INTELLIGENCE REPORT

# Rethinking Pakistan's Relationship with Plastics

UNDP Innovation Accelerator Lab Pakistan

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**About Innovation-AccLab Pakistan**

UNDP Innovation-Accelerator Lab is a dedicated learning space to reimagine development solutions combining traditional and innovative approaches from different disciplines from ethnography to design. Situated in the heart of UNDP strategic programming, we are working with projects and partners to build a movement to reimagine solutions to create systemic transformation in Pakistan. The Lab is funded by the State of Qatar and the Federal Republic of Germany, and part of a global network of labs serving in 114 countries.

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Disclaimer: All the photos used in this publication were taken pre-covid.

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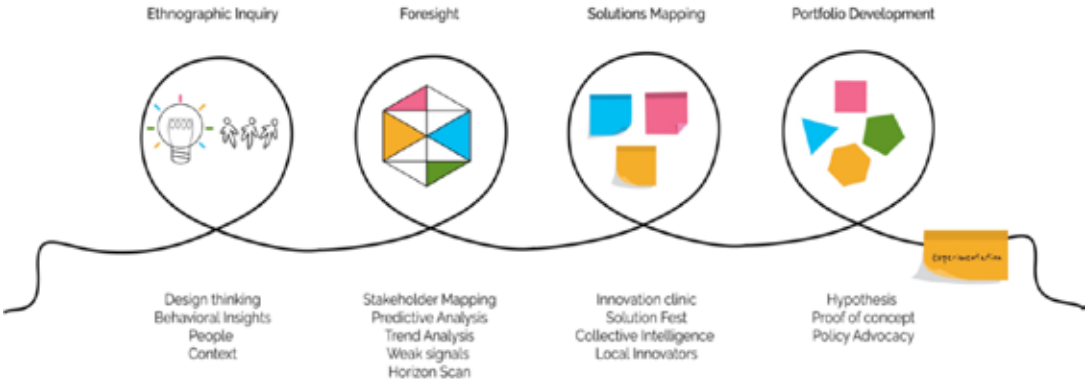
# SUMMARY

## HOW CAN WE **REIMAGINE OUR RELATIONSHIP WITH PLASTICS** IN PAKISTAN?

The problem of plastic waste pollution is complex, conditional and collective. It is a product, an industry, a habit and an entire consumption cycle with a systemic nature, touching many industries and sectors. UNDP Innovation-AccLab Pakistan started exploring this issue with the learning question: **how can we reimagine our relationship with plastics in Pakistan?**

Our journey of plastic waste management led us to investigate, map and examine the entire system of plastics, and multiple loops of sub-segments within it. This Intelligence Report highlights our approach in understanding the system, and key insights that came forward.




Some of our **key findings** from understanding the system include: End-user should be involved in the policy-making process as well as in the design of alternative materials; Instead of one-off linear solutions, the solutions need to be interconnected and should have longevity. We found out that **single point solutions and reactive policies do not work**; systemic solutions are needed as ban policies do not solve root issues. We also learned that even though single-use plastic bags can be banned, but the plastic that is used for packaging still remains, as these goods are imported; **Without a policy in effect, they cannot convince other stakeholders to follow complementary practices;** while PET bottles and other plastics of higher economic value get scavenged, most of the single-use, non-biodegradable plastic finds its way to open garbage sinks, landfill sites or municipal sewers, choking sewage disposal systems.

Using these key insights, we have developed a portfolio of experiments—where we are exploring and testing solutions to rethink supply chains, behavior and future policy all together to effectively minimize plastic waste. Our key learning goal of the portfolio is to create a circular system of plastics management in Pakistan by **testing** the new economic models, industrial and consumer behavior, policy shift and, engaging the private sector and other non-traditional partners.

# INTRODUCTION

## MORE THAN **3.3 MILLION TONS** OF PLASTIC IS WASTED EACH YEAR IN PAKISTAN

Pakistan has one of the highest percentages of mismanaged plastic in South Asia. More than 3.3 million tons of plastic is wasted each year in Pakistan and most of it ends up in landfills, unmanaged dumps or strewn about land and water bodies across the country damaging the environment and people's health. If we dump this waste collectively together, it reaches as high as 16500 m – that is the height of two K2 mountains, the world's second highest mountain in the world!

During the Innovation-Accelerator's Lab Exploration stage we found that current municipal waste management is a major problem. Waste is picked from communal bins and disposed of outside of cities without segregation, material recovery or recycling. Communities are not expected to take responsibility for the waste. The entire system of waste management is in effect a system of dumping waste without any management.

The issue of plastic pollution is a symptom of a larger system which is the linear take-make-waste model in which products are designed to be used once and then discarded. The Lab has deduced that the issue of plastic waste needs to be treated as a symptom of the larger linear *take-make-waste* system which is what really needs to shift towards a **circular economy model**. The system shift will ultimately be the sustainable solution. Therefore, Lab's learning question that we aim to answer is, *can we reimagine our relationship with plastic waste in Pakistan?*

The Lab is exploring what exactly entails reimagining our relationship with plastic waste in Pakistan by testing whether plastic waste is the problem or waste management? Whether we can turn waste into a resource? Most critically— the heart of our experiment— we want to understand how we change the way we think about waste and the system around it by understanding the people's behaviours and incentives in the system.

A core assumption for this work is that to meaningfully address the plastic waste challenge and create a systems shift will not be achieved through a traditional linear problem-solving project approach that features one (or a series of) single-point technical solutions. We need a holistic approach that uses systems thinking and tests a combination of solutions that creates the conditions towards a systemic movement into a circular economy.

Our key learning goal of the portfolio is **to create a circular system of plastics management in Pakistan by testing the new economic models, industrial and consumer behavior, policy shift and, engaging the private sector and other non-traditional partners.** We are exploring and testing solutions to rethink supply chains, behavior and future policy all together to effectively minimize plastic waste. It should not go out of mind even if it goes out of sight.

This vision is also in line with UNDP's global commitment to work with governments worldwide on business solutions for waste management. UNDP Pakistan is also part of the regional cohort of five Countries (Pakistan, Maldives, Vietnam, Sri Lanka, and the Philippines) that are working on the challenge of plastic waste management with the Regional Innovation Center in Bangkok.

## The problem space

The plastic waste pollution problem is complex, conditional and collective. It is a product, an industry, a habit and an entire consumption cycle with a systemic nature, touching many industries and sectors. Our journey of plastic waste management led us to investigate, map and examine the entire system of plastics, and multiple loops of sub-segments within it.

During our exploration field visits in some of the urban centers of Pakistan, we saw linear solutions for plastic waste management, like banning, and switching from single use plastic to multi-use alternatives. This was one side of the picture. We questioned, what's on the other side? To understand the complexity of the problem of plastic we need to move from linear to non-linear approaches, changing parts to rethinking whole systems. Is plastic waste an issue or plastic waste management is the issue? Not all plastic is bad, it's a product that still holds merit. If the system allows, how can we turn plastics from 'waste to resource'? How can we rethink our relationship with plastics in Pakistan?

Our initial scan of **desk research and exploratory calls** highlighted:

- Plastic waste is a bigger behavioural challenge than an infrastructural or environmental problem, starting from production to consumption, collection, sorting, and wasting.
- The policies, such as the ban on the use of plastic bags, are reactive and don't include people's perspective thereby loses its probability to stick.
- People are likely to follow regulations that are accounted for, even when they do not agree with the problem or are unable to see the larger impacts of non-regulatory actions.

To advance work on this portfolio, we started seeking partnerships that are aligned with our vision of developing a circular economy for plastics in Pakistan. We partnered with Unilever Pakistan— the organization has recently announced a multipronged ambition to reduce its plastic footprint and play its role towards a circular economy. To start off, the ambition was to turn Rahim Yar Khan (RYK)in Pakistan's Punjab province—home to Unilever's largest production plant in Pakistan— into a model zero-waste city. Along with Unilever, we started investigating, mapping, and examining the entire system of plastics in Pakistan, especially in RYK city.

