Local Associations or Cooperatives
- → Give Waste Workers a Voice

→ Make Recycling Work Safer and Easier

CAPABILITY + OPPORTUNITY

Safety Concerns

Waste picking is a hazard since one does not know the chemicals present in the waste. Waste pickers rarely have access to protective gear like boots, overalls and gloves so they are prone to injuries, accidents and diseases whilst sorting out waste. This also results in their work coming to a standstill.

WASTE PICKERS

Waste Pickers consist of those individuals that salvage recyclable and reusable materials disposed by others.

Behavioural

Structural

OPPORTUNITY

Lack of formalisation

The informal labour arrangements for waste pickers highlight a lack of formalisation in the sector. Without legal frameworks and clear regulations, these workers face unstable earnings that fluctuate with demand, increasing financial uncertainty. This lack of regulation marginalises these workers, underscoring broader issues of labour informalisation and its impacts.

Lack of storage and transportation facilities

Moving plastic waste poses significant challenges. Waste pickers struggle to collect and store large quantities due to space constraints. Transporting the waste requires trucks or lorries, which are often subject to availability, brokers, and weather conditions.

What this might sound like



"We have no formal contracts."

"The law has forgotten about us."

"Our earnings are not stable, they change based on the amount of work we do."

Interventions

→ Organise Local Associations or Cooperatives

99

"There is no space to store the waste we collect and transportation is so expensive."

→ Give Waste Workers a Voice

Scrap Dealers

Scrap Dealers consist of individuals that buy scrap metal, plastic and other materials from individuals or businesses and then sell it to recycling facilities for processing.

Behavioural

Structural



OPPORTUNITY

Low Motivation and Identity

Many scrap dealers face societal stigmatisation and marginalisation due to the nature of their work, leading to a lack of motivation to pursue their line of work. The perception of their occupation as inferior hinders their sense of identity and self-worth, dampening their enthusiasm and drive to expand their business endeavors. This barrier limits their ability to access resources and opportunities for growth within the industry and negatively impacts the mental well-being of scrap dealers.

What this might sound like



"People don't respect the work we do."

"I feel like I belong to a low-class because people tell me this."

"People treat me poorly and this makes me feel bad"

Interventions

- → Organise Local Associations or Cooperatives
- → Give Waste Workers a Voice

MOTIVATION

Exploitation

Scrap dealers in both India and Kenya highlighted encountering unfavorable rates for waste that often result in minimal, if any, profits for their business operations. Since they belong to vulnerable populations, they are often easily exploited.

"We never get good rates for our scrap materials."

"People think that they can pay us less because we don't have any status."

→ Organise Local Associations or Cooperatives

SCRAP DEALERS

Scrap Dealers consist of individuals that buy scrap metal, plastic and other materials from individuals or businesses and then sell it to recycling facilities for processing.

Behavioural

Structural

OPPORTUNITY

Poor waste disposal systems

The absence of a standardised and efficiently managed waste disposal system leads to scrap dealers having to sift through garbage to locate scrap materials. Additionally, waste isn't centralised for collection, necessitating scrap dealers to travel for gathering materials. Insufficient storage space for waste further exacerbates the issue.

OPPORTUNITY + MOTIVATION

Lack of an enabling environment

The harassment by police officials poses a significant barrier for scrap dealers, as they face solicitation of bribes and threats of closure, restricting their business operations. This coercive behaviour not only creates a hostile environment for scrap dealers but also undermines their ability to conduct legitimate business activities. The fear of harassment and extortion perpetuates a cycle of corruption and impedes the growth of the scrap industry, hindering economic opportunities for those involved.

What this might sound like



"There is no proper system in place to collect and dispose of waste."

"The system to collect and dispose waste is very unreliable."

"Policemen threaten us and ask us for bribes. They even close businesses when we don't pay up."

Interventions

- → Give Waste Workers a Voice
- → Make Recycling Work Safer and Easier

→ Give Waste Workers a Voice

Recycling Enterprises

Recycling enterprises consist of organisations that purchase recyclable items from scrap dealers, recycle these items and sell them to end users.

Behavioural

Structural



MOTIVATION

Unwillingness to increase awareness around recycling

Without active participation from recycling enterprises, efforts to educate and motivate individuals and communities about the importance of recycling are hindered. This reluctance not only limits the reach and effectiveness of recycling campaigns but also impedes progress toward achieving sustainable waste management goals. By failing to collaborate in awareness efforts, partner enterprises miss opportunities to contribute to environmental conservation and promote a culture of recycling, ultimately inhibiting broader societal adoption of eco-friendly practices.

What this might sound like

- **77** "
 - "It's not my responsibility to get people to recycle, that's what NGOs are for."

"I just want to focus on my business and not be bothered."

Interventions

- → Collaborate to Recognise Successes and Share Knowledge
- → Promote the Use of Waste Credit Schemes
- → Collaborate to Recognise Successes and Share Knowledge

"The equipment needed to properly process

and recycle waste is too expensive, I can't

OPPORTUNITY + MOTIVATION

High Operational Cost

afford it."

The price of the infrastructure and equipment needed to recycle waste is very high. Most partner enterprises cannot afford to purchase the infrastructure that the recycling process requires.

RECYCLING ENTERPRISES

Recycling enterprises consist of organisations that purchase recyclable items from scrap dealers, recycle these items and sell them to end users.

Behavioural

Structural

OPPORTUNITY

Unfavourable government policies

Certain policies like needing a licence to transport recycling materials and the lack of subsidies provided by the government serve as barriers to recycling.

What this might sound like



"The government makes it so difficult for my organisation to recycle!"

"I don't have the funds to pay for licenses and there aren't any subsidies or benefits to help us out."

Interventions

→ Promote the Use of Waste Credit Schemes

The Recycling Playbook / Interventions

Recommended Interventions

Interventions

Recycling initiatives can be made more effective and engaging by implementing solutions that target the barriers faced by the key stakeholders.

To tackle the key barriers to recycling, we collaborated with experts, recycling stakeholders, and our research teams in India and Kenya to co-design a series of behaviourally-informed solutions. These solutions were then distilled into 16 key interventions, selected based on their potential impact and feasibility. This section outlines these behavioural science solutions, addressing the barriers highlighted previously.

To ensure the broad applicability of these interventions, we have included evidence of their effectiveness specifically within the context of the Global South. It is important to note that while these solutions provide a solid foundation, they are not one-size-fits-all. They are intended as starting points, designed to be customised and adapted to meet the unique environmental, cultural, and economic conditions present in different contexts.

SNAPSHOT OF INTERVENTIONS Figure 2 Individual → Make recycling information more visual Consumers → Deploy effective recycling labels → Nudge at the point of waste disposal Create at-home recycling guides → → Gamify the recycling process Provide recycling feedback Connect recycling to tangible rewards → → Have shopkeepers host recycling schemes Community → Optimise messaging to promote an environmental mindset → Highlight recycling success stories → Make recycling a community activity Waste Pickers and Make recycling work safer and easier **Scrap Dealers** → Give waste workers a voice → Organise local associations or cooperatives Recycling Collaborate to recognise successes, share **Enterprises** knowledge and raise awareness Promote the use of waste credit schemes

Make recycling information more visual



Description

Using pictures instead of words can help effectively communicate the importance, benefits and impacts of recycling. This information can be shared through the use of posters, installations in public places or online community groups. Examples of this include:

- → A graph which indicates how much time an item takes to decompose into the soil. The X-axis could show the specific item while the Y-axis could represent the amount of time that particular item will take to decompose. For example: an aluminium can will take 75 years to decompose. The graph can have an accompanying message such as: "An aluminium can incorrectly disposed at the time of India's independence is yet to decompose!"
- → Taking inspiration from an air pollution intervention in India where a transparent pair of paper lungs darkened indicating worsening air quality, a similar approach can be employed for waste management. A visual installation can be installed to provide daily real-time feedback on levels of waste generated for a certain area.

