2022 Market Insights Report

The SUP Challenge

The Incubation Network & PREVENT Waste Alliance & ECCA FAMILY FOUNDATION

PRESENTS

THE SUP CHALLENGE

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Glossary

Cafes/ bars	Establishments where 50% or more of their income is derived from the sale of alcoholic and/ or non-alcoholic drinks.
Chained operator	Operators with 10 or more outlets and/or a global presence.
Cradle to grave	System boundaries of a life cycle assessment that considers all life cycle stages of a product from raw material extraction and processing, manufacturing, distribution, use, end-of-life, and transportation between life cycle stages.
Foodservice	Includes all locations which serve prepared food and beverages in a public, non-captive environment for consumption on-premise (dine-in) or off-premise (e.g. food delivery, cloud kitchens, takeaway outlet). Excluded foodservice operations: • Food delivery aggregators (i.e. middle-man tech companies that help foodservice transactions and deliveries, but do not prepare food themselves) • Suppliers (businesses that provide ingredients to foodservice operations e.g. wholesalers, farms, beverage manufacturers, etc.) • Retailers (retail establishments, such as convenience stores, independent retail establishments or large-format retail such as hypermarkets and supermarkets)
Full-service restaurant	All sit-down establishments where the focus is on food rather than on drink, with table service.
Independent operator	Operators with fewer than 10 outlets and/or not having a global presence.
High density polyethylene	A type of plastic made from petrochemicals that is more durable than polyethylene and is often used in containers for milk, shampoos, detergents, and liquid soap.
Life cycle assessment	A methodology for assessing environmental impacts associated with all the stages of the life cycle of a product or service.
Low density polyethylene	A type of plastic made from petrochemicals that is thinner than polyethylene and is commonly used in packaging films and rubbish and grocery bags.
Multi-layered packaging	MLP is any material used for packaging and having at least one layer of plastic as the main ingredient in combination with one or more layers of materials such as paper, paper board, polymeric materials, metallised layers, or aluminium foil, either in the form of laminate or having a coextruded structure.
Polypropylene	A type of plastic made from petrochemicals that is often used in rigid food packaging.
Polyethylene terephthalate	A type of plastic made from petrochemicals that is often used in bottled beverages and rigid food packaging.
Polyethylene	A type of plastic made from petrochemicals that is often used in flexible packaging of food and beverage products and lining on other non-plastic food containers.
Process	An action or step that occurs in the life cycle of a product or service and has physical inputs and outputs.
Quick-service restaurant	Fast food and 100% home delivery/takeaway outlets.
Single-use plastics (SUP)	"Single-use plastics (SUP), often also referred to as disposable plastics, are commonly used plastic packaging, including items to be used only once (or for a short period of time) before they are thrown away or recycled." (Source: United Nations Environment Programme, 2018). This includes food and beverage containers, cutlery, straws, drink stirrers, and plastic bags in which such food and beverages may be packed for sale.
Street stalls/ kiosks	Small foodservice providers, including street stalls, street hawkers, foodservice kiosks, and mobile options like food trucks and carts.

Executive Summary

The urgency of finding and scaling alternatives to single-use plastics (SUPs) that are prevalent in the ocean and environment throughout Southeast Asia and India became even more salient in the wake of the Covid-19 pandemic.

The impact of lockdown restrictions on foodservice businesses, a resulting shift in consumer demand for takeaway and prepared foods, and a shared focus on health and safety have increased foodservice operators' reliance on SUPs. Unsurprisingly, SUPs used in foodservice are amongst the most common plastics found in the environment.

As a result, governments across the region are prioritizing the management and reduction of SUP use and waste, and a number of countries in the region have set roadmaps, policies and targets to address the issue. In light of policies banning or phasing out the use of certain SUPs, foodservice operators – especially small, independent ones predominant across the region – are pressed to find reliable, affordable alternatives and struggle to navigate a marketplace of early-stage companies. At the same time, the entrepreneurs and startups offering these solutions struggle to scale due to the lack of capital, underdeveloped value chains, and complex policy and regulatory frameworks. Also important at this early stage of market development for plastic alternatives is a need for data on the environmental benefits of SUP alternatives as compared to the status quo.

The SUP Challenge was a ten-month cohort-based program designed to support market entry, acceleration and adoption of upstream alternatives to SUPs, while also generating insight and data to assess the impact and potential for growth of these solutions. The program was implemented by The Incubation Network and funded by the PREVENT Waste Alliance, an initiative of the German Federal Ministry for Economic Cooperation and Development (BMZ) as part of PREVENT's Innovate & PREVENT programme, and ECCA Family Foundation. The program supported eight

Entrepreneur Support Organizations (ESOs) and 76 startups across 5 countries in South and Southeast Asia. Startups were matched with local foodservice operators to pilot their SUP alternatives in a real-world setting. **The startups fell into two categories:**

01 **Reuse/Refill,** including systems for returnable packaging and models in which products are distributed packaging-free so that consumers are encouraged to use their own containers for refills; and

02 **Plastic Material Alternatives,** which are single-use products made from agricultural waste and by-products or cultivated non-food crops, and designed to be dissolvable or compostable under local conditions.

76
Startups supported

26
Reuse / Refill

50
Plastic Material Alternatives

This report presents insights from The SUP Challenge, including high-level findings from the life cycle assessment (LCA) studies conducted on four of the pilot projects conducted. The full results of the LCAs are detailed in **The SUP Challenge Life Cycle Assessment Report.**

The results of the LCAs showed that SUP alternatives generally offer environmental benefits under certain conditions and for certain impact categories, depending on the type of product and how the business model operates. Further, and perhaps more important at this phase of market development, the LCAs and the pilots themselves surfaced a number of broad considerations that suggests both greater opportunities and areas of exploration for startups in the SUP alternative space, as well as challenges that must be overcome if a broad-based transition to SUPs is to occur.

Specifically, startups – and their target customers – need to be mindful of the environmental trade-offs that may exist for their alternative products, and look for ways to minimize energy, water and other resource inputs during the entire life cycle, especially during the material extraction and transportation phases. Business process improvements and efficiencies can contribute to reducing the environmental impact of the SUP alternative when limitations, such as the properties of the raw materials and the grid energy mix of the location, are relatively inflexible.

Above all, collective action and collaboration are necessary. The SUP Challenge brought together startups and foodservice operators to ensure that SUP alternatives were tested in real conditions, and real-time feedback was provided by operators on product viability in foodservice settings. Further, SUP alternative providers may need to work together, as well as with wholesalers and distributors, to build a bigger portfolio of solutions that can minimize supply risks and provide foodservice operators with options and products that meet their businesses' multiple needs. Finally, the consumer can be an important part of the process: foodservice operators have the chance to bring them along on the journey of transitioning away from SUPs, and incentivize reduced SUP usage in the meantime.

In order to stimulate more collective action, The Incubation Network has published **Accelerating Circular Solutions to Single-Use Plastics,** a technical playbook based on its experience running The SUP Challenge and supporting the Circular Impact Market Accelerator, India's first accelerator program for circular solutions. The technical playbook serves to be an end-to-end guide for market acceleration of circularity solutions, outlining the activities and considerations that should be undertaken to support engagement between solution providers and partner companies, which is critical to developing plastic alternative solutions.

The Problem

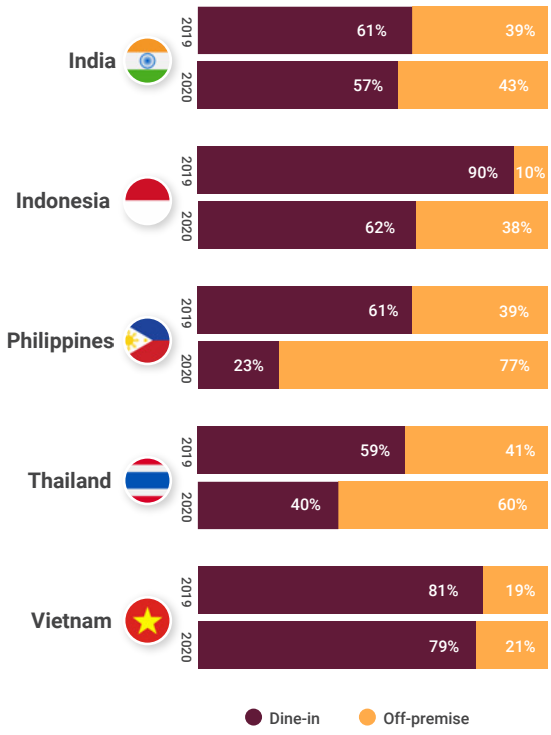
Even before the Covid-19 pandemic, foodservice establishments across India and Southeast Asia relied on single-use plastics (SUPs) throughout their businesses: from the kitchens – where SUPs are used for food preparation and storage – to the front of the house, where they are used for food packaging and serving for dine-in and take-out customers.

The Covid-19 pandemic forced an even greater reliance on SUPs in foodservice. Takeaway and delivery became a lifeline for many foodservice operators in light of the precipitous decline of dine-in customers as a result of lockdown restrictions.

This shift towards greater off-premise sales resulted in a significant uptake in SUP usage as operators relied on cost-effective and accessible SUPs, which also provided a hygienic and convenient solution for consumers.