**Insights** started surfacing— for example, while PET bottles and other plastics of higher economic value get scavenged, most of the single-use, non-biodegradable plastic finds its way to open garbage sinks, landfill sites or municipal sewers, choking sewage disposal systems. Through systems exploration in Lahore and ethnographic work • done in Islamabad, we found that current municipal waste management practices add to the scale of the problem. Its major focus is on picking waste from communal bins and disposing of it in urban fringes without segregation, material recovery or recycling. The current system also does not hold communities responsible for littering. **The question is that can waste management companies solve this complex problem?** Perhaps not on an individual basis, as that requires extensive advocacy and infrastructure support from both the public and private partners. Figure 01 presents problems in the system, consolidated from our exploratory and systems design work.

Our **methodology** in developing this portfolio included using ethnography for contextual inquiry to gain user's insights. Furthermore, we conducted systemic analysis, and mapped and collected solutions with the help of the community—listening to the community for research, and creating a community of practice for creating solutions via a Solutions Fest. The Solutions Fest brought together members of the local community, creatives, academia, innovators, environmentalists, private sector, engineers, social

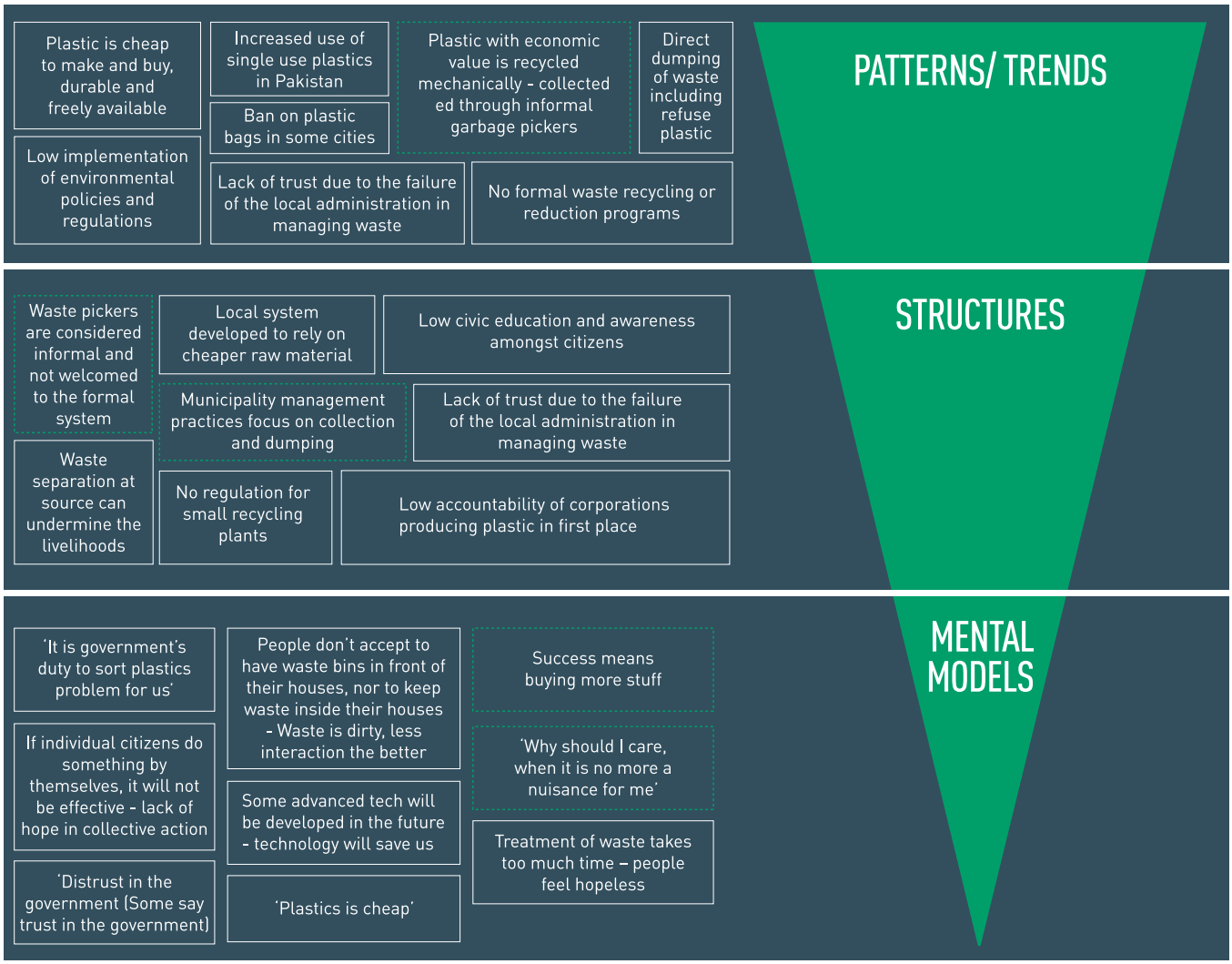



*Figure 01: Problems in the system: consolidated from all our exploratory and systems design work*

scientists, activists, architects, *juggaris*— all selected to ensure representation from all categories of thoughts, and practices around the plastic waste problem. This was to help us understand the context, policies, and relevant systems (formal and informal) in place and how different categories of people experience it. Along with this, with Unilever's team, we also held a systemic design workshop to further unpack plastics and identify related socio-economic challenges.

Our key learning goal of the portfolio is to create a circular system of plastics management in Pakistan by testing the new economic models, industrial and consumer behavior, policy shift and, engaging the private sector and other non-traditional partners. **Experimentation** is at the heart of this approach, to ensure we learn quickly. The results from testing these solutions will provide field-tested and holistic insights on effective solutions to develop a larger programme and policy on plastic waste and circular economy. We are seeking partnerships and collaborative synergies across sectors to build a movement that enables the larger community to join us in responding to the ongoing systemic collapse and leakages in the system's loop.

# METHODOLOGY

## EXPLORATION + SOLUTION MAPPING + EXPERIMENTATION

We used ethnography for contextual inquiry to gain user's insights. Furthermore, we conducted systemic analysis and solutions mapping through a community of practice, to understand the context, policies, and relevant systems (formal and informal) in place and how different categories of people experience it. It gave us quick insights on what has worked and what has not, in terms of formal structures and policies in place. It also helped us pinpoint leakages into the environment and gaps in the current waste management pipeline.

We used a suite of techniques ranging from:

- **Contextual Inquiry**; identifying emerging trends and entry points in the plastics management system
- **Systems Thinking**; identifying innovative solutions and experiment leads through System Design and strategic foresight
- **Experimentation**; developing a portfolio of learning experiments that will test multiple solutions.

### Why did we use the Learning Cycle approach?

For our work to be of productive value, we have to pivot constantly to respond to emerging and changing needs of our stakeholders as well as to cater/aim to fulfil/meet the larger mandate. The foundation underpinning of our ethos remains the same; Inclusivity, Learning, and Agility.

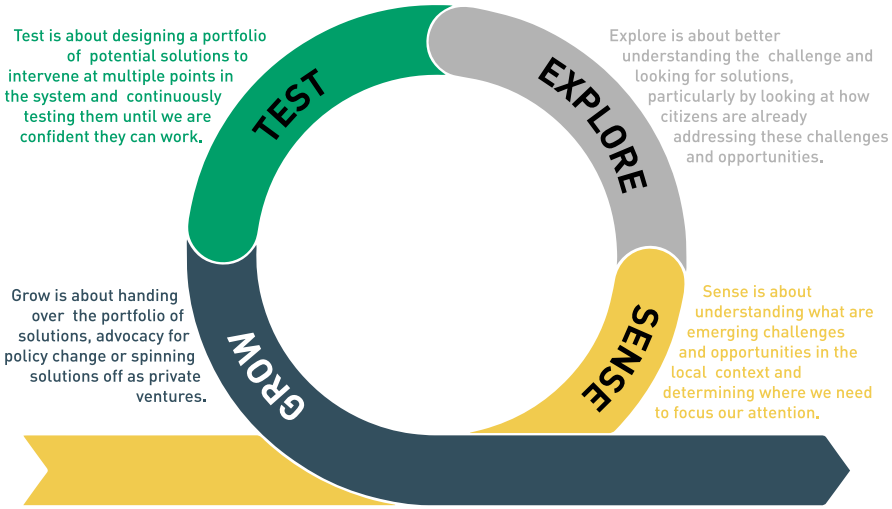



*Figure 02: UNDP Accelerator Labs learning cycle*

In addition, we have a toolbox of frameworks, methodologies and approaches borrowed from across disciplines. For this portfolio, we've used methodological frameworks from Design Thinking, Systemic Thinking and Strategic Foresight. We pick, choose and customize these tools with reference to the problems, teams, and objectives.