From theory to practice

Imagine transforming a community's approach to trash-one workshop at a time! In Nepal, a lively information campaign did just that, turning recycling education into a dynamic visual experience. Picture using posters, captivating slides and live demonstrations through workshop sessions for which helped bring recycling information to life, and convey key information such as components of household waste and their lifespan. This low-cost intervention led to increased neighbourhood cleanliness and were motivated to dispose of their waste properly through waste collectors¹.



Behavioural Insights Visualisation By depicting the adverse effects of not recycling through graphs and other visual aids, the concept of recycling is more tangible and memorable as it allows for better understanding.

Regret Aversion

By depicting the long term effects of decomposition through the graph, individuals are likely to be confronted by their actions. This will prompt individuals to consider the long term effects of their choices and will motivate them towards proper waste management.

Feedback

By visibly displaying the amount of non-recycled or nonsegregated waste collected daily within the transparent sculpture, individuals can see the direct impact of their actions, encouraging them to recycle more effectively.



Contextualisation considerations

- → What recycling information resonates more with members of the community?
- → What visual formats (e.g., infographics, videos) would be most engaging and effective in conveying recycling information?
- → What is the best platform to relay this information for maximum visibility and impact?



Barrier Targeted

Underestimation

Deprioritisation

Misconceptions about recycling
Deploy effective recycling labels



Description

Recycling labels, printed by manufacturers or producers of plastic and possibly, mandated by the government, can effectively raise consumer awareness and sensitivity towards recycling and can offer relevant waste disposal information for specific products in the following ways:

- → Using labels on packaging items to specifically indicate which bin the item should be disposed into.
- → Using appropriate colours on labels to guide consumers to distinguish between recyclable and non-recyclable items. For example, red labels with messaging - "This item is not recyclable".
- → Using product anthropomorphism or messaging on labels to appeal to consumers' emotion such as: "Please recycle me!" OR "Help save the environment, throw me in the correct bin the plastic bin." OR "Don't leave me alone in the soil for 200 years!"
- → Further attention can be brought to these recycling labels by shopkeepers at the point of purchase by pointing it out to consumers.

From theory to practice

Imagine turning the mundane task of sorting waste into an intuitive game at a Sri Lankan university! In a lively field experiment, students used bins labeled for paper, food waste, and plastic. These weren't just any bins; they tested if simple labels could improve sorting accuracy. And they did! Clear labels effectively nudged students toward perfecting their recycling actions.

Meanwhile, in Chile, marketers turned packaging into puzzles. They tested different environmental communication strategies on prototypes, using bright eco-images, catchy declarations like '100% natural,' and prestigious 'Ministry of Environment - Sustainable Product' labels. The result? Consumers were significantly more drawn to products that highlighted sustainability.

Both studies reveal a fun fact: a little nudge—like a label or package—can lead to big leaps in environmental behavior!



Informational Nudges The use of colors and messaging on labels serve as nudges to influence consumers' choices and behaviour.

Appeal to Emotion

By personalising the labels, one is able to tap into the emotions of the consumer and form a personal connection motivating consumers to recycle the product. Framing

Messages framed such that they appeal to consumers' emotions are an effective tool to motivate them to dispose waste items in the correct bin and recycle.



Contextualisation considerations

- → Do the labels and colours reflect the general understanding on which items are recyclable?
- → Are the labels and messages simple and intuitive enough for even less literate audiences?
- → Do the recycling directives on the labels follow the general waste management practices and guidelines of the locality?



Barrier Targeted

Limited knowledge on waste item recyclability and disposal

High perceived cost

Forgetfulness

Nudge at the point of waste disposal



Description

Nudges are low-cost, high-impact stimuli that guide individuals toward proper waste management. To be effective, bins should be placed in high-traffic areas frequented by the target audience. Various nudging techniques at the point of disposal include:

- Displaying indicative waste samples or pictures on top of bins to visually communicate the correct items for each bin.
- → Modifying bins with cutouts on their openings to fit specific waste items, creating friction to discourage incorrect disposal. For example, shaping the opening of a plastic bin like a plastic bottle to prevent other materials from being disposed of there.
- → Pre-filling bins with appropriate items to visually demonstrate the correct waste for each bin, encouraging proper waste segregation.
- → These strategies ensure that nudges at disposal points are effective in promoting proper waste management.

From theory to practice

At a cultural festival in New Delhi, Busara took recycling to a whole new level with a clever experiment designed to turn waste disposal into an eye-catching, informative spectacle. Picture each recycling bin topped with a transparent box, showcasing actual items from the festival that should be tossed into that specific bin. It wasn't just about throwing away trash—it was about matching your waste to the samples!

This innovative approach did more than clean up the venue; it transformed festival-goers into waste-sorting experts. Participants not only improved their accuracy in segregating trash, but they also left the festival with a heightened intention to recycle more. This simple yet effective visual nudge made a lasting impression, proving that when you see it, you believe it—and do it better! ⁴



Nudge

The use of samples, pre-filled bins, and cut outs on bins will serve as a timely and effective nudge to guide individuals in correctly segregate waste.

Signalling

By pre-filling waste bins with appropriate waste items, it showcases proper waste segregation practices as it signals to others which items to belong in each bin.

Salience

The strategic placement of the bins in areas with a large amount of footfall will improve exposure to and interactions with the nudge, boosting its effectiveness. Reducing Cognitive Effort By providing clear visuals cues at the point of disposal will reduce the cognitive effort required for individuals to correctly dispose of their waste.

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Contextualisation considerations

- → What kind of visual nudges is the audience most receptive to?
- What are the common waste items generated in the local area to make the samples specific to the context?
- → What other communication needs to supplement this intervention so that people understand the nudging?



Barrier Targeted

Limited knowledge on waste item recyclability and disposal

High perceived cost Forgetfulness

Lack of Recycling Culture

Create At-Home Recycling Guides



Description

Recycling at the household level can be promoted through the following ways:

- → Providing households with visual, easy-touse recycling guides or workbooks, which illustrate tangible steps for segregating and recycling waste and even demonstrate what happens to the waste after disposal. These workbooks can also be designed as posters, fridge magnets, napkin holders, or table mats to be easily used within the households and should encourage everyone in the household to participate,
- → Creating a decision tree guide that leads households through the recycling process. For example, start with questions like "Do you know the type of item that you are recycling?" and provide next steps based on responses.
- → Developing a workbook outlining daily recycling tasks and schedules for households. For instance, designate specific times and bundle specific activities for collecting and sorting plastic waste for disposal, such as after a meal or when cleaning the house.
- → Designing a recycling calendar with daily reminders and checklists to track household waste sorting efforts.

From theory to practice

In Sri Lanka, a study embarked on a recycling adventure by handing out vibrant. color-coded bins and informative leaflets to households. These weren't just any bins or brochures; they were tools aimed at reshaping the way families think about and manage their waste. Simply providing households with these guides boosted their waste segregation, increasing accurate sorting into three waste categories by an impressive 17% on average. When these leaflets were paired with the colourcoded bins, the magic really happened waste segregation behaviour improved by 36%! As it turns out, at-home recycling guides can transform daily trash routines within households. ⁵

recycling activities at home and

integrate recycling into their



Behavioural Insights Reminders By adopting a recycling calendar with daily tasks and reminders, households will be prompted to engage in

daily routine.

Salience

The use of visual recycling guides and workbooks serves as practical and easy reminders for individuals to follow on the mechanisms of recycling. This will result in making the recycling information more salient.

Reducing Cognitive Effort By using structured guides

by using structured guides that illustrate the steps to sort, dispose and recycle waste, individuals can easily follow the sequence of actions required for effective waste segregation and recycling for different waste items.

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Contextualisation considerations

- → Which community members could contribute to the development of these guides to ensure they effectively address the most prevalent household waste items?
- → How can the guide be adapted to accommodate the diverse range of home infrastructures, acknowledging that availability may vary between households?
- → How should the messaging be framed? What framing would have the most impact on the target audience? Which languages should be included for wider receptivity?
- → How can these guides be made accessible to households such that they are able to refer to them everyday?



