

REPORT

# SMEs and food processing markets in Cambodia



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## EXECUTIVE SUMMARY

The study interviewed six stakeholders and six food processors to begin understanding the food processing landscape in Cambodia. The study finds that the food processing industry is at a very nascent stage, with very few Micro, Small and Medium Enterprises (MSME) or bigger enterprises in Cambodia. Most of the processed foods consumed are supplied by home-based enterprises that do not follow food safety and hygiene protocols that keep customers safe. Higher quality products that customers are purchasing are imported from countries such as Vietnam and Thailand whose food processing infrastructure allows their products to be priced much cheaper than locally produced MSME products.

The food processing businesses in Cambodia face several challenges that impede their ability to compete with these imported product or export their products internationally. There is a lack of in-country technical expertise on many aspects of food processing, especially, product development, storage and packaging from the perspective of food safety and consumer preferences. There is a lack of local infrastructure to support production of food processing machinery, food testing, service providers that support business refurbish their facilities and use packaging that allows them to meet international food safety protocol.

Interviews unearthed a shortage of skilled labour in various areas relevant to the food processing business. Enterprises mentioned finding labour who know how to operate the imported machinery and finding service providers to repair the machines when they breakdown is a challenge. Furthermore, enterprises mentioned not being able to find staff who are knowledgeable about food science, food safety protocols across the supply chain and production cycle, branding and marketing. In addition, they mention not having access to reliable and affordable service providers in-country who could provide this support either.

Short-term specialized trainings in these topics could help address many of these skills-gap and dearth in local expertise. While the study was able to interview a few technical support and incubator programs that are supporting different types of food businesses, there seems to be low awareness about the different types of governmental, non-governmental and private sector support that is available for entrepreneurs in Cambodia.

All enterprises interviewed were using electricity, however, the source of fuel for home-based enterprises, where most of the locally consumed foods are being purchased, is unknown. Future studies should investigate home-based enterprises' journey and challenges related to improving their production processes to develop a more complete picture about food processing in Cambodia, and examine the role of financial products in aiding or impeding their journey.

# TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
TABLE OF CONTENTS	3
1. INTRODUCTION	5
2. STUDY OBJECTIVES	6
3. METHODOLOGY	7
3.1 Research methods	7
3.2 Research phases and timeline	7
Desk Research Phase	7
Key stakeholder and food processor interviews Phase	7
Analysis and synthesis Phase	8
Study timeline	8
3.3 Research sample and location	8
4. KEY FINDINGS	10
4.1 Processed food landscape in Cambodia	10
The Cambodian plate	10
Sources of processed foods	11
Eating and food purchasing behaviour	12
Impact of COVID-19 on customer behaviour	13
4.2 Stakeholder mapping of food processing in Cambodia	14
Distribution of food processors in Cambodia	14
Mapping the journey of food processors	16
Enabling entities and programs	18
4.3 Challenges of food processors in Cambodia	19
Lack of technical knowledge in country	19
Challenges around food safety and certification	20
Branding and packaging issues	21
Production costs	21
Unfriendly financial products	22
5. VIGNETTES OF FOOD PROCESSORS	23
5.1. Diverse channels of support	23
5.2. Building and growing together	26

5.3. A global vision	27
5.4. Gender in food processing	29
6. CONCLUSION	32
7. LIMITATIONS AND CHALLENGES	34

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# 1. INTRODUCTION

MECS is supporting the transition of low-income economies from biomass to the use of modern energy cooking services (i.e. cooking with electricity, gas or renewable energies). Economic prosperity and demographic change in Cambodia have led to significant changes in food culture, with the adoption and increased consumption of pre-cooked and processed foods in eating patterns.

The state of the domestic food processing industry provides a direct insight into the level of technological, social and economic development within the country. [The MECS Landscaping study – Modern Foods report](#) highlights that the higher a country's processing capacity, the lower its percentage food loss – increasing a country's processing capacity may, therefore, have an effect on reducing food waste, therefore ensuring efficient utilization of cooking energy. At the same time, research also shows that Cambodia's processing capacity is very low, suggesting that entrepreneurs of many sectors (food processing included) faced political, financial, and technological constraints to engage in running profitable food business ventures.