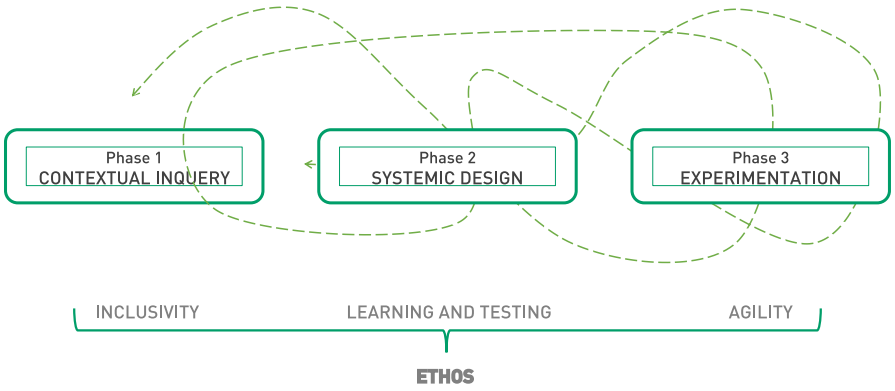



*Figure 03: Learning methodology used to design the portfolio*

| **Phase 1**<br>**Exploration & Contextual Inquiry** | **Phase 2**<br>**Systemic Design** | **Phase 3**<br>**Experimentation** |
|---|---|---|
| ***Getting a sense of the lay of the land*** | ***Holistically analyzing components of the complex problem and their inter and intra dependencies*** | ***What would work? And what wouldn't?*** |
| • Mapping<br>• Behavioural vs adaptive challenges<br>• Needs of citizens<br>• Consumption models<br>• Consumption habits<br>• Onus of decisions<br>• Influences<br>• Proximity<br>• Stakeholders<br>• Existing policies<br>• Awareness about 'waste,' 'plastic,' 'impact'<br>• Data mining, gathering and translation to information | • Mapping the plastic use of the city, environment, and inhabitants<br>• Deconstructing the system and problem<br>• Multi-factor study of dependencies<br>• Sequencing events, patterns, structures, models<br>• Pulling insights and hypotheses, running initial prototypes to proceed to experiments<br>• Organizing behavioural vs adaptive solutions | • Experimenting nudges<br>• Running cross factors experiments<br>• Testing behavioural vs adaptive hypothesis<br>• Measuring influences, change, and its impact<br>• Capturing learning<br>• Adopt and iterate |

PHASE I

# Contextual Inquiry

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# PHASE 1 | EXPLORATION AND CONTEXTUAL INQUIRY

## Issue mapping | Stakeholder consultations

### (Rahim Yar Khan city)

Resisting the assumption that we already 'know' the problem well, we mapped the issue through a series of stakeholders' consultation sessions, capturing voices of local citizens of Rahim Yar khan city, along with people living in Unilever's estate in the city.

Our ethnographic research work included consultative sessions with five groups:

- **Homemakers**— this group was chosen from Unilever Estate in RYK city
- **Caregivers**— this group was chosen from Unilever Estate & factory in RYK city
- **Academia**— local private & public schools administration
- **Municipal Corporation**— representatives from local Municipal corporation managing a waste domain of the local administration
- **Industry partners**— this group included representatives from other multi-national companies including ENGRO, Fatima fertilizers, and Etihad etc

*Consultation sessions with homemakers, academia, caregivers, municipal corporation, and industry partners. © Shuja Hakim*

Detailed description of challenges identified, and suggested actions can be found in Annex-I (page 25). Figure 04 (below) presents a summary of key findings from stakeholder consultations. From each consultation session, challenges and desired action items emerged, which were chalked out through a priority matrix. This matrix was run parallel to the portfolio of experiments.

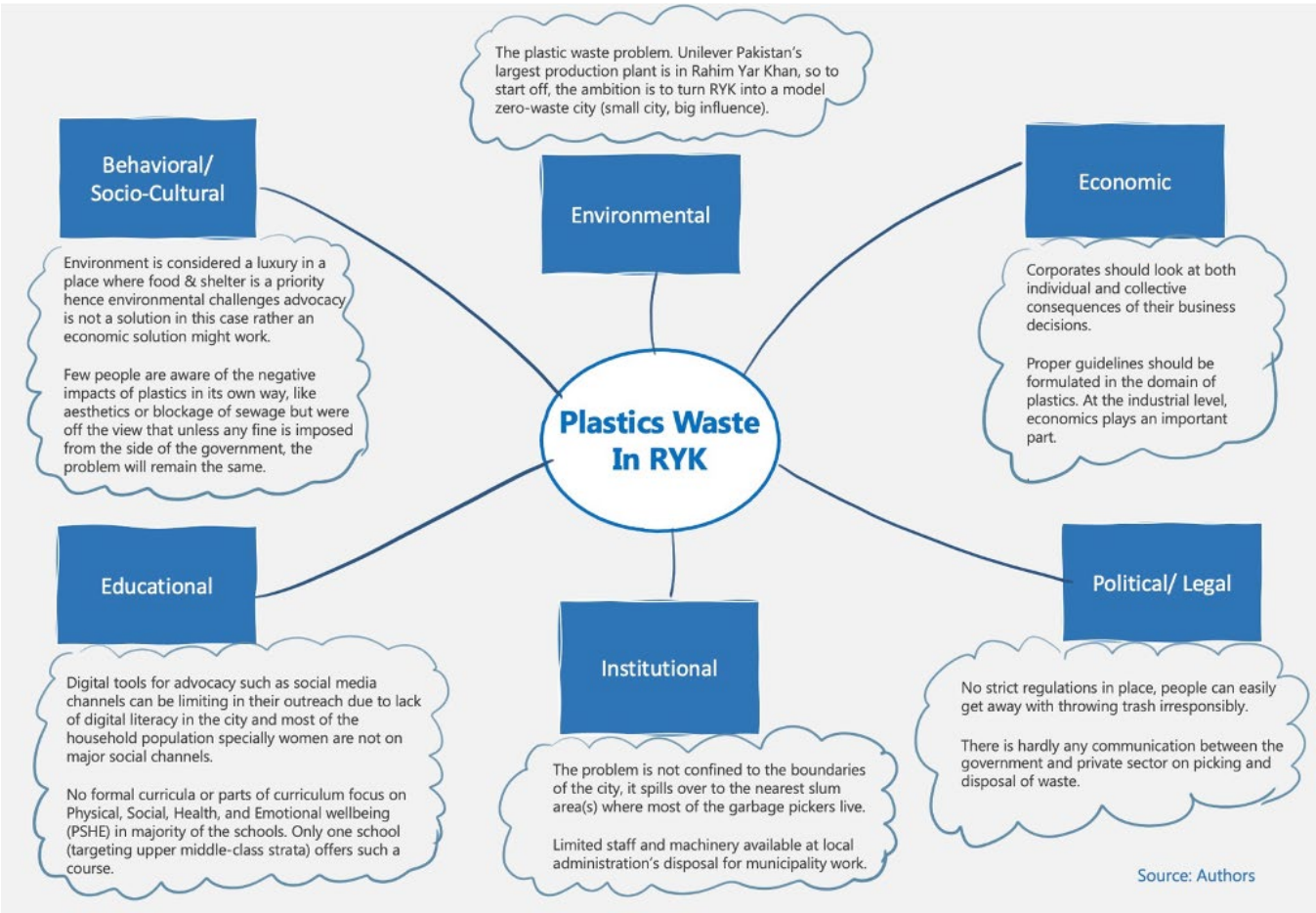


*Figure 04: Summary of key findings from stakeholder consultations in Rahim Yar Khan*

## Issue mapping | Market visits

### (Lahore, Islamabad, Rawalpindi and Rahim Yar Khan)

We explored the plastics waste management issue by observing the stakeholders and community. We did our field research in four cities of Pakistan; Islamabad (F-10 Markaz & Aabpara market); Rawalpindi (Dhot Hasu, Chaklala market, & DHA 2 market); Rahim Yar Khan (market spaces); Lahore (market spaces).