Barrier Targeted

Limited knowledge on waste item recyclability and disposal

Insufficient understanding of the recycling process and outcomes

High perceived cost Forgetfulness

Deprioritisation

Fixed waste management roles

Gamify the recycling process



Description

Games offer an enjoyable way to teach recycling and waste segregation, fostering skills applicable to real-life waste disposal. Elements within the game such as feedback on correct and incorrect waste disposal, rewards and competition with other players can make the game more effective in teaching recycling. Installations in public spaces like train/bus stations or educational institutions facilitate accessibility. Examples of such games include:

- → Dragging and dropping waste items into the correct bin type
- → Have printed out footsteps or hopscotch game which leads you to the waste bins This will involve players following the footsteps or game path and dispose of waste in designated bins at the end of the sequence.
- → A simulated game where one plays a character who helps clean up waste around the city and receives points. This can be an especially useful intervention for school-going children.

From theory to practice

In Kenya, Busara turned recycling education into a game—a digital dragand-drop challenge using common household waste. It was a hit! Players improved their sorting skills and felt more confident about recycling ⁶.

A similar experiment in India had participants racing against time to sort trash correctly. This fun, educational game taught them to sort waste into four categories, boosting their realworld recycling confidence ⁷.

These experiments from Kenya to India show the power of gamification. Through play, people are mastering recycling and feeling positive about their environmental impact. Waste management might just have found its game changer!



Gamification

By making the experience of recycling more engaging and fun through games, individuals are more likely to participate in recycling activities, which can increase the salience, learning and perceived importance of recycling. Social Comparison

People are often more inclined to take actions when it is to succeed over others. Making the experience of recycling a competition would provide motivation for others to participate and win.

Visualisation

Recycling games will enable participants to visualise the waste disposal process and virtually participate in segregating waste, thereby making the process simpler to follow in real-life. Further, the immediate feedback they receive on whether or not they correctly disposed of a waste item will enable learning.



Contextualisation considerations

- → What types of game mechanics, such as points systems, leaderboards, or challenges, would be most effective in motivating users to properly sort and dispose of their waste?
- → Which devices are more popular with users in region when developing the games phone, tablets or desktops?
- → Where can be the game be set up in public spaces such that it is accessible to the target audience?
- → The waste items to be included in the game should be personalised to include those that are most often used and disposed of in the local area.



Barrier Targeted

Limited knowledge on waste item recyclability and disposal

High perceived cost

Misconceptions about recycling

Provide recycling feedback



Description

Providing feedback to individuals on their recycling behaviour can influence proper waste-related behaviour. Examples of feedback mechanisms to consider include:

- → Utilising an interactive feedback platform such as a helpline or application, where individuals can swiftly share images of waste items and receive guidance on proper disposal, including which bin to use and correct disposal methods.
- → Expert Feedback to the Community: Feedback from the individuals that handle waste – waste pickers – regarding which items do and do not get recycled, highlight the amount of waste generated in a given area or from households and suggest ways to reduce waste. Further, feedback from waste pickers regarding the difficulties of the lived reality of handling incorrectly segregated waste can be a powerful tool, bridging the gap between waste generators and waste pickers.
- → Social feedback: Provide statistics comparing one's waste management practices to those one's neighbors, including the number of residents or households in their area that recycle their waste.

From theory to practice

At a French university cafeteria, researchers tested persuasive messages, feedback, and social comparative feedback to nudge students toward greener habits. This led to a notable improvement in recycling accuracy and fewer sorting mistakes. Seeing others' performance inspired better recycling habits⁸.

In Kenya, Busara's labs used a virtual recycling game with a leaderboard offering instant feedback on sorting accuracy. This gamified approach not only entertained but also boosted participants' confidence, turning novices into adept recyclers ready for real-world challenges⁹.

Both studies show that highlighting and providing feedback on recycling behaviors significantly improves accuracy and habits!



Feedback

By providing feedback on their waste disposal behaviours and actions, individuals are likely to correct their incorrect recycling behaviours.

Social Comparison

Comparing the recycling statistics of the individuals against their neighbours creates a desire to improve in relation to the neighbours' performance and ability.

Learning

Such platforms promote awareness and education on recycling, and clarify recycling concepts making it easy to learn and adopt recycling practices.

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Contextualisation considerations

- → Who are the leaders within the community that can be influential to amplify the community, social and feedback sessions?
- → What channels within the community are popular and can be used to convey feedback for maximum visibility?
- → What are the common waste items that can be leveraged when making statistical comparisons?



Barrier Targeted

Limited knowledge on waste item recyclability and disposal

Insufficient understanding of the recycling process and outcomes

Lack of Recycling Culture

Connect recycling to tangible rewards



Description

Associating recycling with tangible rewards is crucial for realizing the benefits of waste management. However, this approach should be promoted only in areas lacking waste pickers or with an underdeveloped recycling economy to avoid displacing existing waste pickers. Some examples of tangible rewards include:

- → Discount coupons against a governmentprovided service such as electricity or water bills can be provided to those who recycle plastic at selected collection and recycling points.
- → Individuals who consistently contribute to waste separation and recycling efforts could be nominated for the "Recycler of the Month" award. The type of reward could include a monetary incentive or a gift voucher to recognise their efforts and incentivise others.
- → Have scrap dealers provide rates for waste collected and segregated by residents so that actual monetary value can be attached to waste management.

From theory to practice

In a neighborhood in China, 188 residents turned trash into treasure in an eyecatching experiment aimed at boosting domestic waste separation. The magic ingredient? Green scores! Participants could earn these scores by diligently separating dry waste from their daily garbage and selling it to a company named Hugo. These weren't just any points; they were as good as RMB (the Chinese currency) and could be used to purchase essentials like edible oil, rice, and condiments from Hugo's stores.

This innovative approach proved especially captivating for residents with lower income levels, offering them a tangible reward for their recycling efforts. The result? A bustling community eagerly diving into their bins to sort waste, driven not just by environmental consciousness but by the compelling allure of economic gain. The experiment was a win-win, demonstrating that with the right incentives, turning green habits into daily routines is not just possible but profitable! ¹⁰



Incentivisation

People are more likely to take up a behaviour that they otherwise lack motivation to engage in if they are incentivised to do so. Discount coupons redeemable against government provisions/services serve as a useful mechanism to increase uptake of recyclingrelated behaviours.

Social Comparison

When those who recycle correct are awarded publicly and socially, others might feel compelled to conform to the expected behaviour of segregating their waste because they fear social disapproval.

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Contextualisation considerations

- → What type of incentive would be most effective in motivating individuals to begin recycling and managing their waste correctly?
- → How can collaboration with stakeholders like scrap dealers and government agencies be optimised to ensure the success of the incentive programs?
- → Which platforms can be utilised to draw attention to the positive behaviours of those engaging in recycling?



Barrier Targeted

Lack of Recycling Culture		Hc	arding		
Low Monetary Compensation					
Underestimation	Inadeq	uate	e Systems		

Have shopkeepers host recycling schemes



Description

Shopkeepers can promote recycling effectively through several strategies:

- → Limit Plastic Bag Availability: Encourage customers to bring their own bags or containers by limiting the availability of plastic bags.
- → Shopping Bags for a Price: Implement a fee for reusable shopping bags to incentivise customers to bring their own.
- → Messaging on Bringing Your Own Bag: Display signs that highlight the cost savings and environmental benefits of bringing reusable bags.
- → Provide Recycling Bins Within Stores: Make recycling bins accessible for customers within the stores such that old items can be disposed of conveniently. Customers could also earn in-store, redeemable points for disposing of waste items in these bins.

Showcasing shopkeepers and customers who actively participate in these practices as local role models can inspire broader community engagement, as well.