Increased consumption of pre-cooked and processed foods is part of a global shift in eating patterns. However, there is a gap in understanding how processed foods fit into Cambodian people's eating patterns and where there is potential to displace cooking energy from household kitchens. Findings from this study will inform iDE and MECS's broader effort to address factors critical to achieving a large-scale transition toward sustained use of modern energy for cooking in Cambodia.

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## 2. STUDY OBJECTIVES

The study design and research questions were guided by the core objective to understand how MECS can best utilize innovations around food processing and production to ensure smooth transition to cleaner and more sustainable cooking systems that also meet the aspirational lifestyles of urban populations in Southeast Asia. To do this, six research questions were formulated at the beginning of the study to guide the study design:

1. What kinds of pre-cooked foods are on offer and how popular are they? Where do they originate from?
2. What are the challenges of scaling up 'modern' processed, nutritious, convenient food products?
3. What is the availability of 'modern' processed, nutritious, convenient food products in markets, both formal and informal?
4. What are consumers' attitudes towards products (e.g. preferences, awareness)?
5. How are markets and related consumption patterns changing in contemporary environments, including during and post-Covid-19, and how is the commercial food sector (including street vendors) implicated?
6. Who predominantly buys pre-cooked food? Why? How popular are they? What issues of access are encountered?

The study was designed to find answers primarily through key informant interviews and interviews with food processors. As customer interviews were not included, insights on customer behaviours and attitudes (question 4 and 6) are not as deeply discussed as the other questions.

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## 3. METHODOLOGY

### 3.1 Research methods

The exploratory nature of the study required the study team to use qualitative research techniques for sampling, data collection and analysis. The team also applied Human-Centred Design methodology (HCD), where applicable, to acquire a behavioural understanding of people, their actions, their beliefs and attitudes central to processed or pre-cooked foods.

In-depth semi-structured interviews were the primary data collection method used in this study. In addition to interviews, desk research was conducted to review relevant reports and collect information from webinars that were referred to during key informant interviews.

All study participants were assured confidentiality and anonymity with regard to the information they were providing. Names of the food processors have therefore been changed to protect their identity. Any photos used in the report have been done after gaining consent from the participants.

### 3.2 Research phases and timeline

The expedited and exploratory nature of the study did not allow for a chronological phasing of activities. However, there were distinct types of activities that were happening, sometimes simultaneously to each other.

#### Desk Research Phase

Previous reports from MECS projects provided a strong foundation to identify types of food processing organisations that could be interviewed. In addition, webinars conducted by [EuroCham](#) were helpful in understanding how food safety requirements and protocol impacted food processors in Cambodia.

#### Key stakeholder and food processor interviews Phase

In-depth semi-structured interviews were conducted with key stakeholders in the food processing space. These interviews helped to:

- 1) understand the sectoral issues that affect food processing in Cambodia;
- 2) identify food processors who could be interviewed to understand their direct experience of running a food processing business in Cambodia.

All stakeholder interviews were conducted in English while some food processor interviews were conducted in Khmer and others in English. Nine of the eleven interviews were conducted virtually with just two interviews that were conducted in person.

## Analysis and synthesis Phase

The data from desk review and interview phases were analysed using storytelling and thematic analysis to generate insights and a stakeholder mapping of the local food processing landscape in Cambodia. The data was synthesised to understand the journey of food processors over a timeline size and progress, starting at the household or individual level and moving to the level of a medium to large enterprise. These allowed the study team to develop profiles and vignettes of some of the food processors that highlighted some themes that emerged from the data.

## Study timeline

**Table 1: Study activities and timeline overview**

Study activities and timeline												
	October		November 2021				December 2021				January 2022	
	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2
Alignment meeting												
Field planning												
Data collection												
Analysis & synthesis												
Report writing												

### 3.3 Research sample and location

A total of eleven interviews were conducted and twelve people were interviewed. Five of the interviews conducted were with key informants and the remaining six interviews were with food processors. The sampling for some key informant interviews and all of the food processor interviews were developed through the snowball method.

One of the six food processors was located in Battambang, one enterprise was based out of Takeo (a neighbouring province to Phnom Penh) and the remaining four enterprises were based in Phnom Penh. The table below (Table 1) provides an overview of the study sample.