Unsurprisingly, SUPs commonly used in foodservice are among the most common types of plastic leakage that ends up in the environment (see Figure 2). As a result, governments across the region are prioritizing the management and reduction of SUP use and waste, and a number of countries in the region have set roadmaps and targets to address the issue. The gradual phasing out of items such as SUP cutlery and plastic bags is increasingly being incorporated into national regulations, such as **India's Plastic Waste Management (PWM) rules** and the **Philippines' Single-Use Plastic Products Regulation Act**. These policies nudge users

Figure 1 Breakdown of Foodservice Sales Based on Dine-In and Off-Premise Sales (2019-2020)



Source Euromonitor (2021)

or producers of SUPs to look for alternatives to SUPs to ensure compliance with the regulations. In spite of the growing number of SUP alternatives, there are several barriers to widespread adoption that first have to be addressed.

Firstly, most alternatives are early-stage solutions developed by startup companies that struggle to scale due to the lack of capital, underdeveloped value chains, and complex policy and regulatory frameworks.

Secondly, foodservice operators are challenged to navigate the landscape of alternatives in order to identify one that fits their overlapping needs for safe delivery, customer convenience and price. The cost pressure is particularly acute for independent operators, who account for the majority of foodservice sales across the region, due to the lack of economies of scale.

Finally, there is insufficient data on the environmental benefits of SUP alternatives as compared to the status quo. Wide-scale adoption of alternatives must be guided by full life cycle assessment (LCA), taking into account associated greenhouse gas emissions over the product or service's lifetime; energy and material resources utilized to manufacture the product; amount of water consumed during the manufacturing, use and maintenance of the products; and end-of-life treatment of the product and associated waste streams.

Figure 2 Common Single-Use Plastics in Foodservice: Amongst the Top 10 Plastic Waste Leaked into the Environment

Sources World Bank Plastic Waste Discharges from Rivers and Coastlines in Indonesia Appendices (2021), World Bank Toward a National Single-Use Plastics Roadmap in Vietnam: Strategic Options for Reducing Priority Single-Use Plastics (2022), IUCN National Guidance for Plastic Pollution Hotspotting and Shaping Action (Application Hotspots) (2018)

About The SUP Challenge

Overview

The SUP Challenge was launched with support from the PREVENT Waste Alliance, an initiative of the German Federal Ministry for Economic Cooperation and Development (BMZ), and ECCA Family Foundation, to bridge the gap between SUP alternative providers and foodservice operators. The ten-month, cohort-based program focused on reducing SUP consumption and waste in the foodservice industry, and had three components:

01 Support for Startups

The program worked with Entrepreneur Support Organizations (ESOs) serving India, Indonesia, the Philippines, Thailand and Vietnam to identify regional startups with SUP alternatives that could meet the needs of local foodservice operators, and equipped the startups with the resources, capital and networks required to enable them to access markets and compete with existing plastic products.

02 Foodservice Operator Engagement

Foodservice operators were educated on alternative solutions and were given the opportunity to enter into pilots with startups that met their requirements for possible adoption; 91 pilots were supported.

03 Life Cycle Assessment

Four of the pilots supported through The SUP Challenge were subject to a life cycle assessment (LCA) as a means of understanding the potential environmental impact of the SUP alternatives, as well as the areas of improvements solution providers should consider to minimize harm in comparison to mainstream SUPs.

Duration of Program

- **January 2022** Launch of The SUP Challenge
- **March 2022** Announcement of selected ESOs
- **April 2022** ESOs' call for startups
- **May to July 2022** Capacity building, including mentorship, workshops and pilot proposals
- **August to September 2022** Pilots
- **October 2022** Data collection

Participating Partners

The program selected 8 ESOs from an applicant pool of 26, who in turn selected 76 startups for program participation. The startups fell into two categories:

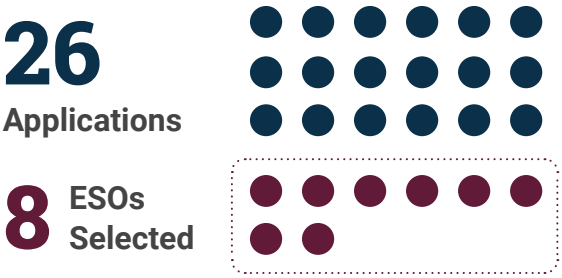
01 **Reuse/Refill,** including systems for returnable packaging and models in which products are distributed packaging-free so that consumers are encouraged to use their own containers for refills; and

02 **Plastic Material Alternatives,** which are single-use products made from agricultural waste and by-products or cultivated non-food crops, and designed to be dissolvable or compostable under local conditions.

In addition to the ESOs and startups selected for The SUP Challenge, the program invited the participation of foodservice partners as an audience for education about SUP alternatives, and participants in pilot programs. Because the characteristics of the foodservice industry vary from country to country, the engagement of local operators is critical to understand the pain points and potential barriers to widespread adoption of SUP alternatives.

For example, full-service restaurants predominate in Indonesia and Vietnam, whereas street stalls, cafes/bars and quick-service restaurants make up the majority of operators in India, the Philippines and Thailand. Independent operators with fewer than 10 outlets dominate foodservice sales across the countries that were part of The SUP Challenge with the exception of the Philippines where chained operators accounted for the majority of foodservice sales in 2020[1].

[1] Euromonitor International (2021)
Note: Currency conversion used - Historic Fixed 2020 Exchange Rates, Forecast Fixed 2020 Exchange Rates



8 ESOs selected 76 startups for program participation

16 Small or Medium Enterprises

57 Ventures

3 Others

- Cafes/bars
- Street stalls/kiosks
- Full-service restaurants
- Quick-service restaurants

Accelerating Market Adoption through Pilots

About the Pilots

91 pilots were implemented by matching participating startups with foodservice operators. Prior to implementation, both startups and foodservice operators had to go through a period of pilot planning, which included assessing the plastic consumption and waste generated by the foodservice operators, and conducting a match with the solutions provided by the startups. Pilots ran on an average of 34 days, during which feedback was gathered to assess if any changes and refinements were needed; see **Accelerating Circular Solutions to Single-Use Plastics** for a full description of the pilot process.

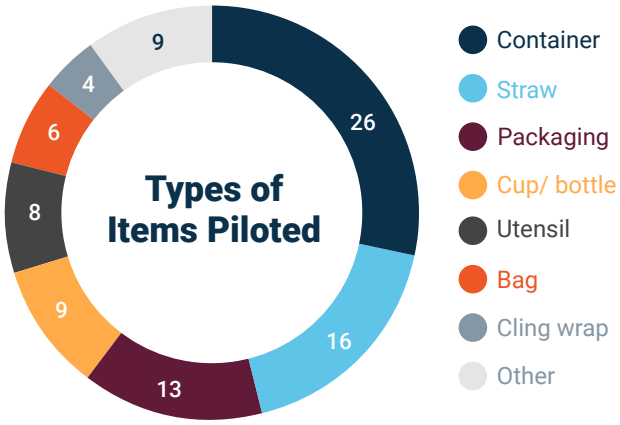
The pilots, and the insights gathered from them, were intended to accelerate market adoption of SUP alternatives by:

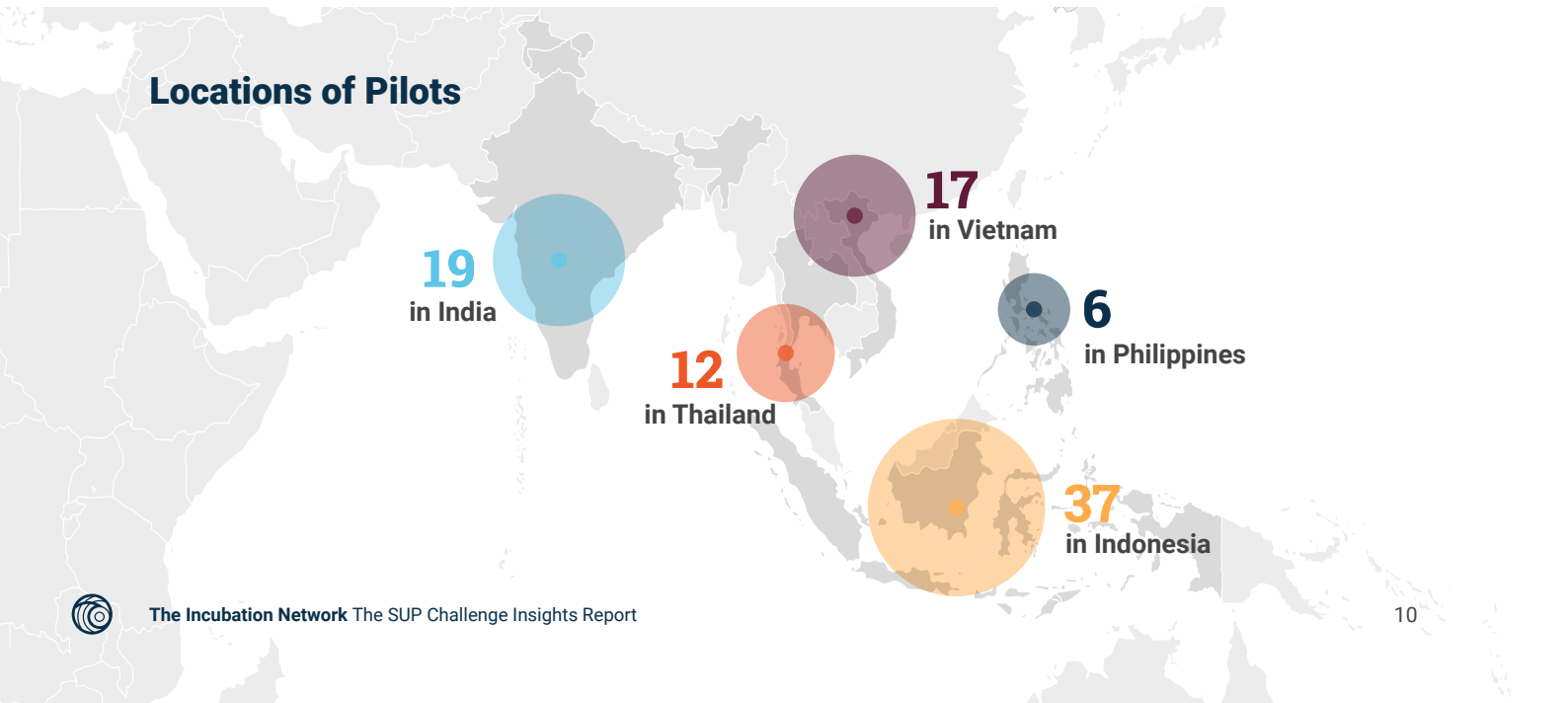
01 providing the startups with an opportunity to test the market fit of their product;