From theory to practice

In Argentine supermarkets, a small fee on single-use plastic bags led to a significant increase in customers using reusable bags. This change not only took hold but grew stronger over time¹¹.

In South Africa, the fight against plastic bags combined 'Plastic-Free July' campaigns with free reusable bags. This effective strategy significantly increased reusable bag use and decreased plastic bag consumption, outperforming mere subsidies¹².

Providing practical tools and motivation can drive greener habits. Sometimes, a little nudge (or a handy tote) is all it takes!



Opportunity Cost Consumers are willing to reuse old bags and containers when purchasing goods since the alternative option of purchasing plastic bags each time is more costly. Social Influence

When individuals observe others bringing their own bags and receiving public recognition for doing so, it encourages others to adopt the same behaviour. Reduced Hassle Factors
 People are more likely to leverage local markets as an easily accessible and convenient point to dispose their plastic waste.

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Contextualisation considerations

- → Which common marketplaces or shops do consumers frequent, making them effective touchpoints to deliver this intervention?
- → Who are the key audiences that visit these marketplaces and how can messaging be tailored to target them effectively?
- → Where are the specific areas within the market where reusable shopping bags can be purchased?



Barrier Targeted

Limited knowledge on waste item recyclability and disposal

High perceived cost

Misconceptions about recycling

Optimise messaging to promote an environmental mindset



Description

Have impactful messaging that encourages community members to follow through on their recycling actions and encourage others to do so. The messages should highlight the importance of the environment, reference local environmental issues, and be delivered using posters. In order to make the impact of plastic pollution recycling salient, this messaging can be conveyed via posters in and around waste bins or recycling sites. Sample messages include:

- → "Are you recycling to ensure a cleaner world for future generations?",
- → "Did you choose to make difference today? Recycle now!",
- → "Choose to recycle your waste. Your community benefits from it",
- → "You can do it, separate your waste."

Further, recycling and reuse is already a familiar concept in many communities, though often practiced unconsciously. To enhance awareness, it's important to frame recycling in terms that are familiar to the community.

→ For instance, in India, reusing plastic bags from vegetable vendors as trash bins, repurposing coffee jars to store grains and pickles, or turning old clothes into mops are all practical examples of everyday recycling. Messaging should encourage people to recycle and shed light on how they might already be doing so.

From theory to practice

In Ghana, a lively study revealed just how much impact the right words can have on eco-friendly behaviours. Campaign messages that emphasized moral obligations and respect for the environment truly resonated. By crafting messages that optimize environmental values, these communications did more than just catch attention-they spurred action. They reminded everyone of their personal duty to our planet and celebrated the positive vibes from recycling. This approach significantly increased participation in green activities, proving that when words are aligned with our earth-friendly values, they can powerfully motivate and inspire a more sustainable world¹³.



Framing

Drafting messages that highlight the gains from engaging and losses from not engaging in recycling behaviour can prompt consumers to make decisions which favour recycling.

Salience

Highlighting different environmental values and importance of recycling through informative messaging can increase its prominence to the audience. Messages placed at crucial points of the recycling journey and support when interventions are being delivered are useful tools. The timing, delivery and point of visibility of the messages is crucial to how it is received.

Personalisation

Unique messages will be developed that target specific audiences (market sellers, families), and incorporate personas that they identify with.

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Contextualisation considerations

- How can the messages be adapted to accommodate varied levels of education and literacy among the target audience? Can they be provided in the local language and be made simple to understand?
- What are the current environmental issues in the communities that could inform the messages and implications of not recycling? Such as bushfires from outdoor garbage burning, clogged gutters or drains, among others.



Barrier Targeted

Underestimatio	on	Deprioritisation	
Forgetfulness	М	isconceptions abou	ut recycling

Highlight recycling success stories



Description

Promote recycling practices by highlighting stories from people similar to the community that have successfully taken up recycling. These stories will highlight recycling as a common practice and be recorded with messengers from the different demographics within the community to promote relatability. The stories could include:

- → Economic or financial benefits of recycling for individuals, households and the community, such as money saved from recycling
- → Clarify any misconceptions around recycling at home, such as context-specific methods of at-home recycling
- → The potential impact of not recycling that the community may experience. For example, the burning of waste that is not recycled and the associated negative impact of air pollutants
- → Examples of products created by recycling waste such as bags, clothes, furniture

These stories can be shared via digital media (social media, WhatsApp) and non-digital channels (public billboards, posters).

From theory to practice

In Vietnam, a fascinating study dived into what really makes households hit the recycling bins. The verdict? It's all about attitude towards recycling and social norms around recycling.

So, what's the game plan?

Communication and education programs need to focus on how recycling at home shields our environment and brings those feel-good vibes. Plus, it's time for public media campaigns to bring in influential figures—opinion leaders and charismatic communicators who can nudge society towards greener habits. By spotlighting peer behaviours and sharing success stories, these influencers can inspire and motivate everyone to make recycling a part of their daily routine. This is required to make recycling the norm, one household at a time!¹⁴



Social Proof

People are more likely to recycle or take up recycling behaviours if they believe their peers and people in their referent networks are doing so as well.

Role Modelling

People will emulate recycling behaviours of others, especially those they already look up to and feel that they can relate to.

Injunctive Social Norms

People are likely to engage in recycling behaviours if they think this is what they and others like them should be doing. This is conveyed by seeing that others in their community are recycling and benefiting from it.

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Contextualisation considerations

- What are the most accessible digital and non-digital channels that can be leveraged to improve access and uptake of the success stories?
- → What are the key target audiences to share the success stories with? In a given household, would it be the fathers or the mothers? Who would be an ideal role model for minority groups in the community?
- What feature of the stories can be adapted to better suit the local context, i.e. using a person from the community, highlighting communal recycling efforts at a local park?
- → Who would be an ideal role model for low-income and minority communities?



Barrier Targeted

Underestimation

Misconceptions about recycling

Lack of Recycling Culture

Make recycling a community activity



Description

In order to get people interested in recycling, recycling can be made a social activity.

→ This could involve organising regular gatherings centered around recycling and correct waste management practices. For instance, the community could host monthly or quarterly events like a plastic collection day, a park clean-up day or plastic collection drives, where individuals can come together to clean their surroundings and raise awareness around the importance of recycling.

This will serve as an effective intervention to increase the social visibility of recycling behaviour, thereby encouraging participation.

- → Widespread awareness of these events can be generated through both in-person promotion and across various social media platforms.
- → Lastly, sharing the outcomes of these activities will highlight their impact, motivating more people to join in future events.

From theory to practice

In Delhi, India, a study among high school students reveals that social influences, or 'subjective norms,' are key in shaping recycling intentions, even more than personal attitudes or perceived control. This insight suggests that policymakers and schools should promote recycling as a popular social activity, making it easy and accessible¹⁵.

In Uyo, Nigeria, a similar study shows that community participation through distribution of waste bags, community education on proper disposal and use of waste bags and setting up a committee for waste management significantly boosts knowledge, attitudes and actual practices in solid waste management. The takeaway: when communities work together, waste management improves dramatically¹⁶.



Social Conformity

By making the events a social activity, it taps into people's desire to fit in and be accepted within their social group. Additionally, highlighting the impact of plastic waste on their immediate environment and the community can create a sense of social responsibility and motivate people to take action to reduce their plastic use and participate in recycling efforts.

Habit Formation

By hosting scheduled events, we can facilitate the formation of recycling habits as these events provide a structured opportunity for individuals to engage with recycling regularly, making it easier for them to remember to participate. The consistent timing and communal nature of these events help reinforce the habit of recycling, turning it into a natural part of people's routines (norm).



Contextualisation considerations

- What are existing social practices in the community that can be leveraged on and expanded to include recycling, i.e., daily walks, marathon, spring cleaning etc.
- → What existing community events/gatherings are there that can be leveraged to encourage community mobilisation/participation?
- Which influential members or key figures from the community can be leveraged as entry-points or ambassadors for such events to encourage wider participation?