**Table 2: Study sample overview**

Study sample overview
Stakeholder interview list

No.	Type of Org.	Organisation Name	Location	
1	Business incubator	Impact Hub	Phnom Penh	
2	Technical support program	Harvest II	Phnom Penh	
3	Financial support program	SHE Investments	Phnom Penh	
4	Technical support program	HEKS	Phnom Penh	
5	Online grocery store	Grocerdel	Phnom Penh	
<b>Food processor interview list</b>				
No.	Type of enterprise	Name of enterprise	Products	Location
1	Micro-enterprise	4M	Soymilk	Battambang
2	Small enterprise	Sna Dai Me	Dried fish and pickles	Phnom Penh
3	Medium enterprise	Leang Leng	Fish sauce and 6 sauces	Phnom Penh
4	Small enterprise	Aliments	Organic food store, fresh juices, Kimchi and pickles	Phnom Penh
5	Micro-enterprise	DARM	Dried noodles	Phnom Penh
6	Home enterprise	SouHean	Fresh and dried noodles, soymilk and tofu	Takeo

## 4. KEY FINDINGS

### 4.1 Processed food landscape in Cambodia

#### The Cambodian plate

The study first uses the United Nation's NOVA classification of foods to examine the Cambodian food plate or basket of goods to understand the levels of processing which foods consumed in a typical meal undergo. Similarly to the foods consumed by populations across the South East Asian region, Cambodians consume rice, noodles and soups, and, due to the French influence, breads in the form of locally produced baguettes with stews or as sandwiches, as part of their meals. Fruits and vegetables are bought fresh with some pickled vegetables being incorporated into soups or eaten as accompaniments to the meal. Meats are bought fresh, or in processed form as sausages, fermented paste, paté, meatballs or in dried form (e.g dried fish "*Trei Ngiet*" or dried beef jerky "*Sachko Ngiet*"). Table 3 provides an overview of the main food groups found in meals and their levels of processing according to the NOVA classification system.

There are very few ultra-processed foods in the Cambodian diet currently. While instant noodles can be found at many noodle vendors, fresh noodles made from wheat or rice and dried rice noodles are also available as options for customers. Canned and bottled beverages might be the most prominent ultra-processed foods Cambodians are consuming. Slightly less processed beverages consumed are soymilk, fresh citrus and sugar cane juices, coffee, teas and bubble tea from shops and street vendors.

**Table 3: Overview of frequently consumes foods (meals) in Cambodia**

Category of food	Different types of food	Level of processing (NOVA)
<b>Food consumed in meals</b>		
Rice	Rice, Rice noodles, Rice flour	Minimally processed
Wheat	Freshly made unpackaged bread, wheat noodles, instant noodles	Processed food (bread and noodles) Ultra-processed (instant noodles)
Other starch	Potato/tapioca/cassava noodles (fresh and dried noodles)	Processed foods
<b>Meat</b>		
Red meat	Fresh pork and beef Sausages Dried beef/beef jerky	Processed foods

Poultry	Fresh chicken and duck	Unprocessed/minimally processed
Seafood	Dried fish Dried shrimp Fermented fish paste (Prahok) Fish balls	Processed foods
Mixed	Pate/meatball (reconstituted meat)	Ultra-processed
Vegetables	Fresh Pickled	Unprocessed/minimally processed Processed foods

## Sources of processed foods

According to stakeholder interviews, much of the locally-processed foods are produced by individuals or in home-based, informal settings. Wet markets are the primary location to sell these goods, while some home-based enterprises might also sell them from shops set up outside their homes. Products from informal processors such as meatballs, fish balls, sausages, *Prahok*, pickled vegetables or soy milk can be found in wet markets, being sold unpackaged or in containers with little to no branding in wet markets.