02 helping startups identify potential product and process improvements to address as they pursue scale; and

03 generating data that shows the potential impact of SUP alternatives to avoid and prevent plastic leakage.

The Incubation Network used the data generated by selected pilots to estimate the potential impact of the selected solutions (in terms of plastic avoided) and also conducted a set of LCAs. The results are summarized in this section and viewable on **The SUP Challenge Interactive Dashboard,** with the LCAs fully detailed in **The SUP Challenge Life Cycle Assessment Report.**





Reuse/Refill Solutions

DropRefill

Foodservice Partner theCOMMONS
Country Thailand
Piloted Product Refillable multi-purpose cleaning tabs
SUPs Replaced Polyethylene terephthalate (PET) spray bottles and refillable pouches in multi-layered packaging refillable pouches

DropRefill piloted their multi-purpose cleaner tabs with theCOMMONS, an open-plan community mall based in Bangkok. The cleaning tabs are made from non-toxic ingredients and dissolve in water to become surface cleaner. To date, DropRefill has used a business-to-consumer model but used the pilot to test their product to understand commercial requirements, including volume, storage, and function in a foodservice setting.

EVEGROCER
Sustainable Lifestyle

Foodservice Partner Bizu Patisserie
Country Philippines
Piloted Product Reusable rice sacks
SUP Replaced High density polyethylene (HDPE) rice sacks rice sacks

EveGrocer piloted reusable rice sacks with Bizu Patisserie, a chain of cafés serving all-day breakfast sets in Manila. The pilots enabled EveGrocer to address the switching barrier seen in the food supply chain, where raw ingredients in bulk are typically transported in 50kg single-use HDPE rice sacks to a central location where they are bagged in smaller volume SUP bags and then distributed across sites. With the pilots, raw rice was packed at source into reusable sacks in the volumes required by the kitchens, and the reusable sacks were collected back during the next rice delivery for subsequent uses, eliminating two sources of SUPs and the extra step of repacking.

Plastic Material Alternatives

BIOPAC
Sentinel of Nature

Foodservice Partners Kyuri Burger, Yoisho
Country Indonesia
Piloted Product Seaweed-based film
SUPs Replaced Food wrap with with low density polyethylene (LDPE) lining; LDPE sheets

Biopac piloted their edible seaweed-based films with sister brands Kyuri Burger and Yoisho in Jakarta, Indonesia, to replace plastics used in delivery orders, such as plastic-laminated burger wrap and the plastic sheet used for food separation. The films are dissolvable in heat and liquid, and are made from the oversupply of farmed seaweed, thus generating an economic benefit for local seaweed farmers.

Xứ Tiên

Foodservice Partner Coco Casa
Country Vietnam
Piloted Products Leaf plates and bowls
SUP Replaced Disposable polyethylene (PE) plates and bowls isposable plates and bowls

Mo Cau Xu Tien piloted their leaf plates and bowls with Coco Casa, a restaurant in Hoi An, Vietnam, to provide SUP alternatives for their event catering services that require disposable crockery. The products are made from fallen areca palm leaves, which are collected by a worker collective to be sanitized and dried before being pressed into functional shapes. The non-chemical process allows the leaf plates and bowls to lose their structure and naturally biodegrade into compost when discarded.

Pilot Impact on Avoided Plastics

A total of

934.7 kg

of plastics was estimated to be avoided during The SUP Challenge during the pilots.

This was measured by the following formula:

Units of alternative solution piloted x Estimated number of plastic item replaced per unit of alternative solution x (Weight of plastic item replaced - Weight of plastic waste in alternative solution) / 1000 = Volume of plastics avoided during pilot (kg)

We estimate that a total of **6.24 mt** of plastics can be avoided over a full year if all alternative solutions remain in use at the foodservice outlets where the pilots were conducted.

In order to ensure there is (i) parity between pilots of different lengths and (ii) seasonal sales volume, we controlled for the number of meals and drinks sold during the pilot against the monthly average. The assumption made here is that the usage of SUPs proportionately correlates with the number of meals or drinks consumed every month.

This was measured by the following formula:

$$\frac{\textit{Length of pilot in days}}{\textit{30 days}} \Big/ \frac{\textit{Meals or drinks sold during pilot}}{\textit{Average meals or drinks sold per month}} \times \textit{Vol. of plastics avoided during pilot (kg)} \times \frac{\textit{365 days}}{\textit{Length of pilot in days}}$$

For example, for a pilot that tested the use of a reusable straw for a period of 50 days during which 1000 meals were sold, and the foodservice outlet typically sells an average of 500 meals each month, the calculation is as follows:

$$\frac{50 \text{ days}}{30 \text{ days}} \Big/ \frac{1000 \text{ meals}}{500 \text{ meals}} \times 0.999\text{kg} \times \frac{365 \text{ days}}{50 \text{ days}} = \mathbf{6.08kg}$$

Another assumption here is that all participating foodservice outlets operate year-round. As the operational conditions for each foodservice partner and outlet differ from one another, we did not extrapolate these figures beyond each individual outlet.

Environmental Impacts of SUP Alternatives through Life Cycle Assessment (LCA)

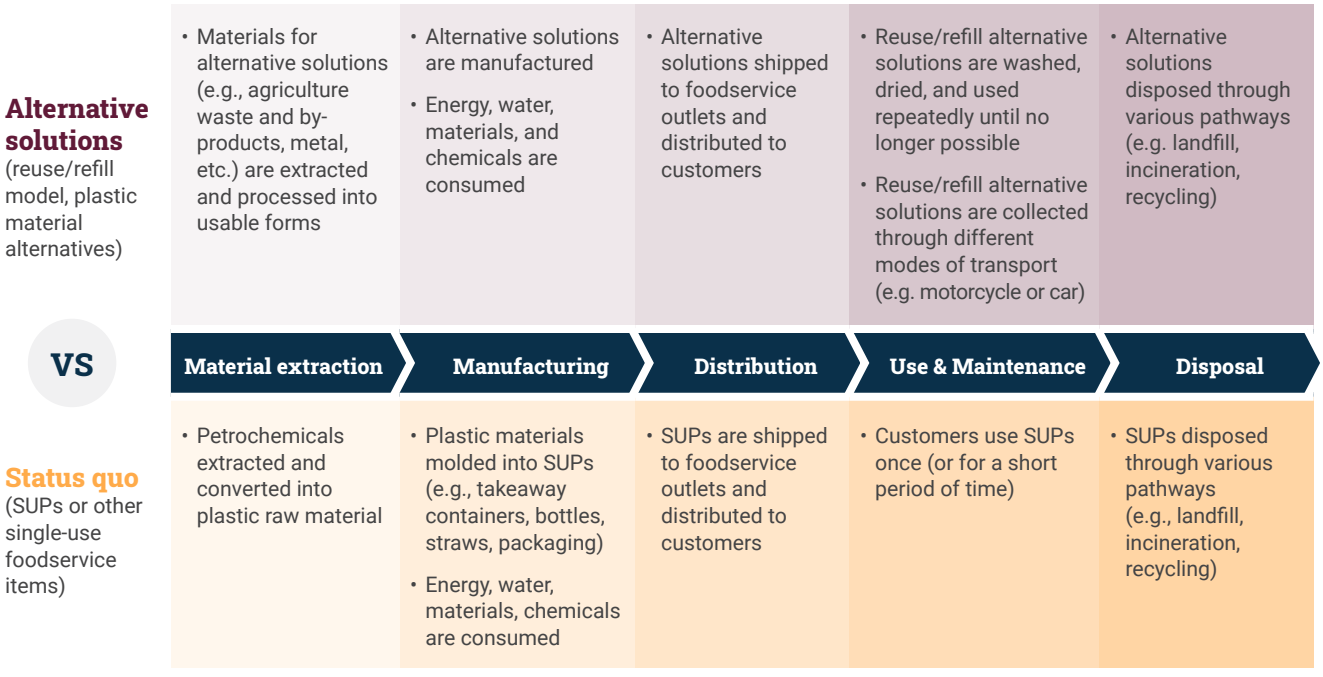
Introduction

As the number of alternatives to SUPs continues to grow, along with the impetus to address plastic leakage found in the environment, so does the need for a more comprehensive understanding of the environmental benefits of SUPs alternatives over the status quo. The environmental impacts of alternative solutions versus SUPs can be measured holistically through a LCA, which uses a "cradle to grave" boundary to determine the impact of a product at all stages, from raw material extraction and processing, manufacturing, distribution, use, end-of-life, and transportation between life cycle stages. Four pilot projects were selected for the LCAs, which used a methodology that met the requirements of ISO14040/44 standards; the full methodology is detailed in **The SUP Challenge Life Cycle Assessment Report** with key elements of the analysis highlighted below.