Barrier Targeted

Underestimation

Lack of Recycling Culture

Deprioritisation Forgetfulness

Inadequate Systems

Make recycling work safer and easier



Description

Waste workers face a high risk of injury and exposure to potentially hazardous materials which increases their risks of impoverishment due to lost wages and healthcare costs. The first step is providing adequate safety, collection and sorting equipment to use for different types of waste materials (plastic, metal and biohazard waste). This equipment should be provided by the entity responsible for waste collection and management - usually, local governments or municipal organisations. Once this is available, the following steps will support their uptake:

- → Colour-coding the equipment to identify which is relevant for specific waste types or collection activity
- Providing occupational trainings on the best waste management practices and how to effectively use this colour-coded equipment
- → Developing intuitive how-to guides for waste workers on how to

From theory to practice

In Ogun state, Nigeria, a bold experiment took a hands-on approach to improving the health and safety of waste pickers at local dump sites. Armed with a mix of lectures and engaging demonstrations, researchers set out to arm these hardworking individuals with crucial risk reduction strategies. Three months later, they returned for a followup assessment using the same tools, and the results were clear: the training wasn't just a temporary lesson—it was a game-changer! The waste pickers had significantly upgraded their waste handling practices, proving that the right education can transform everyday routines into safer, healthier operations. It's a real success story in health and safety training! ¹⁷



Awareness/Information access Highlighting the common hazards they may encounter and how to manage these will improve their skills to do so and confidence in their safety on the job.

Salience

Pertinent information about hazards and mitigation steps delivered in the local dialect or pidgin will be contained within the educational materials for ease of understanding.

Capacity building

Provide simple, easy to understand guidance on managing safety concerns and measures for participants will build their physical (skills) and psychological capacity (knowledge) to perform their work.



Contextualisation considerations

- What are the common hazards waste pickers and scrap dealers face in the community?
- → What is the best delivery approach for the trainings?
- Which existing local waste management organisations or cooperatives in the community should be represented in the trainings?



Barrier Targeted

Safety Concerns

Poor waste disposal systems

Give waste workers a voice



Description

A crucial first step towards formalization, according to waste picker associations, is to provide official or state-issued ID cards to waste pickers and scrap dealers. This foundational action is essential for implementing further recommendations, such as easing their work conditions and giving them a voice. Further, encouraging the establishment of local waste management advisory committees, involving local government, municipal bodies, and with full participation from waste pickers and scrap dealers, to establish a constant planning and feedback loop could:

- → Provide a platform for waste workers to share their experiences, learn new, practical recycling skills and contribute to learnings
- → Lead to the co-design of better community waste management protocols and plans
- → Streamline the coordination of resources for waste management, i.e. waste transportation and storage services, better wages for workers

From theory to practice

In Ghana, a groundbreaking study discovered the magic of teamwork in waste management. When formal and informal sectors collaborated through participatory and inclusive decisionmaking, something incredible happened. Not only did it foster locally-responsive and sustainable waste management practices, but it also supercharged the system's efficiency.

Just two years into this innovative partnership, the number of informal waste service providers skyrocketed by 71%, jumping from 350 to 600. This boom wasn't just about numbers; it was about real people, generating new job opportunities and rising above poverty. The effects were remarkable: collection coverage leapt from 75% to 90%, waste capture soared from 53% to 90%, and recycling rates jumped from a modest 5% to a robust 18%. Truly, this is how waste management becomes a catalyst for community and economic development! ¹⁸



Social recognition

Improving visibility of waste pickers and scrap dealers by the local administration and having them contribute to local waste management plans, will improve relationships between these authorities, communities and these waste management professionals. Highlighting their role will help combat the social stigma associated with their work, resulting in positive social recognition.

Messenger effect

People are influenced by the person conveying the information. Committee members should be trusted and well-reputed members of the community.

Identity

Through the establishment of these committees, better formal practices related to recycling and waste management in line with co-developed waste management plans will be instilled among waste pickers, leading to the adoption and retention of economically sustainable practices.



Contextualisation considerations

- → Who might be a trusted member of the community to join the committee and communicate with the community?
- Which local government institutes or municipal organisations can be involved in delivering these interventions?
- How can the representatives of waste pickers and scrap dealers be selected?
- → What are the best practices to ensure the sustainability of these advisory committees?
- How can waste pickers be officially recognised for their positive work and contributions?



Barrier Targeted

Low worker motivation and dignity

Stigma and Discrimination

Lack of an enabling environment

Poor waste disposal systems

Lack of storage and transportation facilities

Organise local associations or cooperatives



Description

To improve the coordination of resource mobilisation and improve access to better wages, this intervention focuses on the formation and/or strengthening of local community-based associations and cooperatives. These associations can:

- Provide a voice for negotiating prices/ wages with local waste management bodies and enterprises
- → Raise funds to secure waste transportation services accessible to all waste workers
- → Serve as a basis for engaging other enterprises including NGOs, private companies and branch out to potential new markets, i.e, handling medical waste
- → Once established, these associations can rally for the provision of formal recognition to waste pickers and scrap dealers in the form of government-approved IDs and standardised uniforms, thereby contributing to members of the community trusting waste workers
- → Associations could then access social support services such as public health insurance schemes, food stamps/coupons and standardised remunerations for collected waste

From theory to practice

In an exciting across five countries in Latin America and East Africa. the spotlight was on waste picker organizations (WPOs). Employing a dynamic mixed-method approach, the research uncovered the powerful role these WPOs play, not just in uplifting local communities but also in enhancing the economic positions of the waste pickers themselves. From self-help groups to cooperative societies, these organizations adapt to the unique challenges and complexities of their environments. By forming regional and national networks, WPOs not only create significant economic opportunities but also gain autonomy, stability, and a voice in political arenas. This study paints a vivid picture of how WPOs are key players in driving social, economic, and environmental sustainability across urban landscapes.¹⁹



Incentives

Members will be motivated to participate in these associations to access monetary incentives (better prices for their services) and nonmonetary incentives (social support, public health insurance, capacity building initiatives).

Collective efficacy

Through the intervention, members of associations and cooperatives will feel empowered as a part of a group, to negotiate for better wages or improved access to shared resources for storage or transport of waste.

Social Identity

Associations and cooperatives will boost the sense of self and identity of waste pickers and scrap dealers to overcome the barriers of stigma and discrimination, bolstering their social standing and recognition.

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Contextualisation considerations

- → What platform(s) would serve best for engaging and recruiting waste workers to form these bodies?
- → What existing organisations and associations are currently available in the community?
- → What are the by-laws and requirements for participation?



Barrier Targeted

Low worker motivation and dignity

Lack of formalisation

Exploitation

Occupational inheritance

Collaborate with enterprises to share knowledge



Description

A platform for recycling enterprises can facilitate the sharing of best practices on mitigating operational costs, waste segregation, and engaging with recycling markets. This platform, whether online or inperson, can also provide community awareness guidelines. Key information provided could include:

- → Best practices for recycling enterprises to raise awareness and engage with the community through outreach programs, interactive workshops, and demonstrations on recycling and waste segregation.
- → Educational modules on integrating various waste management approaches.
- → Collaboration methods with producers to test innovative recycling techniques and sustainable technologies.
- → Updates and explanations on waste management and recycling policy changes.
- → A Recycling Partner Recognition Programme spotlighting high-performing enterprises based on recycled material volumes.

From theory to practice

A study highlights Bangladesh's approach to sustainable industry practices. In 2005, a collaboration between UNDP, local recycling enterprises, and the government established a recycling training center, transforming professionals into skilled recyclers and energy conservationists²⁰.

In Japan, the "Collaborative Plastic Recycling Program" embodies a similar collaborative spirit. This initiative involves consumers in recycling personal and home care product bottles. Cleaned and dried packaging is collected and transformed by a recycling enterprise. The program not only recycles but also tests innovative horizontal recycling technologies, turning old bottles into new ones, exemplifying sustainable innovation through collaboration between plastic producers and recycling enterprises²¹.