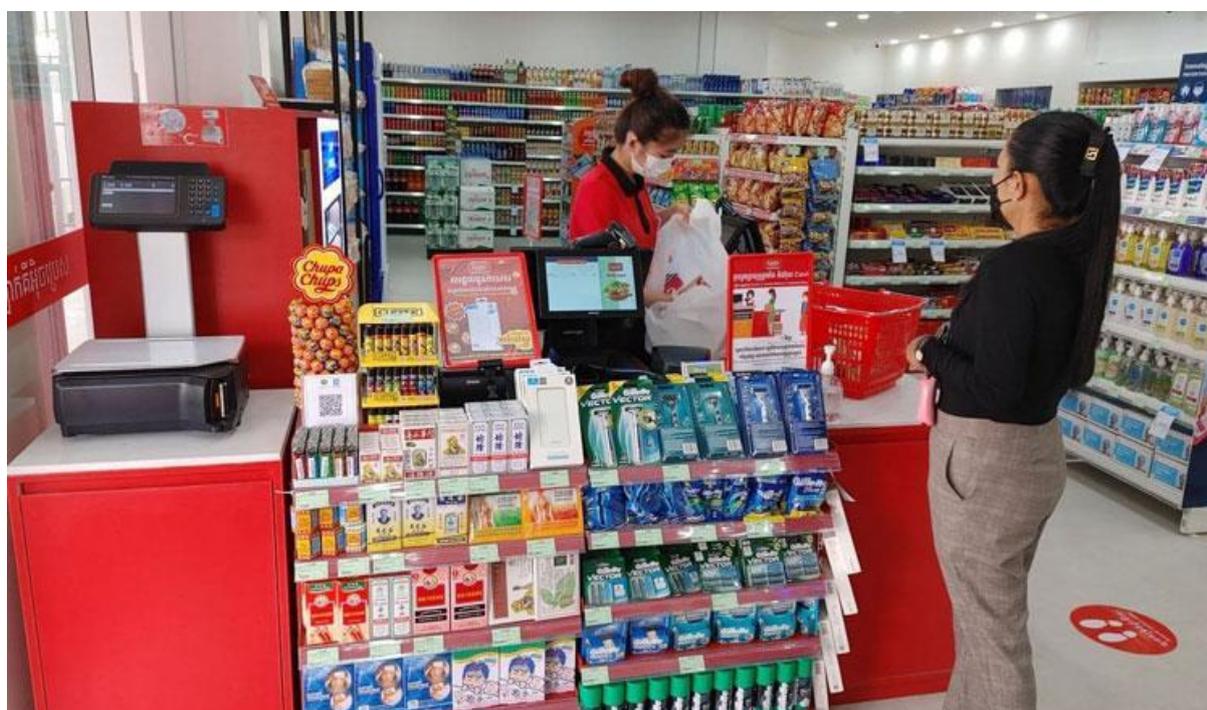
Figure 1: Dried fish and other locally processed foods sold in a wet market kiosk

Wet markets also sell products from formal processing units which are usually products imported from Thailand or Vietnam. These products are distinguishable from local options because of higher quality packaging and branding. For example, imported products might

come in vacuum packed or heat-sealed plastic packages, while local products might be loosely wrapped in plastic and closed with a rubber band. These imported products can also be found in supermarkets. Products produced by local enterprises who were interviewed in the study were primarily sold in formal markets such as supermarkets or organic food stores.

## Eating and food purchasing behaviour

From stakeholder interviews and interviews from a companion research project conducted at the same time as this study on eating out habits, the study team was able to conclude that most of the food that Cambodians eat are freshly prepared either at home or are purchased from vendors/restaurants. And most of the foods purchased for cooking at home are sourced from wet markets.



*Figure 2: Inside one of the supermarket chains that are burgeoning in Phnom Penh*

However, there has been a recent increase in small and more affordable supermarkets providing an accessible yet aspirational option for households who are looking to shift their purchasing behaviour. One of the stakeholders interviewed mentioned that over the last 2.5 years she has been seeing a steady increase in the percentage of Cambodian customers for her online grocery delivery. “While in the beginning, the early adopters for my service were foreigners living in the city, now 60% of my customers are Cambodians”. This coupled with the increase in the number of supermarkets, is a strong indicator of the increasing interest among Cambodian households to purchase foods and household essentials from supermarkets and less from wet markets.

One of the reasons for customers could be to shifting their purchasing behaviour to supermarkets could be due to the increased level of hygiene and food safety provided by

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supermarkets. From stakeholder interviews and desk research the study was able to find that food safety in wet markets is impacted at two stages:

- 1) at the production stage where home-based enterprises are not aware and able to comply with safe food protocols;
- 2) at the point of sale where products are stored and displayed in unhygienic conditions.

On the other hand, study interviews also reveal that there is a general lack of awareness about food standards such as the importance of organic food, chemicals and other risk factors that could affect quality of food. The owner of an organic store mentioned having trouble both at the customer level and at the supplier/farmer level. “There is a very low level of awareness about what organic means and why it is important”, she explained.