Generally speaking, LCA results can help guide decisions by consumers, manufacturers, and policy makers. For The SUP Challenge, the intended audience of the findings of these LCAs include foodservice operators, manufacturers of foodservice items (e.g. cups, takeaway containers, straws, packaging, etc.), ESOs, investors, and consumers who seek to understand the environmental performance of alternative solutions to SUPs in the foodservice industry to support their decision-making. Specifically, the results and insights from the LCAs are intended to help:

- Compare the life cycle environmental impacts of alternative solutions versus SUPs and other types of single-use items in foodservice; for example, evaluating between different types of beverage cups or different types of takeaway containers, but not products with different functions (e.g. beverage cup vs takeaway container) and manufactured in a different country or with different alternative materials;
- Understand which processes dominate the life cycle environmental impacts of alternative solutions and should be paid the most attention to during decision-making;
- Understand which processes have a relatively small contribution to the total life cycle environmental impacts of alternative solutions and therefore can be given minimal attention during decision-making; and
- Understand the minimum level of usage the reuse/refill solutions at the existing pilots must achieve to have environmental benefits compared to their functionally equivalent single-use item(s).

Figure 3 System Boundary for Cradle to Grave LCA Studies of the Four Pilots



Selection of Pilots for LCA

A total of four pilots were selected to participate in the LCA studies. All startups were screened, shortlisted, and selected to participate in the LCAs based on the following criteria:

- Startups with alternatives to SUP takeaway containers, as these items were ranked third among the top 10 products found in global marine litter[2];
- Startups that had already collected a sufficient amount of data regarding the inputs and outputs for processes across a majority of the life cycle stages; and
- Startups that could provide the requisite data related to the operation of their solution at the pilot (e.g. frequency of use of solutions) within the necessary time frame to complete the LCA studies.

Table 1 provides a synopsis of each pilot that went through an LCA. For Pilots 1 and 3, where the item being replaced was a single-use item but not plastic-based, comparative analysis was done between

- The SUP alternative provided by the startup;
- The existing item that the foodservice operator was using prior to the pilot to reflect the pilot's operating conditions (status quo); and
- The SUP counterpart (i.e. polypropylene takeaway container) that is commonly used by other foodservice operators and is also a significant contributor to plastic waste leakage in the respective countries[3].

Table 1 Synopsis of Pilots Selected for LCA

Characteristic	Pilot 1	Pilot 2	Pilot 3	Pilot 4
Product category	Reuse/refill	Reuse/refill	Plastic material alternative	Plastic material alternative
Solution	Reusable takeaway container	Refill machine for dispensing liquid cleaning detergents	Single-use takeaway container	Single-use drinking straw
Primary raw material(s) used in the solution	Polypropylene (PP) and silicone	Stainless steel, acrylic, polyvinyl chloride, brass, HDPE	Areca palm leaves	Coconut palm leaves
Volume of solution	890 ml	100 liters (refillable tank)	750 ml	N/A
Lifetime of the solution	2 years	10 years	Single-use	Single-use
Frequency of use per item	2 times every month	16 liters dispensed every month	Single-use	Single-use
Country	Thailand	Thailand	Indonesia	India
Single-use foodservice item replaced at pilot (status quo)	Bagasse container with PET cover	HDPE bottles (1 liter) of mopping and dishwashing detergents	Paper container with PE lining	PP straws
SUP counterpart commonly used by other foodservice operators	*Compared* SUP: PP container	N/A	*Compared* SUP: PP container	N/A

[2] Morales-Caselles et al. (2021), An inshore–offshore sorting system revealed from global classification of ocean litter, Nature Sustainability, doi: 10.1038/s41893-021-00720-8

[3] WWF - Scaling up circular strategies to achieve zero plastic waste in Thailand (2020), Vriend P, Hidayat H, van Leeuwen J, Cordova MR. (2021) Plastic Pollution Research in Indonesia: State of Science and Future Research." Front. Environ. Sci. 9:692907. doi: 10.3389/fenvs.2021.692907

Data Collection

Primary and secondary data were used to complete the LCA studies. Examples of primary data collected from the startups include the material, energy, and water used in manufacturing each solution, transportation activities, and raw material production processes. When the startups were unable to provide primary data about certain processes related to their solution, secondary data from the Ecoinvent LCA database[4], journal publications, and technical reports were used to fill the data gaps.

Environmental Impact Categories

The LCA studies measured environmental impacts in the following categories, described below with their associated units of measurement:

- **Climate change:** Measurement of the amount of greenhouse gasses (GHGs) released into the atmosphere due to human activities. The unit for measuring GHGs is carbon dioxide equivalent (kg CO_2-eq).
- **Cumulative energy demand:** Measurement of the cumulative energy used, which includes energy from renewable and non-renewable sources. The unit for measuring cumulative energy demand is megajoules (MJ).
- **Water depletion:** Measurement of the impacts to the environment as a result of consuming water that is extracted from reservoirs, lakes, rivers and groundwater. The unit for measuring water depletion is liters (l) of water equivalent.

[4] Ecoinvent (2022), https://ecoinvent.org/

Findings from Life Cycle Assessments of Pilots

Overall Interpretation of Findings

The LCAs conducted were based on data about the startups' solutions, the pilots they ran, and key assumptions dependent on the local context (as detailed in The SUP Challenge Life Cycle Assessment Report). This combination of local context and data allows for the safe assumption that the alternative solutions analyzed in the studies would be adopted by consumers in realistic foodservice operating conditions and have potential for scaling up. Furthermore, using data from the pilots allows the results of the LCA studies to represent the real operating conditions of the solutions. For alternative solutions under the reuse/refill model archetype, pilot data representing consumer reuse of the solution can be applied to benchmark the current environmental performance and make a comparison against the minimum level of reuse required to achieve environmental benefits over the status quo.

For results that show that the SUP alternative has larger negative environmental impacts than the status quo SUPs and single-use foodservice items, the solutions may not have achieved the scale required to optimize resource consumption and achieve environmental benefits. Even for results that show that the alternative solution is better for the environment than the status quo, there is still more room for reducing environmental impacts to achieve more benefits.

Pilot 1

Meal Delivery Service with Reusable Containers

Reusable Container
SUP alternative

Bagasse Container with PET Lid
Status quo

Polypropylene Container
SUP

Pilot 1 was based on a meal delivery service for a restaurant in Thailand. The LCA compared a reusable takeout container (SUP alternative) to a single-use container made from bagasse with a PET lid (status quo), and a single-use plastic container made from PP (SUP). The functional unit of this study was a reusable takeaway container with a volume of 890 ml used to deliver food from a restaurant twice a month, every month for two years in Thailand. The analysis also included additional scenarios that varied the type of vehicle used to deliver the food (passenger car vs. petrol-powered motorcycle) and the number of meals delivered per vehicle trip (see Figure 4). The pilot introduced business process improvements of delivering six scheduled meals in each vehicle trip (scenario A1), rather than making single-meal deliveries.

The results of the LCA showed that the reusable containers have a better environmental performance (i.e. less damage to the environment) than both types of single-use containers, but only under certain conditions. In the category of climate change, the existing pilot that uses a hybrid car has higher GHG emissions than the status quo container, but lower GHG emissions than the SUP. However, switching to a motorcycle with lower tailpipe GHG emissions and a higher fuel economy – a scenario that was not part of the pilot but was modeled for the LCA – reduces the delivery impacts by more than 50% and would make the total impacts of the SUP alternative lower than the status quo and SUP products.