 ²⁰ <u>Ahmed, Mahmud and Acet, (2022)</u>
 ²¹ <u>Unilever Japan & Kao Corporation, (2021)</u>



By facilitating access to institutional learnings through the platform, recycling enterprises will have more opportunities to share and access pertinent recycling knowledge. This will reduce the hassle factors associated with seeking information about new markets, effective waste management practices, market trends and changes in governing policies for smaller, and possibly less financially stable, recycling enterprises.

Reduce hassle factors

Social Proof

Public recognition leverages the power of social influence, motivating participation through the desire for social approval and positive association with environmentally conscious practices.

Social Norms

By highlighting the sustainable or effective practices of the recognised enterprise, other enterprises can be encouraged to adopt these practices in their activities and decision making.



Contextualisation considerations

- → What is the level of digital literacy and penetration among the audience of this online platform?
- → What steps should be taken to increase the trust people have in the information accessed by the platform?
- → What incentives should be operationalised to encourage knowledge sharing on the platform?
- → What are the prerequisite conditions for an enterprise to be considered for recognition?
- → How can recycling enterprises be motivated to join this programme?



Barrier Targeted

Unwillingness to increase awareness around recycling

High operational costs

Promote the use of waste credit schemes



Description

Recycling enterprises can set up and distribute credits through a 'plastic credit scheme'. This would help reduce the amount of plastic and metal waste from companies in communities.

- → In this program, enterprises like factories and manufacturers that generate plastic waste can buy plastic credits, and support the removal of equivalent plastic waste from the community.
- → These credits represent the amount of waste they help remove from the community. When companies buy these credits, they would be helping to clean up the environment, and would receive public recognition for their efforts.
- → There are two types of credits in this program: one for collecting waste (Waste collection credits) and one for recycling waste (Waste recycling credits). Each credit is equivalent to one metric tonne of waste that has been either collected or recycled.
- → Further, an auditing organisation can ensure this program is run fairly and openly. They check on how the program is working.

Additionally,

→ Recycling enterprises can receive training on how to manage these credits and work with other businesses to improve their practices.

From theory to practice

In their report, the United Nations Environment Programme casts an exciting light on plastic credit schemes, touting them as a revolutionary approach to sustainable waste management. This analysis, part of the SEA circular project, conducted with insights from the International Solid Waste Association (ISWA) and Eco-Business, highlights several critical needs: the standardization of plastic credit values, meticulous organization of the system, and robust governance to pave the way forward.

The report stresses that the true effectiveness of these schemes hinges on their integration with stringent national and local waste management policies. Moreover, it calls for a clear framework to be established to prevent fraud and abuse in the design of plastic credit schemes. By addressing these elements, we can unlock the full potential of plastic credits as both financial and institutional tools²².

²² <u>United Nations Environment Programme & International Solid</u> <u>Waste Association, (2022)</u>



Perceived Effectiveness

Companies observing the tangible results of their participation in the scheme, such as improvements in their environmental impact reports or public perceptions, will be encouraged to continue participating in the scheme.

Commitment Device

By purchasing waste credits, these companies participating in the scheme will demonstrate their commitment to limiting their waste contributions in line with the credit purchased. It provides an accountability mechanism for assessment.

Incentivisation

Companies are incentivised through the scheme to reduce their plastic waste, increase their recovery of waste and recycling rates, and disincentivised to create waste and contribute to environmental pollution.



Contextualisation considerations

- → How will companies be further incentivised to take up the waste credit scheme?
- → What support will recycling enterprises need to effectively manage their credit schemes?



Barrier Targeted

Unwillingness to increase awareness around recycling

High operational costs

The Recycling Playbook / Applying this Guide

Applying this guide



Questions to ask yourself before using this guide

Before you start

This section of the playbook provides a comprehensive toolkit that includes practical tips, reflective questions and checklists designed to help you identify specific barriers to recycling and develop behaviourally-informed strategies and solutions to address them.

The effectiveness of these tools will largely depend on your understanding of the current waste management systems, recycling practices, the availability of recycling bins, and the behaviours of key stakeholders. For us, formative research proved to be the most valuable in gaining these insights. Before applying the guidelines provided here, we recommend familiarising yourself with the experiences of relevant stakeholders and the broader context. This can be achieved through various methods such as interviews, focus group discussions, surveys and observational research, all aimed at deepening your understanding of recycling-related behaviour and the context.



The first step is to identify your target audience. Use these questions as a guide on how to select your audience:



- Which group should you target? Why? (The group that does not recycle/recycles incorrectly/generates the most amount of waste?)
- Do they have any recyclingrelated knowledge and is it accurate?
- Who makes decisions regarding recycling? Is it an individual, a select group of people, the community?

- Do they know what recycling is? Do they know how to recycle?
- What is their attitude towards recycling? Do they think it is beneficial to the environment?
- What demographic details will help me understand this population better (age, gender, education level, number of children, working hours, occupation, income level)?

Do they currently recycle? Why or why not?

What is their relationship with other stakeholders in the waste management or recycling sector, if any? (eg: if you choose waste pickers, what is their dynamic with recycling enterprises or local government officials?)



Identifying Structural and Behavioural Barriers

Much like diagnosing a problem that needs solving, the second step is to identify the barriers that hinder recycling and waste management. These barriers often vary across different target groups and stages of the recycling journey, so remember – know your context!

While the main goal of this playbook is to enhance participation by overcoming behavioural barriers to recycling, it is essential to first address structural barriers. These can be in the form of inadequate number of waste bins or non-standardised waste collection facilities. Ensuring that these foundational elements are in place is critical before we tackle the behavioural barriers. To identify the barriers which are limiting recycling and waste disposal behaviours, you can use the following guiding questions.

If you answer 'yes' to any of the guiding questions, that barrier is likely relevant to your scenario. Note that there can be more than one relevant barrier. We recommend relying on any formative research or contextual information to think about the following questions.



PRIORITISING ST	RUCTURAL BARRIER	S	Figure 2
Stakeholder	Structural Barrier	Guiding Questions	Select the Option
Consumers	Inadequate systems	 → Are there an insufficient number of waste bins available for people to use? → Are these waste bins difficult to access? → Do garbage collection services run irregularly or have no fixed timing? 	 ☐ Yes ☐ Yes ☐ No ☐ Yes ☐ No
Waste Pickers and Scrap Dealers	Lack of formalisation	 → Do waste pickers/scrap dealers, in general, lack legal protection or inclusion in policy frameworks? → Do their wages vary depending on external factors beyond their control? 	□ Yes □ No □ Yes □ No
	Safety concerns	 → Do waste pickers lack essential protective gear, such as gloves and masks, to ensure their safety while carrying out their work? → Do waste pickers/scrap dealers experience frequent injuries, contract diseases, or become ill, particularly when sorting through waste materials? 	□ Yes □ No □ Yes □ No
	Lack of storage and transportation facilities	 → Do waste pickers/scrap dealers irregularly store the waste that they collect, i.e. do they not have designated areas to store waste? → Are there limitations on the availability of vehicles for transporting waste? 	□ Yes □ No □ Yes □ No

PRIORITISING STRUCTURAL BARRIERS Stakeholder **Structural Barrier Guiding Questions** Poor waste \rightarrow Do waste pickers/scrap dealers rely on self-determined systems for disposal systems collecting, sorting, and depositing waste, rather than following an existing standardised system? → Do waste pickers/scrap dealers face any kind of harassment (request Lack of an enabling environment for bribes, intimidation, abuse) from police or government officials? \rightarrow Are the rules, regulations and policies in your area unfavourable for waste pickers/scrap dealers to do their jobs without a problem? \rightarrow Do recycling enterprises find it difficult to invest in the infrastructure Recycling High operational needed for recycling? Costs **Enterprises** \rightarrow Do recycling enterprises endure high costs to set up or maintain the

- Do recycling enterprises endore nigh costs to set op or maintain me		
infrastructure needed for recycling?		
→ Do recycling enterprises find it difficult to accumulate capital to build	🗌 Yes	🗌 No
recycling facilities?		