However, interviews from stakeholders and from customers in the Eating Out study do indicate that some aspects of hygiene and food safety seem obvious enough for consumers to feel that wet markets are less clean and more unsanitary.

While a deeper study is required to fully understand all the factors that could be influencing customer purchasing behaviour, the study was able to identify two potential factors based on the stakeholder and market analysis:

- 1) Products sold in supermarkets and grocery stores are much more expensive than products sold in the wet market;
- 2) supermarkets and grocery stores do not have all the processed foods that Cambodian households need.

Due to these factors (and more), a large section of the population is still shopping for their household needs at wet markets because of their affordability and diversity in products available.

The study was not able to conduct a survey of food items available in wet markets and supermarkets to check which foods are not available in supermarkets and quantify the price differences. A more comprehensive study is required to identify what percentage of the Cambodian’s processed food needs have safe and affordable locally-produced options in both markets.

## Impact of COVID-19 on customer behaviour

“During the pandemic, I saw customers shifting toward buying healthier products. For example, instead of soda or carbonated drinks they were buying Kombucha. Kombucha sales increased so much during the pandemic”, one stakeholder reported.

“People were also buying raw ingredients for bread instead of buying bread. They had more time on their hands, so now my customers were cooking. This impacted some of the suppliers of processed foods such as bakeries who saw a decrease in demand for their products as more families were learning to cook these dishes by themselves at home,” she continued.

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Keeping with this new trend, one of the online grocery stores introduced a new product/service “meal in a box” that allowed families to buy raw ingredients to cook a specific dish by themselves.

“They were also buying larger quantities per purchase and buying less frequently,” two study respondents (Aliments and Grocerdel) noted. The COVID-19 lockdowns seemed to introduce a new behaviour around buying larger quantities of groceries and storing them in the fridge for a week. Usually, Cambodians buy fresh produce in the market every day, but due to restrictions in mobility, those households with access to a refrigerator were able to buy groceries in larger quantities.

One of the respondents (Grocerdel) also mentioned that during the lockdowns, in addition to buying larger quantities, customers were choosing fewer perishable foods as well. This impacted food processors who were producing products that had a shorter shelf life. It is yet to be seen if this trend towards less perishable foods was a temporary response to COVID-19 lockdowns or if this is a trend that will continue in Cambodia. This can have implications for the domestic market potential of processed foods in Cambodia.

## 4.2 Stakeholder mapping of food processing in Cambodia

### Distribution of food processors in Cambodia

Stakeholder interviews confirm that Cambodia has very limited capacity to process foods. One interviewer mentioned that very low quantities of agricultural products are processed in the country as most of the raw commodities are sold to Vietnam or other countries where they are processed. These processed products are then brought back into the country for domestic consumption. In addition, locally processed foods are predominantly produced by home enterprises or individuals, with very few micro to small enterprises and just a handful of medium to large enterprises present in Cambodia. Figure 3 provides a visual representation of this situation.