The group that we did our research with included formal, and informal vendors, informal waste collectors, and shopkeepers—mostly people that require regular use of plastic bags on a daily basis. More specifically:

- Dry fruits and nuts shops
- Fruits and vegetables shops
- Dairy products shops (milk, yogurt)
- Retail/General store vendors
- Informal waste collectors
- Informal waste buyers
- Plastic packaging vendors/ manufacturers
- Recycling facilities
- Street Hawkers/ Scavengers

Our first question was on the plastic ban by the Federal Government. We wanted to know how did consumption patterns and people's behaviours shift after the ban and what alternatives emerged as a result of the ban? (See Annex-II (page 27) for our research questions, problems identified and suggested action from research with vendors in all cities).


*Unstructured market visits in Rahim Yar Khan. © Shuja Hakim & Javeria Masood.*

To understand the complexity of the problem of plastic we need to move from linear to non-linear approaches, changing parts to rethinking whole systems.

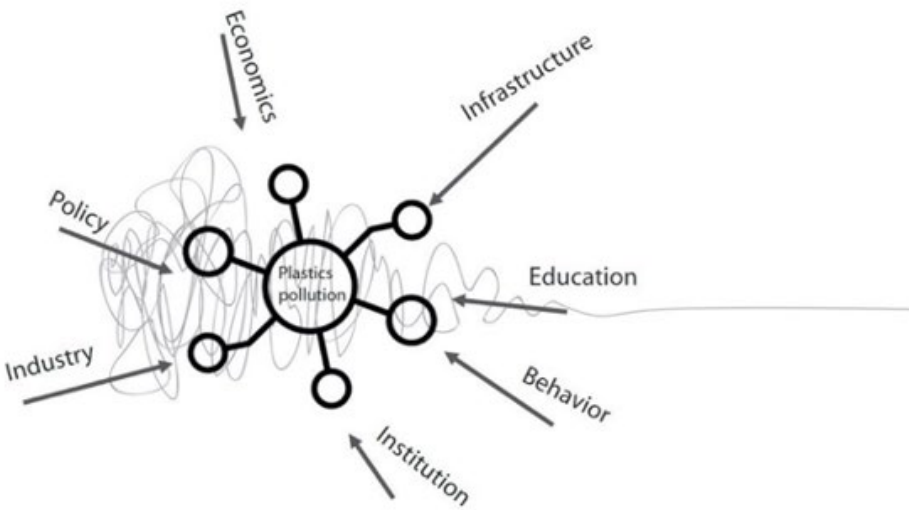


*Figure 05: The problem of plastic pollution is complex, conditional and collective. It is a product, an industry, a habit and an entire consumption cycle with a systemic nature, touching many industries and sectors.*

Some of the key insights that emerged from the research/ survey:

- **End-user should be involved in the policy-making process as well as in the design of alternative materials.** We found that vendors that sell dairy products and meat cannot replace plastics with the suggested alternative like cloth or net bags. They lose business to counterparts who still use plastic bags, if customers forget to bring their own bags. *"We can't use net bags for carrying meat as the bag would leak. Poultry, meat and dairy products require plastic bags," said one vendor.*

**Instead of one-off linear solutions, the solutions need to be interconnected and should have longevity.** We found out that **single point solutions and reactive policies do not work**. Unpacking, and understanding the problem is required through a systems thinking lens. *"We need to introduce an alternative that should be in-stock, and should be available at the same rate as we get plastic bags," said one vendor.*

**Systemic solutions are needed as ban policies do not solve root issues.** "*Banning plastic bags is a good initiative. There are alternatives like cloth bags," said one vendor. "But still, there is no replacement for garbage bags, and garbage can't go in a cloth bag,"* We also learned that even though single-use plastic bags can be banned, but the plastic that is used for packaging still remains, as these goods are imported.

The same can be observed for local waste collectors and intra-city municipal companies. Just like banning the plastics bags, organized collection alone doesn't solve the problem. They might collect waste in an organized manner, but generally there is leakage in the system. **Without systemic solutions and policy in effect, they cannot convince other stakeholders to follow complementary practices.**

## Solutions Fest

We wanted to bring people at the heart of the process, where we curated a community problem solving engagement to address the issue of plastic waste, and use the intelligence of the collective. We wanted to involve multiple perspectives and upcycle plastic waste into functions prototypes as a way to cater to the environmental problem of single use plastic waste.

We held a Solutions Fest, where we created a space for the community and designers to come together and solve the plastic waste issue. This approach is used to have creative solutions to a problem. The act of making a physical prototype allows for a better understanding of the problem. In this case, we brought designers, community—the very non-traditional actors—to come together in a space and turn plastics waste into usable products.

*A community of creatives, academia, innovators, environmentalists, private sector, engineers, social scientists, activists, architects, juggaris at Solutions Fest. © Saniya Bashir.*


*A community of creatives, academia, innovators, environmentalists, private sector, engineers, social scientists, activists, architects, juggars at Solutions Fest. © Saniya Bashir.*

We brought diverse participants—members of the local community, creatives, academia, innovators, environmentalists, private sector, engineers, social scientists, activists, architects, *juggaris*— all selected to ensure representation from all categories of thoughts, and practices around the plastic waste problem.

Over the course of three days, participants explored with materials, tested connectivity, worked with tools and mechanics, made structures and improved on iterations. Each group focused on responding to the problem of plastic waste generation, and on creating a system for a circular economy. During the buzz of the hammering, chiseling, printing, breaking, hot pressing, molding—we held regular check-ins to encourage participants to think with a systemic lens, user perspective and longevity. We encouraged them to think about; *Why are they designing what they are designing? Who will use it? Who will benefit from it? How long will it stay? What are all the applications? What is the connection with the market?*

Some of the final prototypes that emerged ranged from (as seen in the pictures);

1. A model that uses solar power to collect rainwater,
2. A shelter for stray animals,
3. Trash-can system that can use gamification for upcycling plastic waste,
4. A conveyer belt from refused plastic, that can be scaled at a commercial level,
5. A solar dish that turns plastics waste into green gas, amongst others.

A showcasing planned for these prototypes, which could not take place due to COVID-19, to facilitate their uptake as solutions, with later iterations, and scale-up.

Using this approach allowed us to bring the local community at the heart of the problem. This helped involve multiple perspectives and upcycle plastic waste into functional prototypes as a way to cater to the environmental problem of single use plastic waste.

PHASE II

# Systemic Design

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# PHASE 2 | SYSTEMIC DESIGN

## Using design and systems thinking

After the exploration and contextual inquiry stage, we deep dived into **Systemic Design**— an approach developed by Alberta CoLab that combines Systems thinking with Design thinking— and strategic foresight work sessions which support heavily in informing the project at a strategic level by:

- Having an in-depth understanding of the current system by using the intelligence of the collective,
- Being able to identify the stakeholders and hone out personas to know their motivations, influences, and problems,
- Identify the roles of formal and informal influencers,
- Being able to collectively brainstorm, ideate and envision the future of the system and multiple projected scenarios (desirable and undesirable),
- Identify shortcomings and gaps between the current system, and the desirable futures,
- Planning for the agents of change, with the right persons and,
- Developing a strategy with experimentation leads

Additionally, these are great tools to i) bring everyone on the same page ii) get buy-in, promote the community of collaboration iii) fast track the research and strategy stages.

Using the systemic and portfolio lens, the work was structured in three segments;

1. Pre-session work,
2. Systemic design session, and
3. Post-session

Systemic Design is an approach developed by Alberta CoLab that combines Systems thinking with Design thinking. This approach helps us understand the current system, bring stakeholders together, place people in the system, bridge 'blind-spots' in the system, and bring a shift in the system through experimentation. We used this approach in the circular economy portfolio to understand the complexity of the problem of plastics—to move away from linear approaches and to rethink the whole system.

**Pre-session** work mostly focused on research on policy frameworks, and users (ethnography) and solutions mapping that helped us understand the context, policies, and relevant formal and informal systems of waste. We gathered insights on what has worked and what hasn't in terms of formal structures, and policies in place. It also helped us pinpoint leakages into the environment, pain points, and gaps in the current waste management systems. We gathered insights on what has worked and what hasn't in terms of formal structures, and policies in place. It also helped us pinpoint leakages into the environment, and gaps in the current waste management systems.