Select the Option

☐ Yes ☐ No

Yes

☐ Yes

Yes
PRIORITISING	RIORITISING BEHAVIOURAL BARRIERS				
Stakeholder	Behavioural Barrier	Guiding Questions	Select th	ne Option	
Consumers	Limited knowledge on waste item recyclability and disposal	 → Do they not know what recycling is? → Do they lack information and awareness on how and where to recycle? → Do they get confused about which bins need to be used for disposing specific types of waste? 	☐ Yes ☐ Yes ☐ Yes	□ No □ No □ No	
	Insufficient understanding of the recycling process and outcomes	 → Do they have an insufficient understanding of what happens to their waste after they dispose of it? → Are they unaware of how waste disposal systems work in their neighbourhood/municipality? 	YesYes	□ No □ No	
	Underestimation	 → Do they think recycling is ineffective? → Do they think it is not their responsibility to recycle but somebody else's? → Do they consider climate change to be a distant problem of the future and one that they cannot impact by their actions? 	☐ Yes ☐ Yes ☐ Yes	□ No □ No □ No	
	Hoarding	 → Do they try to rationalise the potential for reusing items they've purchased, even if they haven't yet reused them? → Do they collect items like plastic bottles, containers and bags? 	☐ Yes ☐ Yes	□ No □ No	
	High perceived cost	 → Do they find recycling difficult to do? → Do they think recycling requires time and effort? → Do they think that recycling requires too much hard work? 	☐ Yes ☐ Yes ☐ Yes	□ No □ No □ No	
	Deprioritisation	 → Do they think that most other household tasks are more important than recycling? → Do other daily household tasks prevent them from recycling? 	☐ Yes □ Yes	□ No □ No	

PRIORITISING BEHAVIOURAL BARRIERS **Stakeholder Behavioural Barrier Guiding Questions** Select the Option Lack of recycling \rightarrow Is recycling hardly spoken about among their friends or in their Yes home? culture \rightarrow Do others in the community not believe in the importance of ☐ Yes recycling? \rightarrow Do others in the community not recycle or not properly manage □ No Yes their waste? Low monetary → Does one receive low compensation for bringing their waste to a ☐ Yes ☐ No compensation collection site/recycling facility as compared to what they might have expected? Forgetfulness → Did they intend to start recycling and then forget about it? ☐ Yes ☐ No \rightarrow Did they start recycling and over time, forget to continue? ☐ Yes ☐ No Misconceptions about \rightarrow Do they think that recycling is done by those with lower incomes? ☐ Yes \rightarrow Do they think recycling can only be done with special equipment? ☐ Yes ☐ No recycling \rightarrow Do they think recycling is a dirty or unclean job? ☐ Yes ☐ No \rightarrow Is the task of recycling and waste management done by or Fixed waste ☐ Yes ☐ No delegated to specific person? management roles \rightarrow In the case where roles are divided, are there only specific audiences ☐ Yes (like women or children) who take up the role of recycling?

PRIORITISING BEHAVIOURAL BARRIERS **Behavioural Barrier Stakeholder Guiding Questions** Select the Option → Are waste pickers/scrap dealers looked down upon in this ☐ Yes Stigma, Waste Pickers and community? discrimination and Scrap Dealers \rightarrow Are waste pickers/scrap dealers subject to negative perceptions, ☐ Yes exploitation such as being labelled as thieves or associated with uncleanliness and street life? \rightarrow Do people in the community tend to limit their interactions with ☐ Yes ☐ No waste pickers or scrap dealers? → Do waste pickers/scrap dealers feel that they paid unfairly? Low worker dignity ☐ Yes ☐ No → Do waste pickers/scrap dealers experience feelings of and motivation □ Yes □ No demotivation or feel that there is a lack of dignity in their work? 🗌 Yes 🗌 No Occupational \rightarrow Do other members of waste pickers'/scrap dealers' families also Inheritance work in the same profession? → Do waste pickers/scrap dealers feel compelled to work in this ☐ Yes ☐ No area because their family has always worked in this area? Unwillingness to \rightarrow Do recycling enterprises distance themselves from the ☐ Yes Recycling responsibility of raising awareness about recycling? increase awareness **Enterprises** \rightarrow Are recycling enterprises primarily focused on their business and around recycling ☐ Yes not concerned about the environment or community?





Since behaviour is a key determinant of people's recycling actions and decisions, understanding and effectively addressing the behavioural barriers faced by your target audience are essential for developing successful interventions.

When thinking of the most impactful solutions, you should consider three factors - who the intended target population is, where the intervention will take place, and when it will take place. Answering these questions is crucial as they provide provide invaluable insights into the target population, intervention context, and timing, which are essential for designing effective and impactful solutions.

Once your target audience has been identified and their barriers selected, it is then necessary to identify and target interventions which specifically address the behavioural challenges faced by them. Follow these steps:

Steps

- * Rank and select the priority barriers. Which barrier has the biggest impact on the target audience? Which barrier is easiest to overcome or solve?
- * Identify the interventions that target these barriers. Refer to page 33-49 of this playbook and select the interventions that address the priority barrier(s).
- * Consider your local context. Adapt the interventions to the local context by thinking through the 'Contextualisation Considerations' mentioned for each intervention and building them out further. A few overarching factors to take into account when contextualising your intervention include:

a. Existing recycling and waste management practices:

- Are there any existing recycling or waste management practices in the community? If so, what are they?
- Which organisation or entity is responsible for waste collection, disposal and management?
- Could current waste management practices pose an obstacle to the implementation of the solution I intend to

introduce?

• Can existing waste management practices be used to support the solution i want to implement?

b. Available resources:

- What are the existing infrastructure and resource limitations (such as landfill sites or recycling plants) in the local context that may impact intervention implementation?
- How can I design the intervention to work within the available infrastructure and resources while addressing any gaps or limitations?

c. Location:

- In which geographic location do I want to implement this solution?
- How can I tailor the intervention to address the specific geographic challenges and opportunities present in the local area?
- Does the intervention target urban, rural, peri-urban areas or some other kind of area? How can I adapt the intervention to account for this locational context?

d. Language:

- Have I translated intervention materials and messaging into the local language(s) spoken by the community?
- How can I adapt communication styles and channels of communication to effectively reach and engage with the target

audience?

• Who is a trusted messenger in the community? Who has influence over what the target audience thinks and does? Can their influence be utilised?

e. Prevailing socio-economic conditions:

- Have I identified the the socio-economic factors (gender, age, education, income level, employment status) that might impact the effectiveness of my interventions?
- How can I design the intervention to be accessible and feasible for individuals with varying socio-economic backgrounds?
- How do I ensure that the intervention is relevant and effective despite these socio-economic factors?

f. Regulatory environment:

- What are the relevant laws, policies, and regulations that may impact intervention implementation?
- How can I navigate the political and regulatory landscape to ensure implementation? Can I speak to the concerned stakeholders and leverage support for the intervention?





The target audience has been selected, the barriers have been pinpointed, the interventions have been identified and they fit your local context. Congratulations, you're done with the hard stuff!

Now all that you have to do is select the intervention(s) that you want to implement. To help you make this choice, we suggest that you rank your interventions based on the Impact-Feasibility matrix outlined below and prioritise them accordingly:

- * **Impact:** If each of these solutions could be implemented without any difficulty or cost, which would have the most positive impact on the target audience? (Rank: Low, Medium, High).
- * **Feasibility:** Which solutions are more feasible than others? Here, the feasibility factors to consider are:
 - a. Cost: In terms of resources, how costly will it be for the team to implement the intervention? (Rank: Cheap, Moderate or Expensive)
 - b. Time: How much time will it take to implement the intervention? Does this fit the time frame you have in mind?
 - c. Fit: Does this solution fit the context, culture and policies that you are working in?