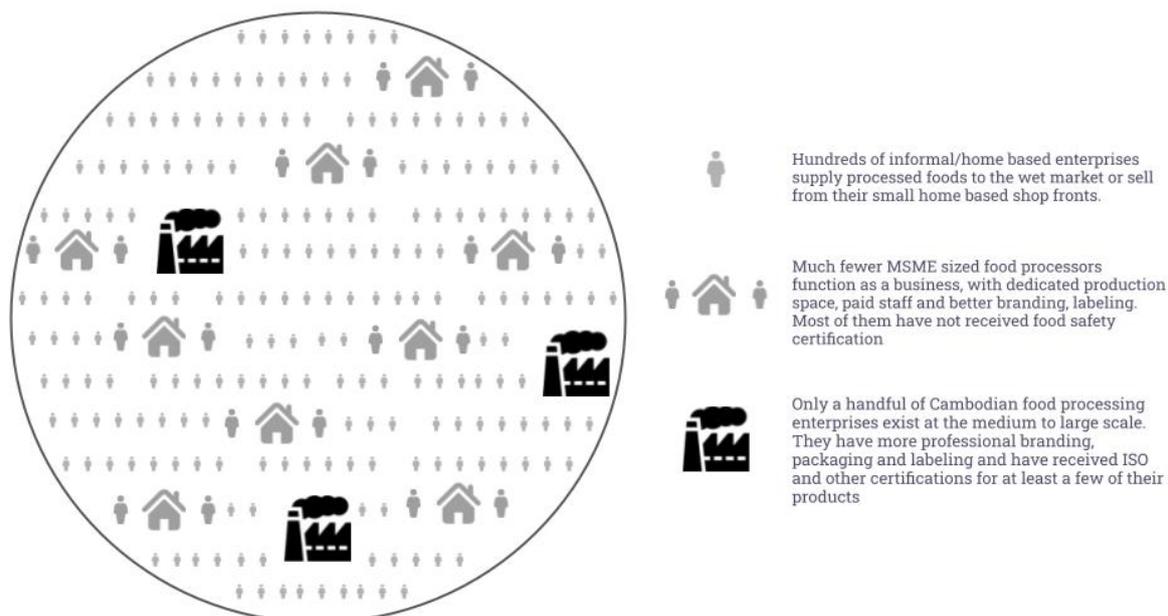


Figure 3: Food processing in Cambodia

One question that arises from this study is how to define these different types of food processors. There seems to be a spectrum along which these enterprises sit. On the extreme left are individuals who are processing and selling foods either as a hobby or to supplement their household incomes. While the study did not interview these enterprises, one can surmise that they would be processing foods in their household kitchen, with minimal special machinery, and no paid staff to help them. SouHean and 4M differ from these home-grown enterprises because they have identified themselves as a business, and have invested some money in equipment. One of them has just one paid staff, while the other has no staff but they both have received support from incubator and technical support programs such as Harvest II and Impact Hub.

Older and slightly larger than 4M and SouHean are DARM, Sna Dai Me and Aliments. While DARM is the smallest, all three of these enterprises have dedicated production space with investments in commercial processing equipment. They are at varying stages of improving their branding, labelling and packaging. But none of these five enterprises have received food safety certification for any of their products yet. Therefore, while their products might be better packaged and produced in cleaner conditions than a home-based enterprise, it is unclear if they can be distinguished by a customer. Leang Leng is the only enterprise in the study who had received food safety certification, but even then, only for one of the seven sauces they sell. Production capacity for Leang Leng is larger than all the enterprises interviewed, with over 60 staff employed and with plans to expand further by building a factory over the next 2 years.

If food safety is the standard to measure all enterprises, then only Leang Leng partially qualifies, while all other enterprises in the study will be deemed informal or uncertified. From a customer's perspective it is therefore not clear how one would go about choosing products

to buy that are safe and hygienic. While food safety certifications such as ISO and HACCP are the gold standards, are there lower levels that allow customers to know where in the spectrum the product's processor lies?

## Mapping the journey of food processors

The study was able to interview food processing enterprises that were at different stages of their business journey allowing us to draw a somewhat linear journey based on business stages. However, it is not clear if every enterprise needs to start at the very early stages (e.g Leang Leng might have skipped a few stages due to financial and culinary resources) or if home enterprises aspire to move along this linear journey towards becoming a large-scale entity.

“Most of these home-based enterprises are not interested in running a full scale business, so it is very hard to train them and have them improve their processes and products”, explained one stakeholder about the challenges of working with home-based enterprises that are run as an income supplement for the household and not the primary occupation of the individual food processor.