**Systemic Design Session** was a four days engagement that started with augmenting ethnographic research through interactions with Unilever Pakistan's team, and observation and documentation in markets with waste collectors, vendors, shopkeepers, along with consultation sessions with stakeholders (caregivers, homemakers, academia, municipal corporation, industry partners). Following pages (19-22) provide a detailed description of the Systemic Design sessions

Here is a summary of insights from the Systemic Design Session:

- ***Order in chaos:*** Collection, sorting and disposal of waste that we consider informal and hard to cover is actually very organized. There is a constructed chain, rates of buying and selling, designated people and spots. It's now a matter of how to acknowledge it as an asset that can be part of the formal system.
- ***Convenience trumps everything:*** The problem is not just about getting rid of plastic or decreasing production. It is about changing structures and mental models. It is also largely our behavior and perception, derived by consumption, and by the most convenient options available.
- ***Economic Psychology****:* People adapt to change when there are economic incentives attached. This aspect impacts the decision making of small producers and retailers and businesses where the profit margin is small. Incentivization can be powerful; this insight can be used to build hypothesis for experiments.
- ***Multiple connected & systemic interventions:*** Finding solutions and testing interventions need to be aligned on multiple factors, i.e., it should be as systemic as the problem. As we observe, single-entry point solutions often solve one problem but create several new ones. Widespread but unprepared plastic bans exemplify it.
- ***A participatory approach is critical:*** Social. Social. Social. Getting all relevant people in the room while tackling the issue is key. A participatory approach will lead to better buy-in and more informed strategy, based on what motivates people and how they can change.

**Post-session**. We used insights from the session and field work to design a set of hypotheses, which are passed on for the experimentation cycle.

## Systemic design session

### Stage 1: Current state mapping


*Mapping the current state of the plastic system in Rahim Yar Khan*

Using design tools to visualize the system in the form of a big picture, we explored plastics, and waste as a complex problem. Looking at it holistically we asked for a deconstruction to begin with. To deconstruct for study purposes, we segmented it into four groups:

**Waste generation**: manufacturing
**Waste generation**: consumption
**Waste handling:** sorting, collection, and transportation
**Waste disposal/recycling:** post usage

We sketched relevant actors and elements in our current state mapping. We attempted to draw and label relationships and show abstract ideas metaphorically including stakeholders/ social angles in the big picture.

**Key Insights**

- Corporates have a huge influence in the market, especially for medium and large enterprises
- Lack of policies results in ambiguity and irresponsibility
- The informal sector despite being informal, operates formally, with set rules, rates and managers
- Too many collection points and multiple layers create confusion and loopholes of responsibility
- Out of sight is out of mind
- Sustainable practices process is costly

Nothing goes to waste in the system except the low quality plastic bag

## Stage 2: People in the system


*Persona development: placing people in the system of plastics*

Based on ethnographic research, immersive, and participatory inquiry of people and their context, we **developed personas.** We place them in the system to understand where they fall, in terms of how well the system treats them, and what is the impact on both the influenced and influencer. This allows a more coherent and predictable picture of how the design decisions will impact people and where to adapt and pivot. This process also allows us to connect empathetically; making it real.

**Persona development** is how we place people in the system. These are patterns or narratives that are repeated or operating. The personas are based on the narrative analysis. They are not merely based on the demographic data or quantitative analysis—they represent unified perception, behavioral and thinking patterns. Placing people in the system helps us understand their needs, behaviors, influences, challenges, and allows us to connect empathetically. While testing solutions, personas help us form a more coherent and predictable picture of how the design decisions will impact people and where to adapt and pivot.

**Key Insights**

- People are likely to do what is common in their surroundings. There is greater resistance to change when influencers criticize the new approaches
- The ban should be imposed partially or selectively -- for example, a ban should not be imposed on milk and yogurt shops without alternative options to make it easy for people to follow
- People genuinely want improvement and want to contribute
- Infrastructure and policy. For example, waste segregation at home is useless if it all ends up in the same pile at collection and disposal
- People respond well to incentives and appreciation models

## Stage 3: Future State mapping


*Future state-mapping: participants visualized an ideal future state for plastic waste management*

In this exercise, participants visualized an ideal future state for plastic waste management. It is helpful to zoom out, put aside analytics, restraints, and conformities and instead just imagine a desirable future or futures. The process includes thinking beyond the obvious and bringing in parallel thinking and creativity. Not focusing on what cannot happen, it instead pushes us to think of '***how to***' and '***how might we/how we might***'.

This was helpful in framing the strategy, as well as developing hypotheses for the experiments.

**Key Insights**

- The plastic ban should be imposed partially or selectively -- for example, the ban should not be imposed on milk and yogurt shops
- Corporates should look at both individual and collective consequences of their business decisions
- Bypassing the middle few stakeholders and processes can bring huge efficiency, cost and waste reduction
- Outskirts of cities and their relevant stakeholders can play a pivotal role in streamlining the waste cycle
- Systemic strategy to be taken up as opposed to single point interventions
- Looking at the past when planning for future
- Readiness of all stakeholders to be measured
- Innovation and digital components to be included and made easy for use

## Stage 4: Gap analysis

Overlying the current and future states (insights from stages 1, 2 & 3) showed some clear major gaps in categories of infrastructure, education, behaviours, policies, environment, and finances. This process of dilution brings forward a guideline for strategies and pilots.

**Key Insights**

- The disparity between what is asked of people and what is enabled
- Corporates should look at both individual and collective consequences of their business decisions
- Some industrial representatives believe that an appetite does exist where they can give Unilever their plastic waste by segregating at source and mechanisms should be developed to hold companies accountable
- Proper guidelines should be formulated in the domain of plastics. At the industrial level, economics plays an important part

Innovative solutions must be thought of, for example, in some countries 2 bottles=1 free ticket for the train (reverse vending machines); reuse is better than recycling – the latter takes up too much energy which leads to depletion of natural resources


PHASE III

# Experimentation Snapshot

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# PHASE 3 | EXPERIMENTATION SNAPSHOT

## Experimentation

Creating interventions in this area is new, and thus requires experimentation. As a result, we propose creating a portfolio with a wide range of stakeholders including the private sector, government counterparts and the local community to experiment with different solutions to see what can create shifts in the wider systems. We are looking at creating experiments around key points of the system around plastic waste, **policies, technology, industry, infrastructure, and behaviour.**

Single-point solutions can-not solve complex problems like plastic waste management. A **portfolio approach** to experimentation allows us to develop and test multi-factorial solutions. In simple words, putting the problem at the center and throwing inter-connected experiment bets across multiple factors to generate systemic change. For our circular economy portfolio, we are looking at creating experiments around key points of the system around plastic waste, policies, technology, industry, infrastructure, and behaviour.

Being a complex problem space, the experiments designed are cognizant of the limits of its influence. As such, the focus of this work is to holistically understand what will work, in what context, and why. This will position eventual subsequent efforts to scale intervention better, so that they are properly designed to achieve the impact we collectively desire. These categories represent the key levers of change in the system that was mapped out with Unilever and through our field work. Each of the experiments within these categories will allow us to learn what combination of solutions, policies and behavior change tactics are needed for policies and programming for reimagining our relationship with plastics in Pakistan.

The figure below (05, 06, & 07) show the **portfolio of experiments** across three domains

1. Build infrastructure for down cycling of plastics
2. Enable and test new behavioural and business practices
3. Influence policy frameworks to scale and sustain the new practices/model.

# How might we turn RYK into a zero-waste city, by embedding Circular Economy?

Following suit of the global partnerships, our CO and Unilever Pakistan are also exploring the plastic waste problem. From Systems and Solutions lens, Innovation- AccLab Pakistan has been working with both over the last couple of months to design the best way to understand, deconstruct and plan work for the plastic waste problem. As John Kolko would say, what a wicked problem! Steering the innovation front, did a systemic design workshop in Rahim Yar Khan (Unilever has a big set-up here. Small city hence big influence).