The delivery impacts of one reusable container per motorcycle trip (scenario A3) was much higher than delivery impacts of the single-use containers (scenarios B and C) for two reasons:

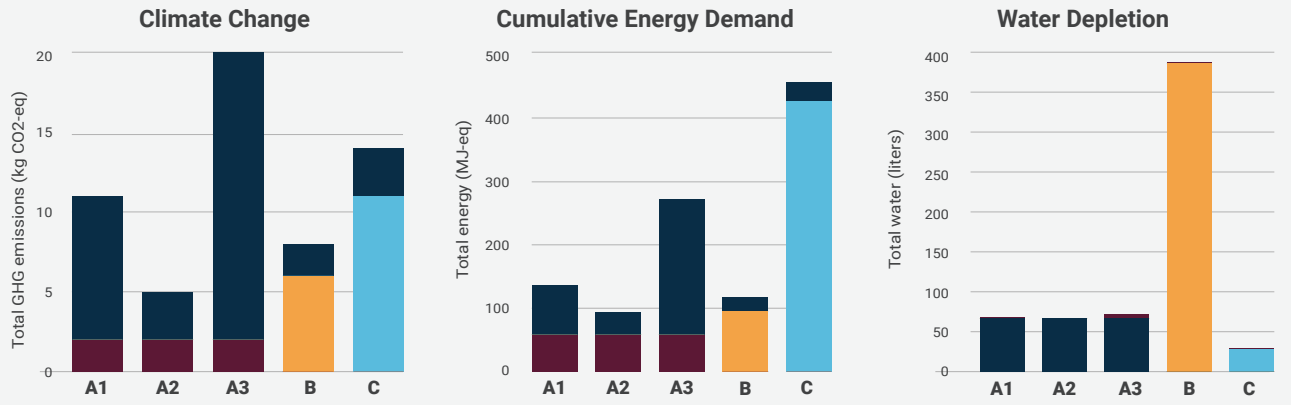
01 The reusable containers travel double the distance due to the return trip; and

02 The reusable containers were heavier than the single-use containers and were therefore allocated a higher share of the impacts for each delivery trip between the mass of the container versus the food.

In the water depletion category, the SUP alternative had a higher water depletion impact than the PP container, regardless of the transportation scenario, because reusable containers consume more water during the use and maintenance stage. However, the status quo product had very high impacts in water depletion because of the large amount of water required for raw sugar production, of which bagasse is a by-product.

The environmental performance of reusable containers compared to single-use containers can vary depending on how frequently they are reused. Figure 5 shows the total impacts of each takeaway container at use rates of between one and three times per month. The line graphs show that using a reusable container to deliver six containers of food per trip would have lower impacts than the single-use containers regardless of the frequency of use of the containers, in terms of climate change and cumulative energy demand.

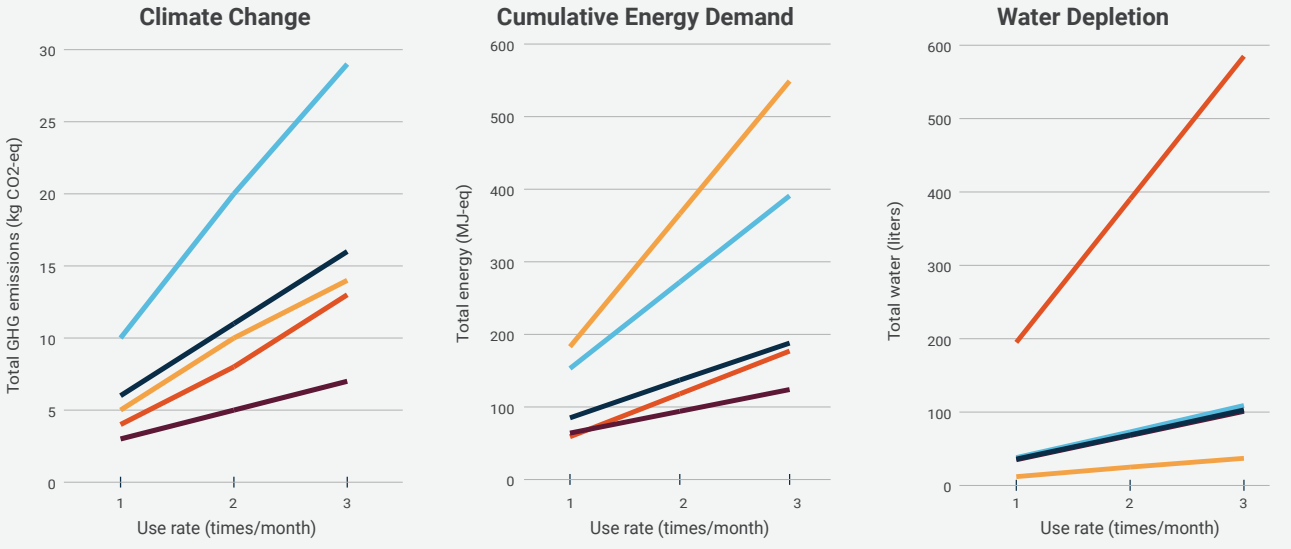
Figure 4 Life Cycle Environmental Impacts of Reusable Container Versus Single-Use Takeaway Containers When Used Twice per Month



A1 Reusable container (car, 6 packs/delivery)
A2 Reusable container (motorcycle, 6 packs/delivery)
A3 Reusable container (motorcycle, 1 pack/delivery)
B Bagasse with PET container (motorcycle, 1 pack/delivery)
C PPcontainer (motorcycle, 1 pack/delivery)

Delivery
PP container (All processes except delivery)
Bagasse and PET container (All processes except delivery)
Reusable container (All processes except delivery)

Figure 5 Life Cycle Environmental Impacts of Reusable Container Versus Single-Use Takeaway Containers When Used Between One to Three Times Per Month



A1 Reusable container (car, 6 packs/delivery)
A2 Reusable container (motorcycle, 6 packs/delivery)
A3 Reusable container (motorcycle, 1 pack/delivery)
B Bagasse with PET container (motorcycle, 1 pack/delivery)
C PP container (motorcycle, 1 pack/delivery)

Pilot 2

Refill Machine

Refill Machine
SUP alternative

VS

HDPE Bottle
SUP

Pilot 2 was a refill machine set up at a restaurant in Thailand. The pilot tested the use of the machine to dispense mopping and dishwashing detergent for cleaning the restaurant. Before the pilot, the restaurant was purchasing liquid detergents packaged in HDPE bottles. The functional unit of this study was 16 liters of liquid detergents dispensed at a restaurant per month, every month, for 10 years in Thailand.

The results of the LCA showed that the machine would have to dispense 32 liters of liquid detergents per month during the lifetime of 10 years to have lower total environmental impacts in climate change, cumulative energy demand, and water depletion compared to the HDPE bottles. However, the restaurant in the pilot used detergent at a rate of 16 liters per month (indicated by the black dotted vertical line in Figure 6), and the machine has a total storage capacity of 100 liters.

As Figure 6 shows, for each impact category there is a different threshold for how many units of liquid must be dispensed in order for the machine to have lower environmental impacts than the equivalent HDPE bottles used. As shown in Figure 7, the environmental impacts per liter of liquid dispensed decrease as the use rate increases because the life cycle impacts of manufacturing the machine, as well as its use of standby electricity, are distributed over a higher number of uses during the 10-year lifetime.

Overall, for the piloted machine to achieve environmental benefits over the status quo use of detergent in HDPE bottles, the monthly use rate on average will need to double. One way to increase the number of people to switch to a refill machine is to provide access to other businesses located nearby who require mopping and dishwashing detergents. Discussions with the startup showed that since the implementation of the machine, nearby businesses and other consumers have shown interest in using the machine instead of purchasing individual bottles of liquid detergents. Thus, it is expected that the use rate will grow in the future and help displace more HDPE bottles.

Figure 6 Life Cycle Environmental Impacts of Machine Versus SUP (HDPE Bottles) for Cleaning Liquids Over 10 Years