Keep in mind that you will want to select an intervention(s) that is both impactful and feasible to implement. You might have to make some trade-offs. This depends entirely on your context.

Once you've ranked the interventions based on the Impact-Feasibility matrix, you're ready for the next step – Implementation.

	High ir	npact	
	HIGH IMPACT LOW FEASIBILITY	HIGH IMPACT HIGH FEASIBILITY	
	The spot in the medium-long term Eventually, you will run out of high impact-high feasibility solutions. You should then move to the high impact-low feasibility solutions. These will require more effort but they will still provide good results.	The sweet spot This is where you will want most of your interventions – solutions that have high impact and high feasibility.	
Feasibility	LOW IMPACT LOW FEASIBILITY	LOW IMPACT HIGH FEASIBILITY	Feasibility
	The danger zone Avoid this area at all costs. If something is difficult to implement for a low impact, it's time to look elsewhere.	Not Ideal Ideally, you do not want to pursue solutions with low impact. However, since these are feasible and will still impact some people, sometimes these solutions can be useful.	
	N Low in	npact	





Testing plays a crucial role in assessing how effectively the selected solutions influence recycling behaviours and actions. Testing allows you to ensure that the proposed solutions are viable and desirable for your population.

An integral part of testing is measuring the impact of your intervention. When deciding how to measure changes in outcomes caused by your intervention, make sure to select measures which really capture the behaviour or phenomenon you are interested in. These measures are known as outcome measures and they serve as a yardstick that helps you measure the results or effects of the intervention you are testing. For example, to assess changes in the intention to recycle, you can leverage self-reported measures through survey questions before and after the intervention. In another scenario, to measure actual changes in waste segregation behaviour, you might want to measure the weight of the waste generated and the proportion of waste that was accurately segregated before and after exposure to your intervention. You could do this yourselves or by partnering with waste pickers. Other relevant outcome measures for recycling could include intention to recycle, pro-recycling attitudes, recycling-related knowledge, self-reported recycling behaviours, environmental values, among others.

Selecting the correct outcome measure is important because it helps you understand if what you're studying is really making a difference to what you're interested in knowing about. It's like choosing the right tool for the job. If you pick the wrong measure, you might not get accurate results, like trying to measure temperature with a ruler instead of a thermometer. So, choosing the correct outcome measure ensures that your research is reliable and helpful in making decisions. A number of methods - quantitative and qualitative - can be used to test the impact of your intervention or programme. The gold standard of evidence for studying cause-andeffect relationships is the randomised controlled trial²³. In an RCT, individuals from your target audience are randomly assigned to one of two groups - a treatment group or a control group (you can have more than one treatment group). The treatment group receives the intervention whose effectiveness you would like to assess, while the control group does not. For instance, if you're testing whether recycling labels improve recycling practices, some individuals of the target sample would receive products with recycling labels and others without. You can then compare the differences in outcome measures between these groups to assess the effectiveness of your intervention.

The challenge with RCTs lies in their cost, demanding ample resources and time for execution. Moreover, lacking the necessary expertise can pose obstacles to conducting them effectively. In a scenario where such constraints exist, other evaluation methods - A/B testing, regression discontinuity, difference in difference, instrumental variables - can be utilised. Qualitative methods that might be useful include in-depth interviews and focus group discussions. Please reach out to us if you would like to learn more.



IMPLEMENTATION WORKSHEET

Fill in the blanks

I am solving for	[population] in	[reg	ion].
This target population we	as chosen due to its	[large pop	ulation size/poor recycling practices
large quantity of waste g	enerated/ inefficient recycling be	haviours].	
The target population is t	facing [specif	ic barrier/probler	n].
To tackle this challenge, v	we will implement	[specific inte	rvention from our playbook].We
believe that this intervent	tion will have a 🛛 high / 🗆 mediu	m / □ low impact	because of
We believe that this inter	vention will take 🗆 a lot / 🗆 a little	effort.	
Based on local context, w	e will tailor the intervention in the	following ways:	
12	3	·	
We will need to do the fol	lowing to implement our interven	tion:	
[Research Strategy] [Res	ources Required] [Who will imple	ment it?] [Collabo	pration with Other Recycling
Stakeholders] [What will	be the total duration?] [How will t	he outcome be m	neasured?].
This intervention will be in	nplemented in [where]	area of	country.
The timing for the impler	nentation is set for [when]	(time/da	te/month/occasion).
Success will be if% o	f target population 🗆 recycles co	orrectly / 🗆 incre	ases frequency of recycling behavio
/ 🗆 improves accuracy of	f waste segregation by [X o	date/time frame]	
We will measure the effec	ctiveness of this intervention by us	sing	_ (RCT, Qualitative interviews,
Difference-in-Difference) and by measuring the change ir	(the	extent of recycling/accuracy of

Conclusion

Climate change, once seen as a distant threat, now manifests in immediate and severe ways extreme heat waves, persistent droughts, rising sea levels, and pervasive pollution – More than ever, it is demanding urgent and decisive action. This isn't just about saving the planet; it's about safeguarding our future.



In the dynamic environments of the Global South, where growing populations and rapid urbanisation intersect with pressing environmental challenges, there exists a prime opportunity for developing and deploying sustainable solutions. Central to these initiatives is effective recycling and waste management. The complexities in the Global South are not only systemic—such as uptake and infrastructure—but also involve changing perceptions, enhancing participation, improving accessibility, and boosting engagement. Insights from behavioural science provide potent tools for sparking innovation and driving meaningful change.

We recognize that the task of refining recycling practices isn't confined to one person or one community, it involves a broad spectrum of participants—from users and producers of plastics to collectors, dealers, and recyclers. It also extends to the global community, from households participating in regular waste collection drives to slums where an old plastic bottle is repurposed as a water container. We must craft interventions that resonate with the shared environmental ethos of these communities, nurturing a sense of interconnectedness and collective responsibility. Every piece of discarded waste, from soda bottles to scraps of paper, should be seen not just as waste but as an opportunity for recycling behaviour change.

For organisations tackling inadequate recycling practices, this playbook offers a pathway forward. You now possess a toolkit to help you identify your target audience, understand the barriers they face, and design customised interventions to overcome these challenges. With evidence from diverse settings—from India and Vietnam to Kenya—we show that effective solutions are possible. By leveraging principles of behavioural science, you can bolster your recycling efforts and make a significant contribution to global environmental sustainability.

Collectively, we can work to change the narrative around plastic. Each informed decision contributes to a positive change. This playbook is just the beginning. We invite you to utilise it, adapt it, share your success stories and inspire others in this endeavor. Together, let's transform recycling from a mere task into an empowering act that rewrites the story of our planet, one bottle, one can, at a time.

ABOUT



TRANSFORM unites corporates, donors, investors and academics to support visionary impact enterprises across Africa, Asia and beyond. Together, we test and scale new solutions that tackle environmental challenges, improve health and wellbeing, and build inclusive economies.

Combining grant funding, business insight and research, TRANSFORM is accelerating the development of innovative business models to help solve global challenges. It was established in 2015 and is led by Unilever, the UK's Foreign, Commonwealth and Development Office, and EY.

Transform collaborated with Busara to encourage recycling behaviours in the Global South. The project was initiated in June, 2022 and ran till May, 2024.



Busara is a research and advisory firm dedicated to advancing and applying Behavioural Science in the pursuit of poverty alleviation in the Global South. At Busara we use behavioural science to design solutions for partner organisations that are working to make lives better, through integrating behavioural science research, with human centered design embedded in engaging technology.

We innovate for users and beneficiaries, keeping them front and center to create solutions that accelerate impact. Our sectoral expertise spans education, health, finance, agriculture, climate change resilience and preparedness, among others.

Learn more at: <u>https://www.busara.</u> <u>global/</u>

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THE RECYCLING PLAYBOOK