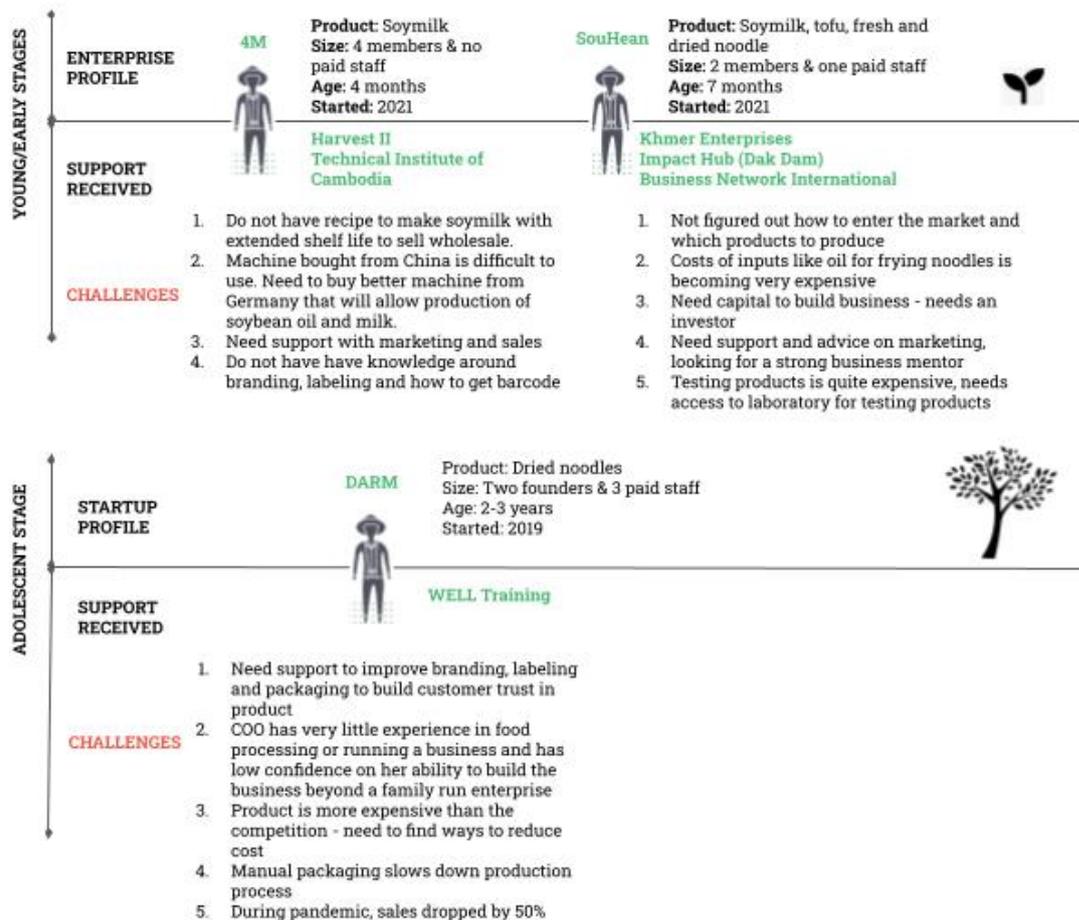


Figure 4: Journey of food processors - part 1

From interviews it was clear that 4M and SouHean are at the early stage of product development and market testing, while DARM, Sna Dai Me and Aliments have progressed further along with established products and market linkages, but looking to strengthen operations. Leang Leng enterprises could be posited as being at an aspirational stage for the other five enterprises because it has received ISO certification, has over 60 employees and is currently looking to expand operations by building a larger factory.

Of the six enterprises, SouHean and Leang Leng mention receiving the most forms of formal support either in the form of financial, training or networking support. DARM has the least exposure to any of the support programs with WELL<sup>1</sup> training being the only support the enterprise has received (Figures 4 & 5).