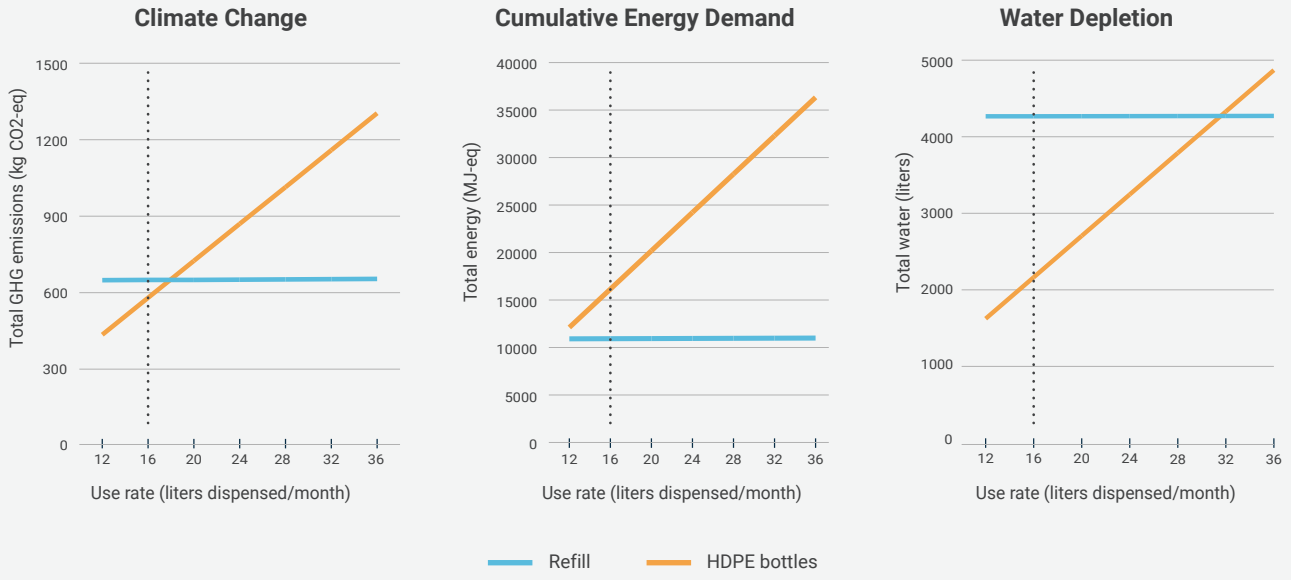
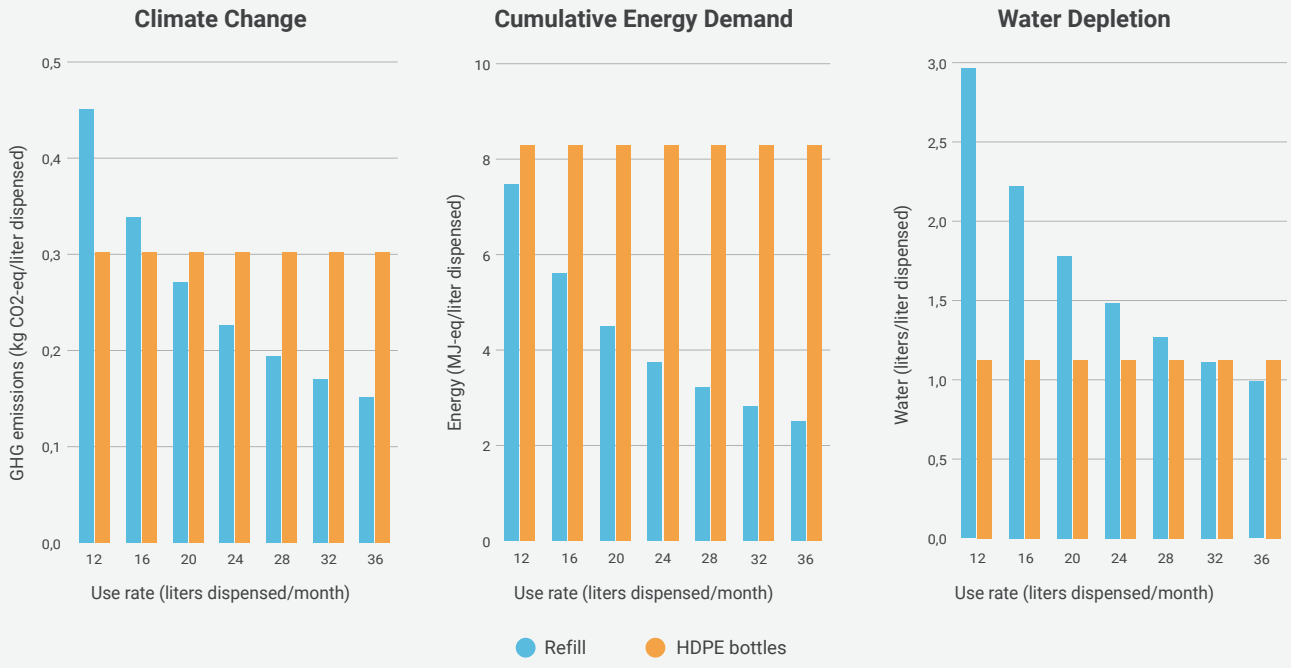


Figure 7 Life Cycle Environmental Impacts of Machine Versus SUP (HDPE Bottles) per Liter of Liquid Detergent Consumed



Pilot 3

Areca Palm Leaf Single-Use Takeaway Container

Areca Palm Leaf Single-Use Takeaway Container
SUP alternative

VS

Single-Use Paper Container with PE Lining
Status quo

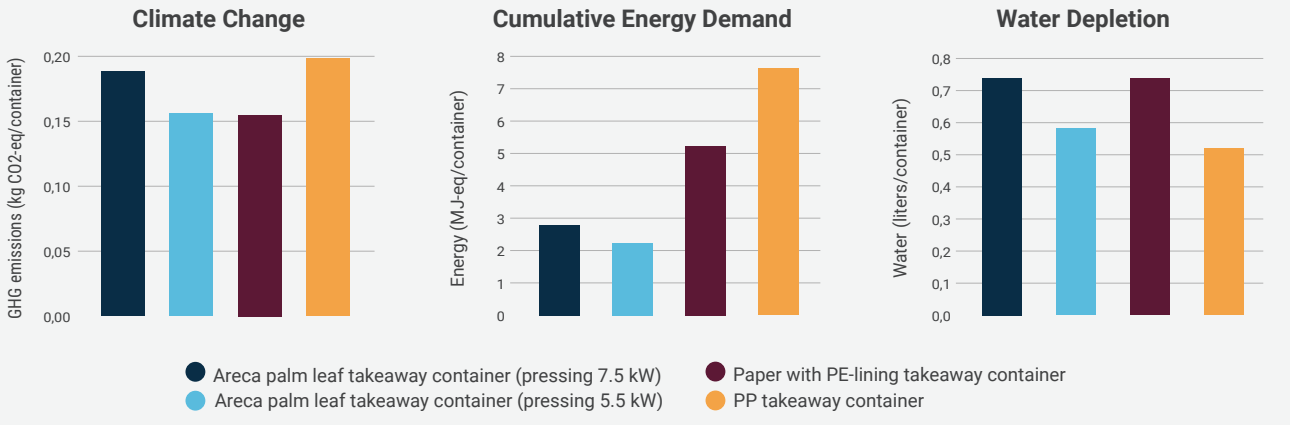
VS

PP Container
SUP

Pilot 3 is based on a single-use takeaway container (SUP alternative) made from fallen areca palm leaves collected from a plantation in Indonesia. The SUP alternative was analyzed in comparison to a single-use paper container with PE lining (status quo) and a PE container (SUP). The functional unit of comparison was a single-use takeaway container with a volume of 750 ml used to deliver food from a restaurant once in Indonesia.

Overall, the areca palm leaf containers had lower impacts to the environment than the SUPs for climate change and cumulative energy demand, but higher impacts in water depletion in comparison to the PE container because of the amount of water used to wash the areca leaves at the factory. When compared to the status quo PE-lined paper container, the total GHG emissions of the areca palm leaf container were higher or nearly equal depending on the heat pressing power rating (whether 7.5kW as used in the pilot or 5.5kW, modeled based on a similar LCA study by Gautam et al. (2020[5])). By using less water and a lower heating power rating for pressing the leaves at the factory, the total water depletion of the areca containers could be reduced to be lower than the status quo container. However, using a lower heating power rating will be difficult as a high amount of heat is required to evaporate the water content of the leaves and press the containers into the desired shape.

Figure 8 Life Cycle Environmental Impacts of Areca Leaf Versus Paper-Based and SUP Takeaway Containers



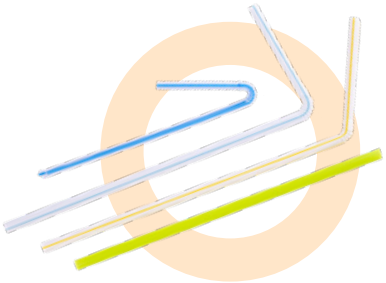
[5]Gautam et al. (2020), Evaluation of Areca palm renewable options to replace disposable plastic containers using life cycle assessment methodology, Energy Reports. https://doi.org/10.1016/j.egyr.2019.08.023

Pilot 4

Coconut Palm Leaf Single-Use Straw

Coconut Palm Leaf Straw
SUP alternative

VS

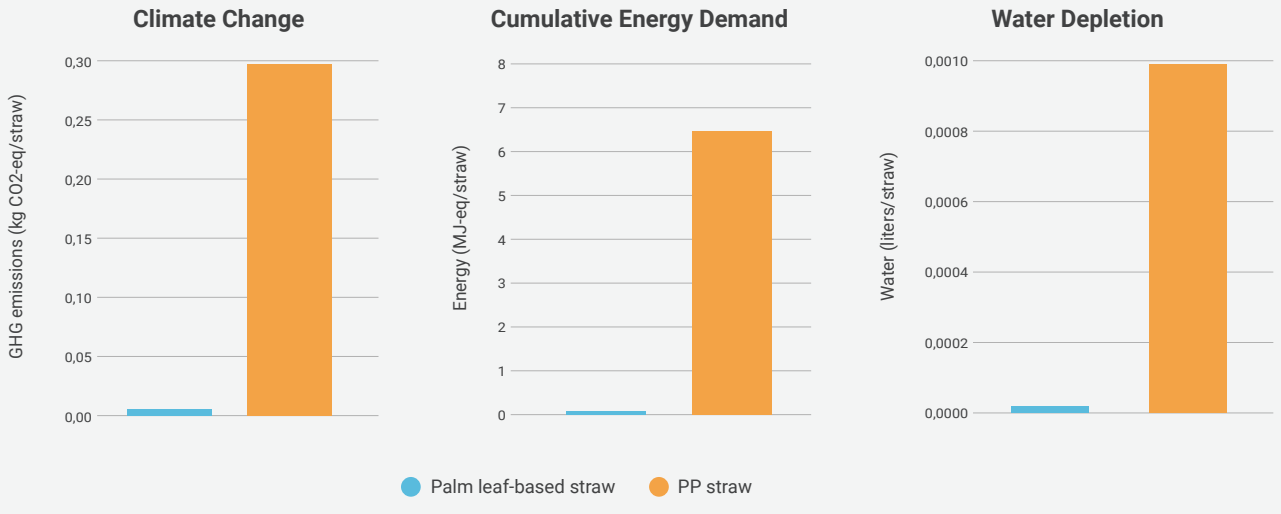


PP Straw
SUP

Pilot 4 tested a single-use drinking straw made from coconut palm leaves, and the LCA compared this SUP alternative to a single-use PP straw. The functional unit of comparison was a single-use beverage straw used to consume one beverage at a foodservice outlet in India.