People we interacted with included Unilever staff (all segments), management, municipal corporation inspector, housewives, retailers, informal waste collectors, sorters and sellers, and general citizens.

I will be putting the work in a blog but below are a few insights

**1. Order in chaos**

Collection, sorting and disposal of waste that we consider informal and hard to cover is actually very organized. There is a constructed chain, rates of buying and selling, designated people and spots. It's now a matter of how to acknowledge it as an asset that can be part of the formal system.

**2. Convenience trumps everything**

The problem is not just about getting rid of plastic or decreasing the production. It is about changing structures and mental models. It is also largely our behavior and perception, which around consumption is derived, largely by the most convenient available option.

**3. Economic psychology**

Infrastructure, policy, education, behavior, governance, on one side and micro-economics on the other.  Mainly this aspect affects the decision implementation for small producers and retailers and small businesses where the profit margin is small. Incentivization is powerful; good space to explore social currency.

**4. Broadband intervention**

Finding solutions and testing interventions needs to be aligned on multiple factors, i.e. should be systemic as is the problem. As we observe single-entry point solutions often solve one problem but create several new. Widespread but unprepared plastic bans seem to exemplify it.

**5. Participatory approach**

Social. Social. Social. Getting the all relevant people in the room while tacking the issue is key. Participatory approach will lead to better by-in and more informed strategy, based on what motivated people and how they can change.

## 1. Build infrastructure for down cycling of plastics

Alongside Unilever, we identified Rahim Yar Khan as our intervention site for building and improving the current infrastructure for municipality management and down cycling of plastics waste in the city. In our first round of experiments (January 2021- May 2021), we tested an economic model for Plastic / Solid Waste Collection, Treatment and Disposal System for a local area (intervention area) and, if the results permit scale, it to city-wide intervention in Rahim Yar Khan. The sub-portfolio entailed the following experiments:

I

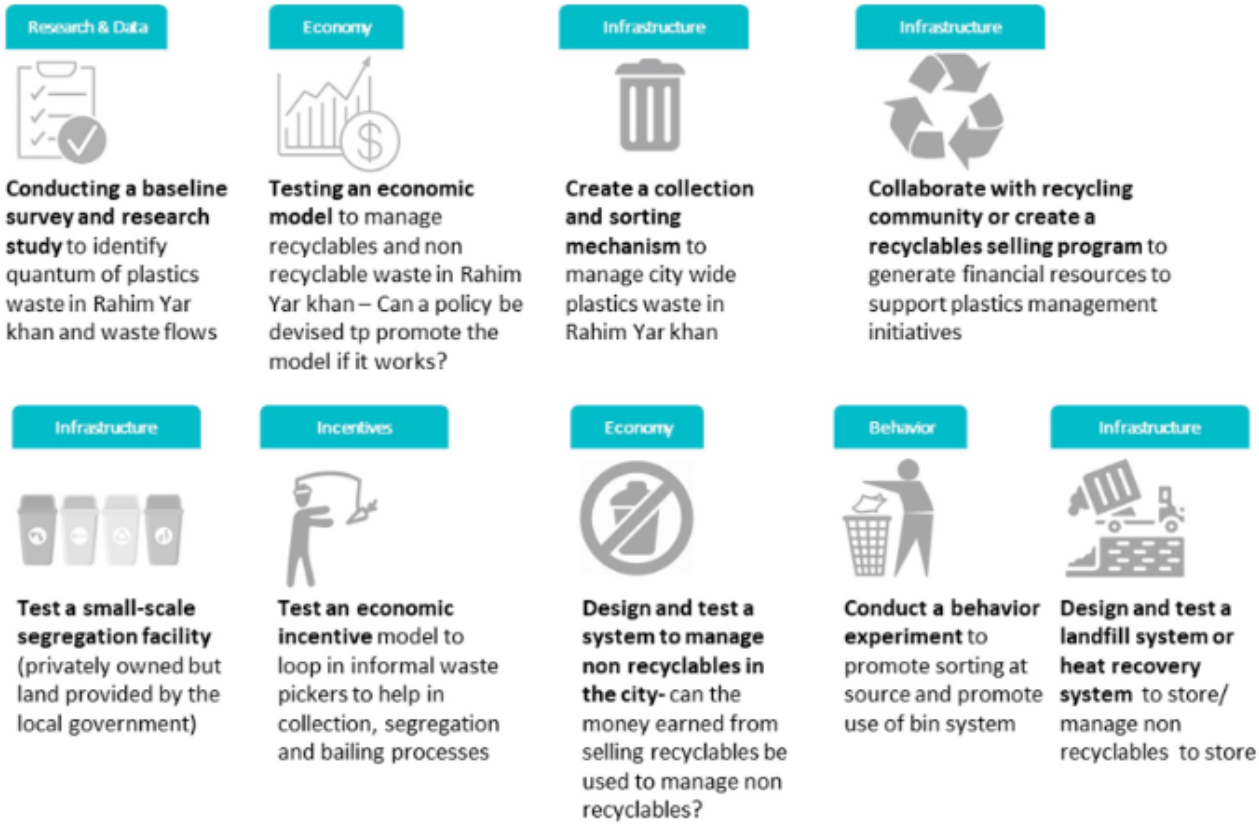


*Figure 06: Infrastructure for downcycling experiments*

## 2. Enable and test new behavioural and business practices

In order to build an ecosystem around plastics waste management in corporate and civic space, we need to enable and test new behavioural and business practices. This will help us rethink our relationship with plastics, leverage behaviour sciences to re-shift consumer thinking, add further vibrancy to circular businesses to promote a culture of recycling and managing waste better. The sub-portfolio entailed the following experiments:

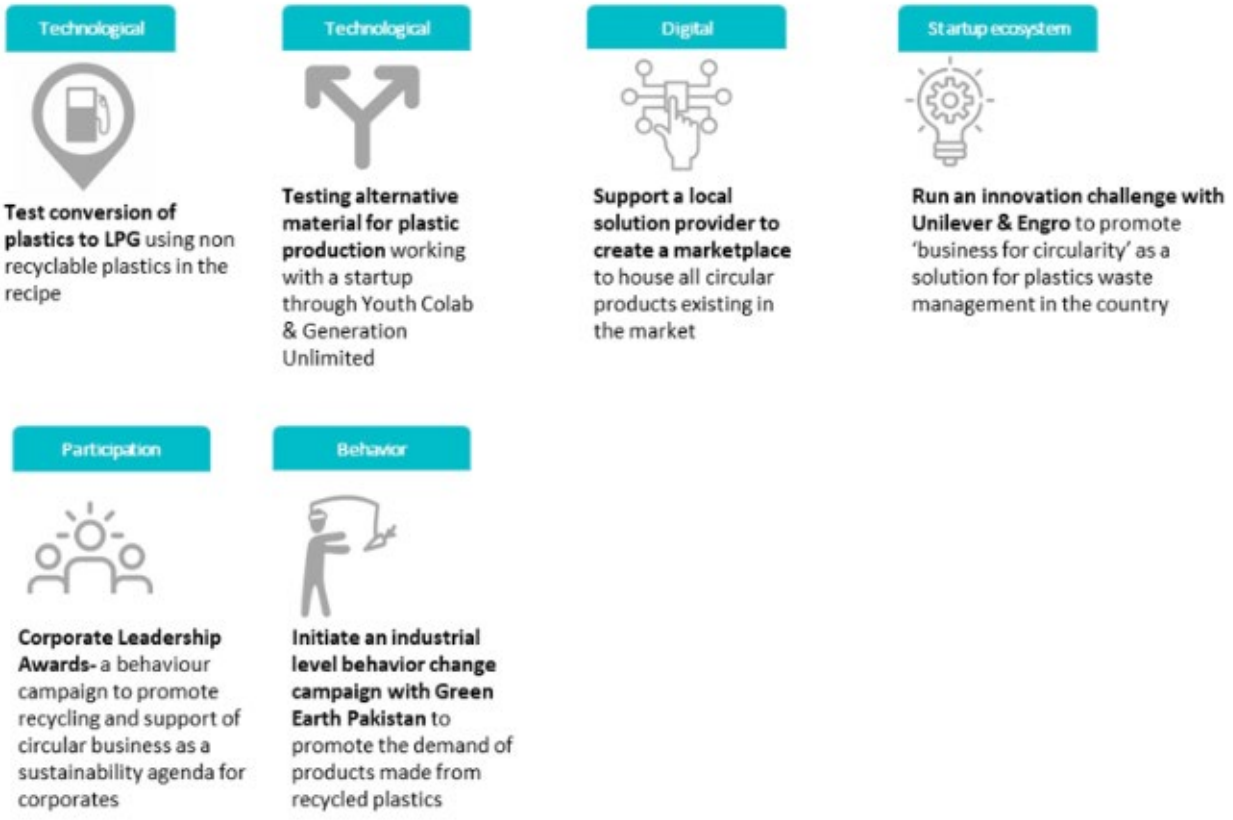


*Figure 07: Behaviour & business practices experiments*

## 3. Influence policy frameworks to scale and sustain the new practices/model

This portfolio wishes to create a platform for policy makers, community members, sustainability enthusiasts, private sector champions and other key stakeholders to rethink the circularity of plastic waste in the country by designing & experimenting with policy frameworks to scale and sustain the new practices. Furthermore, looking into the future, we will discuss how and when Pakistan is likely to transition to a circular economy, leaving the linear economy behind. The learnings from multiple experiments will feed into our current and future policy frameworks and stir a debate around plastic waste management practices. The sub-portfolio entailed the following experiments:

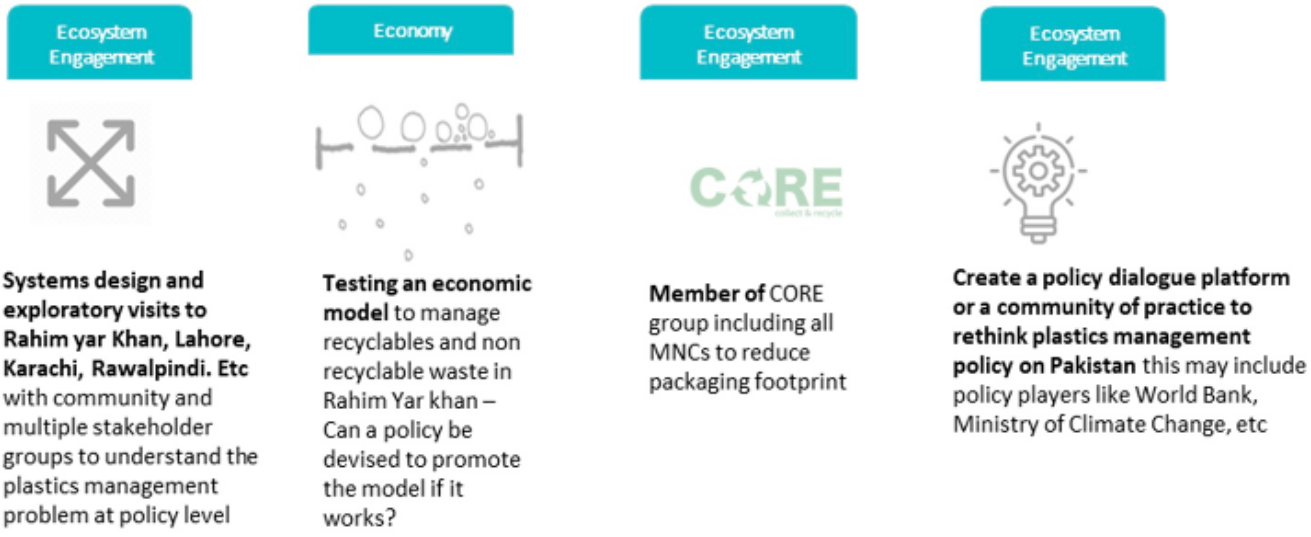


*Figure 08: Policy framework experiments*

### Data & Research

While working on the portfolio, there was a major gap in data availability majorly around the quantum of recyclable and non-recyclable plastic waste produced, recycled, disposed of or mismanaged in the intervention city. We conducted a baseline survey coupled up with our systems inquiry work to generate both quantitative and qualitative data to inform our strategic plan and enable us to make evidence driven decisions.

### Engaging Partners

One of our underlining ethos of the portfolio is to engage with traditional and non-traditional partners from the get-go. We have partnered with local governments, municipality administrations, the private sector (Unilever Pakistan, Nestle Pakistan, Coca Cola, etc.), academia (LUMS, NUST, UET), etc. We have leveraged upon partners' access to networks, generate collective intelligence, create and share knowledge across channels and look into financing models for the portfolio.

# Annex-I

Description of challenges identified and suggested actions from stakeholders' consultations in Rahim Yar Khan

## Home-makers group (women)

### Challenges identified

- Garbage dumping sites/dumpsters are in bad condition. Homeowners usually avoid throwing trash in large dumpsters and prefer to depend on caregivers. They in turn are not concerned about proper disposal and leave the garbage outside or around the dumpsters
- No decanting or sorting of trash is done before throwing it away, at the household level. One of the major concerns is that if the waste is segregated at source, they are not sure if it remains segregated throughout the disposal process
- Very few people consider trash as a problem bigger than just a nuisance. It fits well for the proverb, out of sight, out of mind. If people do not see the trash in their environment, they are least concerned about what happens next with it
- Digital tools for advocacy such as social media channels can be limited in their outreach due to lack of digital literacy in the city and most of the household population especially women are not on major social channels
- No strict regulations are in place; people can easily get away with throwing trash irresponsibly
- No formal complaints or feedback mechanism in place for garbage disposal or municipality issues
- Distrust in the local system about waste generation/collection/segregation and disposal is evident
- The environment is considered a luxury in a place where food & shelter is a priority hence environmental challenges advocacy is not a solution in this case rather an economic solution might work

### Suggested Action

- Local governments need to step up to the challenge and involve other key stakeholders including schools and madrassas (religious schools) to address the awareness gap
- From incentive or fine to tackle waste- most of the people of this group chose to get fined. For example, Rs 1000 or Rs 2000 in incentive doesn't sound a lot but a fine of that amount does!
- Changes in an individual's lifestyle and waste management practices are imperative although behaviour change at a societal level will take its due course of time
- Economic incentives for recycling and reusing can really push caregivers and garbage pickers to minimize the leakage of plastics into the environment
- Women groups at the local level can also be convened to ensure accountability of local municipalities and waste management systems if proper feedback/ complaints mechanism is put in place

## Caregivers group

### Challenges

- Rahim Yar Khan city produces mixed waste and no segregation happens at source. Furthermore, nobody encourages to do so as well
- Two decades ago, thalis (cloth bags) for grocery shopping were considered a normal practice however now people rely on plastic bags more than ever probably because it is cheap and easily accessible
- Awareness and advocacy campaigns done through TV or other social channels are not as powerful as word of mouth
- Few people are aware of the negative impacts of plastics in its own way, like aesthetics or blockage of sewage but were off the view that unless any fine is imposed from the side of the government, the problem will remain the same
- There are many private companies working in the area, like Unilever, that give their trash to Khan Brothers. The same trend is observed with large residential colonies in the city
- The problem is not confined to the boundaries of the city, it spills over to the nearest slum area(s) where most of the garbage pickers live
- One-off cleaning drives are not enough, the state of trash goes back to default as nothing is done at the source level.

### Suggested Action

- Awareness campaigns around 9 pm on local TV channels can be helpful in spreading the message through a person to person campaign
- Proper fine and penalty mechanism need to be put in place to force people to change behaviours
- The local government needs to take responsibility for littering in the surrounding areas of the city. Throwing waste to nearby slums is not a solution. A proper municipality system is a need of the hour.
- Large corporations need to be held accountable ambit alongside karyana (grocery) stores

## Accademia Group

### Challenges identified

- Generally, people in Rahim Yar Khan city are care-free and are not ready for behaviour change, when it comes to managing their own waste
- Shifting mindsets will require systemic thinking where educational institutes are involved for a more robust outreach of the key messages
- No formal curricula or parts of curriculum focus on Physical, Social, Health & Emotional wellbeing (PSHE) in a majority of the schools. Only one school (targeting upper middle-class strata) offers such a course
- Incorporation of arts and crafts for spreading awareness can be useful; local examples for such activities do exist
- School management in general is aware of the negative impacts of plastics but no comprehensive response exists as this is not considered a priority challenge by local administration or other key partners
- Few of the schools have banned plastic shopping bags on school

premises and are discouraging the wide use of plastic items (such as spoons and forks) on campus premises, though more advocacy is required at the household level as well.