The results of the LCA study showed that across all three impact categories, the SUP alternative straws had lower total impacts than the SUP straws. The primary reason for this was that the impacts from raw material extraction and processing for the palm leaf straws were very low compared to the SUP straw. The greatest share of impact was generated by the electricity used at the factory where the coconut palm leaf straws were made. The paper packaging for the coconut palm leaf straw had the second highest contribution to climate change and cumulative energy demand, whereas the extrusion process for SUP straws accounted for 85% of the total impact generated.

Figure 9 Life Cycle Environmental Impacts of Palm Leaf-Based Straw Versus SUP Straw



Challenges and Opportunities

The results of the LCA studies on the four pilots showed that SUP alternatives generally offer environmental benefits under certain conditions and for certain impact categories, depending on the type of product and how the business model operates. Further, and perhaps more important at this phase of market development, the LCAs and the pilots themselves surfaced a number of broad considerations that suggest greater opportunities and areas of exploration for startups in the SUP alternative space, as well as challenges that must be overcome if a broad-based transition away from SUP alternatives is to occur.

Considerations for Further Development of SUP Alternatives

Given that the SUP alternative market is still nascent, existing and new startups in the space have the chance to continue to develop and refine their products to provide the greatest environmental benefit as compared to the status quo SUPs. There are also opportunities to refine the business and operating models to address some of the risks and barriers to widespread adoption. Startups developing SUP alternatives should consider these points in developing their solutions:

- **Sizing Demand for Reuse/Refill Solutions – and Recognizing Trade-offs:** Reuse/refill solutions that rely on capital-intensive equipment for dispensing or distributing their products will need to reach a specific scale of utilization before they can achieve environmental benefits over SUPs, as demonstrated by Pilot 2. Reuse/refill solutions will also usually require more water over the entire life cycle due to their use and maintenance to ensure that products are kept clean and safe for consumers, which can result in an environmental trade-off; Pilot 1 provides an example of this.
- **Evaluate the Raw Materials Used:** For plastic material alternatives, the nature of the raw material used for these solutions are an important consideration. Solutions made of bio-based materials that require minimal energy, water, and other resource inputs during the material extraction stage are likely to achieve environmental benefits over SUPs. The nature of the raw material also affects the amount of energy and water needed for the manufacturing stage during material processing and product fabrication. Improvements in reducing energy and water consumption at the factory can be addressed by the startups themselves, but are subject to the physical limitations of the alternative material, as demonstrated in Pilots 3. In cases where the nature of the materials are a limiting factor, startups should consider their energy usage and sources to maximize their process efficiencies and reduce their climate impact.
- **Test Products in Market Conditions:** Most material alternatives are not built to last like SUPs, and may undergo deformation in natural conditions, which can happen during transportation and storage. Startups offering solutions need to run as many stress tests as possible on their products to build confidence in foodservice operators. This includes deformation risks for varied seasons and climates, as well as functionality and structural features, such as risk of spillage during transportation in different vehicle types across varied distances and terrains.
- **Optimize Transportation of Finished Products:** Freight transportation of materials and products by truck had a small contribution to the total impacts of the solutions as the trucks driven are usually fully loaded before making a trip to operate cost-effectively. However, transportation of the products to the customers had a larger contribution to the total impacts of each solution. This is because these deliveries usually carry a single item per trip. The environmental impacts, specifically on climate change, can be reduced during the delivery process by taking multiple items during one trip. However, this approach is still uncommon, as a majority of food and beverage delivery is done on demand. Reductions in GHG emissions during the delivery process can be achieved through use of more efficient vehicles, including electric two-wheelers that have zero tailpipe emissions.

Considerations for Scaling Adoption of SUP Alternatives

Beyond the SUP alternative products themselves, which are still largely new and thus will require additional testing and iterations of improvements, companies providing SUP alternatives will have to find ways to address the hesitance of most foodservice operators to adopt plastic alternatives. In general, foodservice operators do not feel the urgency to move away from SUPs unless the company has a strong focus on sustainability and/or well-defined environmental, social, and corporate governance (ESG) goals. Foodservice operators anticipate additional work associated with moving to a new solution, such as staff training, consumer education, and changes to internal and external processes. As a result, the motivation to remove SUPs becomes low in priority, especially if the company is focusing on achieving their bottom line. As noted earlier, bans on certain SUP items such as cutlery and plastic bags are increasingly being incorporated into national regulations, such as **India's Plastic Waste Management (PWM) rules** and the **Philippines' Single-Use Plastic Products Regulation Act.** If implemented effectively, these policies would nudge foodservice operators to rethink their single-use packaging and adopt alternative solutions.

In the meantime, there are several ways in which companies providing SUP alternatives can address some of the common barriers to adoption, working either on their own or in partnership with foodservice providers themselves.

Addressing Common Barriers to Adoption

01

Identify Partnerships with Other SUP Alternative Providers

Foodservice operators rely heavily on their suppliers to provide the materials they require to run their businesses, and also prefer to work with one supplier that can provide multiple inputs or solutions. The combination of these factors makes many foodservice operators hesitant to shift away from their current suppliers. They worry about the reliability of the startups themselves as well as the steady availability of supply, and are also concerned about the lack of substitutes – and the reputational risk of switching back to SUPs if supply interruption occurs. Startups should explore working with other plastic alternatives companies, as well as wholesalers and distributors, to build a bigger portfolio of solutions, which could help minimize supply risks and help foodservice operators to have access to a range of products and solutions to meet needs across their operations.

02

Bring the Customer on the Journey

Foodservice operators should remember that consumer behavior and demands can be cultivated and changed over time. When foodservice operators implement operational changes to phase out SUPs, consumers will also adapt. This transition can be seen as an experiential journey that invites participation from consumers and brings about increased brand loyalty.

03

Identify Opportunities for Short- and Long-Term Savings

Currently, plastic material alternatives cost at least twice as much as SUPs. Foodservice operators are concerned with passing this onto the customers, but also do not want to – and may not be able to afford to – absorb the added costs into their businesses. Of course, unit economics will change over time as plastics alternatives achieve economies of scale, but in the meantime, there are opportunities to achieve savings. For example, foodservice operators can incentivize customers to use their own containers and cups for takeaway service, which can result in reduced packaging use and associated costs for the operators.

The Way Forward

The SUP Challenge was designed to help accelerate the transition to plastic alternatives and understand ways to minimize their negative impact on the environment.

There is a clear need for ongoing innovation, testing and feedback loops between producers and users of SUPs in order to ensure that alternatives are viable. There are also several ways to move emerging solutions forward.

Harnessing the collective energy and concern of the many companies already working to advance solutions can help accelerate the transition away from SUPs. With reuse/refill solutions, the additional logistical requirements of washing, labeling and transporting reusable packaging bring about business opportunities for shared infrastructure that can help individual businesses better manage the costs and logistics of these aspects of product distribution.

Similarly, there is an opportunity for the many small players developing SUP alternatives to band together to offer multiple solutions to foodservice operators as well as the suppliers that are supply chain middlemen. Foodservice operators can also use their bargaining power, as major customers, to exert influence on suppliers to encourage them to provide SUP alternatives that work across the industry.

Finally, as the LCAs conducted as part of The SUP Challenge revealed, there are real environmental costs and benefits to SUP alternatives, which policy makers, foodservice operators and solution providers should all take into consideration. Existing LCA tools such as **UP Scorecard** and **WWF Alternative Materials Tool** are useful resources for foodservice operators and solution providers to identify the environmental impacts of different packaging materials. Expanding these tools to include a greater range of packaging materials from South and Southeast Asia, such as those featured in The SUP Challenge can help operators and startups make more informed decisions on the alternative solutions to deploy, and have easier access to LCAs at lower costs.

Technical Assistance Playbook

In order to stimulate more collective action, and the learnings that can be gleaned from cross-sector collaboration, The Incubation Network has published **Accelerating Circular Solutions to Single-Use Plastics,** a technical playbook based on its experience running The SUP Challenge and supporting the Circular Impact Market Accelerator. The playbook is intended to be an end-to-end guide for market acceleration of circularity solutions, outlining the activities and considerations that should be undertaken to support engagement between solution providers and partner companies, which is critical to developing plastic alternative solutions.

The playbook comprises five parts. Components laid out are in the sequence undertaken to enable market acceleration of circularity solutions, and can serve as modular reference to similar programs:

1. Engaging Partner Companies
2. Engaging Startups
3. Pilot Planning
4. Pilot Management
5. Post-Pilot Support

It is our hope that the technical playbook can seed many more collaborations between operators and solutions providers, in the foodservice industry and beyond, and that the learnings in this report can serve as a useful starting point for additional efforts so that growth and refinement of SUP alternative solutions can occur at the pace and scale that the plastic pollution crisis demands.

What's Next

It is our view that by partnering with a diverse network of key partners to source, support and scale holistic innovative solutions to strengthen entrepreneurial ecosystems, we will be able to combat plastic pollution in South and Southeast Asia.

Join us

Access regional connections, best practice and expertise; gain access to insights and connections; receive financial and technical support to scale your startup

Work with us

Rally more private investment and partnership to co-fund and help scale innovations

Partner with us

Engage more government support of entrepreneurs to pilot and test solutions with public benefit

About

The Incubation Network

The Incubation Network is an impact-driven initiative that sources, supports and scales holistic innovative solutions to combat plastic pollution through strengthening entrepreneurial ecosystems with a diverse network of key partners.

Part of a highly collaborative community of startups and entrepreneurs, investors, partners and programs, The Incubation Network works together with industry players to tackle key barriers to address plastic leakage and advance a circular economy. This includes sourcing and supporting, to scaling early stage or pre-investment solutions and connecting compatible ecosystem players to reinforce the value chain in waste management and recycling.

Established in 2019, The Incubation Network is a partnership between non-profit organization, The Circulate Initiative and impact innovation company, SecondMuse. The Incubation Network is open to interested collaborators, corporations, and mentors, looking to address plastic leakage and advance a circular economy in South and Southeast Asia.

For more information, visit: incubationnetwork.com

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ALLIANCE TO END PLASTIC WASTE

Acknowledgements

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Funders

PREVENT Waste Alliance

The PREVENT Waste Alliance serves as a platform for exchange and international cooperation for organizations from the private sector, academia, civil society and public institutions who jointly engage to advance a circular economy. The PREVENT members contribute to minimizing waste, eliminating pollutants and maximizing the re-utilisation of resources in the economy worldwide. They strive to reduce waste pollution in low- and middle-income countries and work together for the prevention, collection, and recycling of waste, as well as the increased uptake of secondary resources. The PREVENT Waste Alliance was launched in 2019 by the German Federal Ministry for Economic Cooperation and Development.

For more information, visit: **prevent-waste.net**

ECCA Family Foundation

ECCA Family Foundation was established in 2020 to support and inspire transformative change with a strong focus on preserving our global ecosystems, especially the oceans and forests, and on protecting biodiversity for our future generations.

For more information, visit: **eccafamily.foundation**

Insights Contributors

PXP Sustainability

pxp-sustainability.com

PXP Sustainability is a consultancy that assists businesses, non-profit organizations, and development agencies measure sustainability, identify the root causes of the challenges, and build strategies that lead to positive outcomes. PXP is driven by systems thinking, evidence-based methods, and stakeholder engagement and specializes in life cycle assessment, circular economy, and the energy transition with a focus on Southeast Asia.

The Circulate Initiative

thecirculateinitiative.org

The Circulate Initiative is a non-profit organization committed to solving the ocean plastic pollution challenge and advancing the circular economy in South and Southeast Asia. In partnership with key industry stakeholders, we work to build more circular, inclusive and investible waste management and recycling systems. The Circulate Initiative pursues two key strategies to achieve its goals: incubating new solutions and developing research and insights.

Entrepreneur Support Organizations

AtWorks

at.works

AtWorks is an impact-focused entrepreneur platform based in India. Since 2014, they have directly supported over 400 startups to scale and grow. AtWorks seeds and co-develops effective programs around venture building for impact across Asia, including Climake, a growth platform for climate tech startups to access markets,equity and non-dilutive capital.

Climate Collective Foundation

climatecollective.net

Climate Collective Foundation is a Section 8 non-profit based in India focused on empowering entrepreneurs throughout the Global South by building, or strengthening, local climate startup ecosystems. They manage a community of more than 6,000 climate tech startups and aspiring climate tech entrepreneurs and focus their work in India, Sri Lanka, Maldives, Nepal, Bangladesh, Pakistan, and Bhutan.

Entrepreneur Support Organizations

Evergreen Labs

evergreenlabs.org

Evergreen Labs, headquartered in Danang, Vietnam since 2016, is an innovative venture studio focused on building back a better future with an aim to solve pressing environmental and social challenges through circular, transformative solutions in emerging Asia. Evergreen Labs' work and solutions have been scaled or implemented in Vietnam, Laos, Thailand, Myanmar, Philippines, Bangladesh, Indonesia, Singapore, and Africa.

GoMassive Incubators

gomassive.in

GoMassive Incubators Pvt Ltd is an India-based incubator, headquartered in the Delhi NCR region, that is working in the area of climate change and sustainability through various initiatives. GoMassive is also a sponsor of the Climate Angels Fund (SEBI registered) and is investing in startups solving for plastic waste and circular economy among other startups working in the area of climate change.

Instellar

instellar.id

Instellar is an Indonesian-based, purpose-driven company that helps businesses be more impactful, sustainable, and scalable. They have been working on various distinguished projects and programs since 2014, playing the role of a catalyst, a connector, and a community platform, to develop an ecosystem for mission-driven businesses and social enterprises in Indonesia.

RISE IMPACT

www.riseimpact.co

RISE IMPACT is passionate about social innovation and entrepreneurship that catalyzes systemic change in Thailand. They specialize in delivering social enterprise consultation as well as impact venture incubation and acceleration programs. Their impact incubation program, Snowball, mainly focuses on early-stage impact ventures doing pilot tests and exploring potential early adopters. Since 2019, they have worked with 13 impact ventures in various sectors such as education, environment, health, and more.

Schoolab

theschoolab.com

Schoolab is a global innovation studio based in Paris, San Francisco, and Ho Chi Minh City that trains, advises, and accompanies its clients and partners towards responsible innovation by activating the entrepreneurial and collaborative qualities of people. Schoolab has focused its impact-driven mission to support its partners around circular economy, diversity, equity and inclusion, and sustainable cities and communities.

Entrepreneur Support Organizations

Seedstars

seedstars.com

Seedstars was founded in 2013 in Geneva, Switzerland, and has a network of thousands of entrepreneurs, investors, incubators, corporations, and government organizations from more than 90 countries. In Asia, Seedstars has a presence all over the continent. As an impact-driven company, Seedstars does a lot of sector-specific work in support of the UN Sustainable Development Goals.

Villgro Philippines

villgrophilippines.org

Villgro Philippines is an early-stage impact incubator and investor headquartered in Manila. They support innovators who are addressing the most urgent social and environmental issues through innovative market-based models. Villgro Philippines has a direct portfolio of 39 enterprises across health, education, agriculture, affordable housing, and women and girls in Southeast Asia.

Startups

Abscon F&B Pvt Ltd
Advance Materials Sai Gon Co Ltd
Alga Bioteknologi Indonesia
Allas
Alterpacks Pte Ltd
AmplePac
Astu Eco Pvt Ltd
Avani Eco
Bambuhay
BANC
Baneu
Bare Necessities Zero Waste Solutions
Beco
Biogreen Biotech Pvt Ltd
BioReform Pvt Ltd
Brown Reed Agri Waste Innovations Pvt Ltd
Cloudwash
Cupable India
Daunuang
Delifill
DropRefill
Ecomap
Econesia
Ecopak
EcoplastID
Embuer Health Pvt Ltd
EQUO
EveGrocer
Evoware
Fangthai Factory Company Limited
Fibercell
Galaxy Biotech
Glassic
Go Purun

Startups

Good Food Loop
Green Joy
Greenwaste Papua
Hope Box
HRK
iBag
Ibanss
Imaga
InfinityBox
iRefill
Izifill
Kagzi Bottles Pvt Ltd
Kasoi
KauBali
KidKid Co Ltd
Kiwari Bamboe
Koinpack
Mana.st Company Limited
Micro Vending Tech
Mo Cau Xu Tien
MOSS
Nano Onions
Nazava
NOPA
NU
Plépah
PlusTreat
PT Seaweedtama Biopac Indonesia
Qudrat
Refillable
Rumah Jambe-e
SACHI-Group Inc
Salin PH
Sprout Pvt Ltd
Srishti Lifescience Private Limited
Tana
Teostraw
Terra Bioware
Tien Duc
Unpack
Zerocircle Alternatives Pvt Ltd
ZeroPlast Labs

Food and Beverage Companies

India

Artjuna
Aurum Brew Works
Fruitilicious
Indian Hotels Company Limited (Taj Resort & Convention Centre)
Mojigao
Prana
The Beer Cafe
Villa Nova

Vietnam

Cafe Xom Chieu
Coco Casa
Coffee Bike
Eco Green Boutique Hotel Da Nang
Hyatt Regency Danang Resort And Spa
Pizza 4P's
Rusted Beer
Savall Chocolate
Sofitel Saigon Plaza

Food and Beverage Companies

Indonesia

Aston Canggu
Atas Nama Kopi
Bali Water Station
Berasa Catering
Burgreens
Cielo Coffee & Eatery
Good Belly
Honu
INDISCHE 1931 Coffee & Roasters
Jkovkoffie
Joglo Mas Foodcourt
Kopi Bawah Tangga
Kopi Hidup Baru
Kopi Kalyan
Kyuri Burger
Little Bali
Mikkro Espresso
Moody Dimsum
Nasi Peda Pelangi
Rhedish Point
Smooly Juice
The Roots
Warung Fotkop
Warung Lestari (chain with 37 warungs)
Work Coffee Indonesia
Yoisho

The Philippines

Bizu Patisserie and Cafe
Butterboy
Common Folk
Crossroads
Hatch & Hoolman
The Green Table

Thailand

361 THREE SIX ONE
Blackheath Bistro
Broccoli Revolution
Coffee Car Cafe
My Beer Friend
One O-one Cafe
Petit Patisserie
Singha Complex
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