**Suggested Action**

- Continuous awareness is required — "constant nudging" to reinforce the message
- Fine and incentives, both are important, maybe a quick experiment can help strategize regulatory action better
- Better awareness through using arts and crafts techniques i.e., trash to use model
- A comprehensive action plan for waste management and awareness for all schools should be introduced for collective action
- Schools should be encouraged to ban or minimize the utility of single use plastic items including bags, cutlery items, notebook covers, etc.

### Municipal corporation

**Challenges identified**

- Limited staff and machinery available at local administration's disposal for municipality work; Rahim Yar Khan city is divided into 50 wards; 8 sanitary workers/ ward; each sanitary worker covers around 100-200 households daily ensuring door to door collection waste; a total of 450 sanitary workers in the city
- The municipality staff has limited or no proper training; no segregation facility and no comprehensive methodology for recycling the waste that exists in the city
- There is no formal dumping site in the city
- There is a dearth of data available on recycling of plastics or scavengers' activity
- There is a newly designated landfill in Patan Minar few kilometres away from Rahim Yar Khan city - but no proper mechanism exists to take the waste there. The land is approximately 400 kanals (approximately 20 Hectares)
- There is hardly any communication between the government and private sector on picking and disposal of waste
- The local administration receives around a hundred complaints per day and there are only five people in the team to help resolve these, but no feedback mechanism exists hence no data on how many get resolved in real time
- The sanitary workers, on their own, also collect the plastic waste and sell it to local recyclers but that is not under the control of the Municipal Corporation (individual activity)

**Suggested Action**

- The government needs to increase the staff capacity of municipality corporations and introduce formal collection, segregation, and disposal mechanisms
- More collection vehicles and machinery need to be brought into the system (currently a total of 14 hydraulic-trolleys exists only)
- Complaints and feedback systems need to be introduced with more accountability and transparency
- Dumping sites need to be identified and demarcated with proper signage and management of sites

### Industrial group

**Challenges identified**

- Mechanisms to be developed to hold companies accountable
- Reuse is better than recycling— the latter takes up too much energy which leads to depletion of natural resources
- Waste segregation should be encouraged at source
- A separate mechanism for segregation of hazardous waste
- Incentive vs. fine-- incentives can encourage behavioural change
- At the industrial level, economics plays an important part
- Engro revealed that most of their waste, even gloves are reused, and the surplus waste is auctioned
- All agreed that the government needs to provide infrastructure and needs to enforce laws related to waste management
- Models that are being implemented in other countries related to waste management can be replicated here
- Products should be viewed through a life cycle analysis lens rather than looking at end of pipe impacts
- Some incremental innovations were made at the industry level to minimize the plastics waste (disposable liner of fertilizers' bags and the recyclable bags)
- Other industrial representatives believed that appetite does exist where they can give Unilever their plastic waste by segregating at source

**Suggested Action**

- The ban should be imposed partially or selectively - for example, it should not be imposed on milk and yogurt shops
- Corporates should look at both individual and collective consequences of their business decisions
- Other industrial representatives believed that appetite does exist where they can give Unilever their plastic waste by segregating at source; mechanisms to be developed to hold companies accountable
- Proper guidelines should be formulated in the domain of plastics. At the industrial level, economics plays an important part
- Innovative solutions must be thought of, for example, in some countries 2 bottles=1 free ticket for the train (reverse vending machines); reuse is better than recycling - recycling takes up too much energy which leads to depletion of natural resources
- A separate mechanism for the segregation of hazardous waste should be in place

# Annex-II

Questions explored during the unstructured market visits:

- Are you aware of the recent ban by the government on single-use plastic bags?
- How is your business/ work/retail/customer dealing affected by this ban?
- How are you coping with it (reacting, responding, following, ignoring, finding hacks)?
- Why do you think the ban has been placed?
- Do you think this will create any impact, change, shift?
- Are others around you following it?
- Are you using alternative materials in your personal life?
- Do you think the ban will stay for long?
- Do you think people's change of alternative materials will sustain?
- What are the reasons for some people resisting this ban?

**Challenges/Problems Identified**

**Dry fruits shop and fruits & vegetables shop**

- Customers usually ask for two plastic bags rather than just taking one even for the smallest & lightest of things
- The shopkeepers foresee that a ban without alternatives will affect their business
- Plastic bags are an environmental problem as they get stuck in gutters and disrupt the sewerage system in the city especially in the markets
- On average a single dry fruit shop uses 7-8 kilos of plastic bags in a week
- On average a single fruits & vegetables shop uses 2 kg of plastic bags per day
- The kabariya (informal waste collector) has 15 children as scavengers who spread out at night, collect the waste and act as transporters of waste from dumps to the recycling site
- A small-scale vendor said that there is no life without plastics

**Milk and Yogurt shop**

- Limited knowledge of recent ban on plastics by government in multiple cities
- Some customers still come with their own utensils and containers
- On average a single milk yoghurt shop uses 200-300 plastic bags a day mainly due to the convenience factor of plastic bags
- They believe even if they will ask customers to bring their own utensils, nobody will adhere to it as this would require major behaviour shifts of each actor
- Hygiene factor also plays a role when multiple and varied containers are brought from home -- how to ensure food safety?

**Retail/General store vendor**

- Most of the general store vendors were aware of the ban happening around in major cities in Pakistan
- They highly doubted that people in Rahim Yar khan city will welcome a blanket ban on plastics
- Business will be impacted until alternatives are not introduced; customers will bear any additional cost if alternatives are more expensive than the currently available bags
- Some also believe the government needs to impose ban with heavy fines- only then people will respond; no voluntary awareness campaign will heed any difference
- People blame the government for not ensuring cleanliness
- Even Unilever has unnecessary plastics in their products' packaging (e.g. plastics cover around packs of 6 shampoo bottles)

**Suggested Action**

- The ban should be imposed partially or selectively -- for example, a ban should not be imposed on milk and yogurt shops
- Corporates should look at reducing their unnecessary plastics use in packaging also
- Proper guidelines should be formulated in the domain of plastics for retail stores
- Alternative to shopping bags should be made available before a ban on single use plastics i.e. shopping bags
- An economic solution will work better than soft awareness and advocacy programs

The local government needs to step up and take strong regulatory action against law breakers if any law is enacted for waste management in Rahim Yar Khan city.

# Annex-III

Explore more of our knowledge products on Plastic Waste Management Portfolio.

| | |
|---|---|
| **Blogs** | Untying a socially complex problem, one knot at a time<br>Framing the problem well: why are we using Systemic Design to understand the problem of plastic waste management in Pakistan<br>Why innovation-AccLab brought designers, start-ups, and citizens to build solutions for plastic waste? |
| **Field notes** | Insights on plastic waste management— notes from the field |
| **News** | UNDP and Unilever to work together to make Rahim Yar Khan a Zero Plastic Waste City |
| **Dialogue** | "Investing in the future of our oceans" with UNDP Accelerator Labs, Mission Blue, and ACTAI Global |

**Our Partners:**







## Reach out to us

If you have any questions or comments please get in touch with

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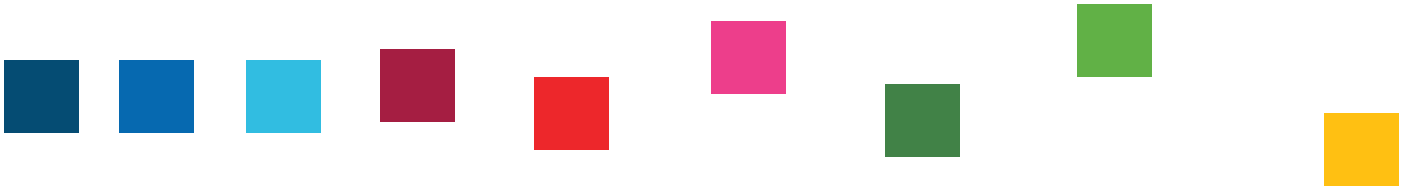

# empowering experimentation

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