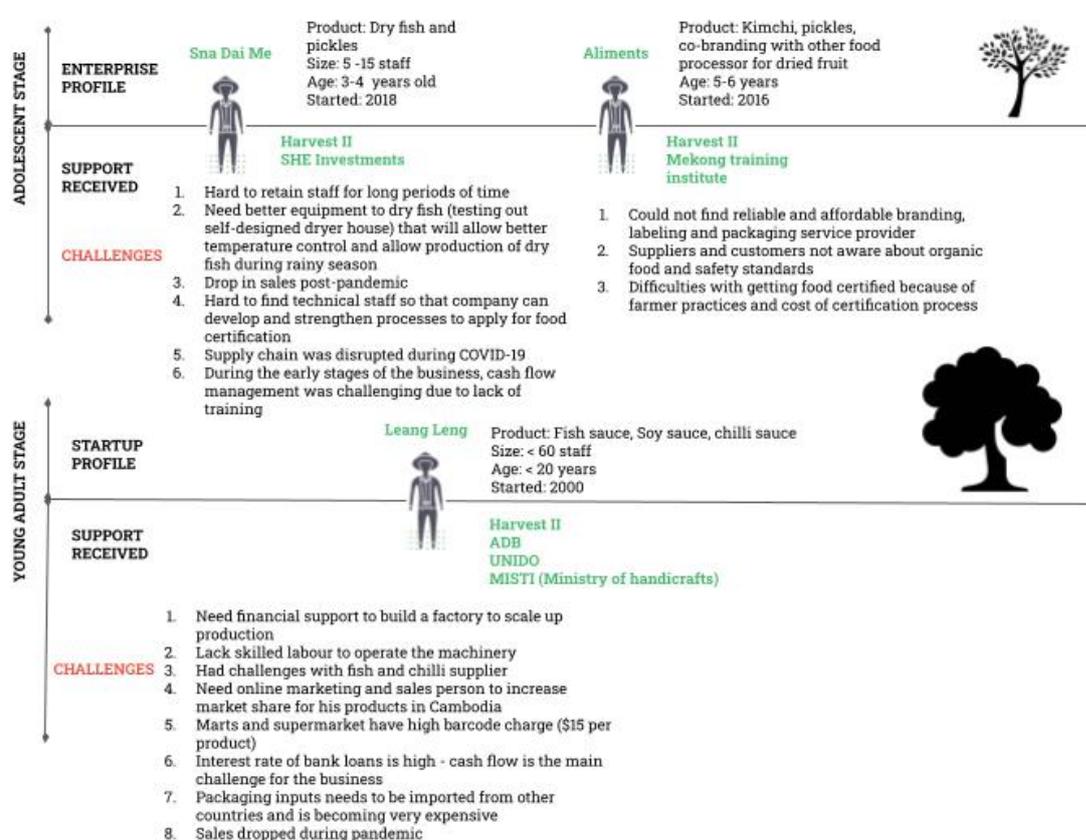


Figure 5: Journey of food processors - part 2

In terms of challenges, the early stage enterprises are tackling challenges around accessing seed capital, product development and building market linkages, while the remaining enterprises mention challenges related to hiring and retaining labour, standardizing operations or need for specialized support for digital marketing, branding and food safety. Section 4.4 provides more information about these challenges.

<sup>1</sup> More information about this training program was not available while the report was being written.

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## Enabling entities and programs

The in-depth interviews helped identify a few government, non-government and private programs and institutions that are working with entrepreneurs and MSMEs to help propel their growth in Cambodia. This is not a comprehensive list and more research is required to document all programs that are of support to food businesses.

**Incubators and accelerator programs:** Impact Hub, USAID's Harvest II, HEKS and SHE Investments were interviewed for the study because of their focus on supporting food or agricultural businesses of varying sizes. In addition, the study team attended a webinar conducted by EuroCham, the official European business community in Cambodia on food safety for export. The following types of programs are available for food processors in Cambodia to help grow their business further:

1. Impact Hub's DakDam is a 9-month incubator program that is run in collaboration with HEKS with a focus on supporting micro level agriculture businesses. The program just opened its second chapter and provides \$5000 to a small number of enterprises, in addition to technical and business support for the shortlisted group of businesses. Impact Hub conducts other programs to provide support to entrepreneurs in Cambodia, including networking events, coaching, mentoring and training on specific business skills.
2. SHE Investments' THRIIVE program provides \$10,000 interest free loan in addition to business coaching and mentoring for female run businesses. The unique aspect of the THRIIVE program is the loan repayment requirement – \$1000 needs to be paid back in cash while the remaining \$9000 needs to be invested in the community and does not need to be repaid to SHE Investments.
3. Harvest II provided grants and technical support to agricultural businesses to grow. Food processors who were interviewed for the study mentioned receiving training on food processing and connections that helped them find buyers, investors and business partners through this program.
4. The SME Bank provides loans for small and medium enterprises in Cambodia. Despite the government's interest in promoting and supporting Small and Medium Enterprises (SME),<sup>2</sup> stakeholder interviews mention that these business loans do not suit the needs of smaller processors because of their high interest rates and requirement of collateral to qualify for lower interest rates. Piseth (Leang Leng enterprises), confirmed that as he considers expanding his business, he finds bank loans on offer have very high interest rates. As one of the most successful and established SME food processing businesses in Cambodia, his worries with regard to high interest bank loans confirm that financial products are not designed to support fledgling and established enterprises to grow.
5. ARISE+ is implemented by GIZ in Cambodia and supports local food processing companies with food safety regulations and compliance to allow them to export their

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<sup>2</sup> <https://www.khmersme.gov.kh/en/support-for-sme/access-to-finance/>

products to an international market. They co-hosted the webinar on Food safety for exports along with EuroCham as a way to bridge gaps in knowledge among food processors about food safety standards for exporting their products.

6. Khmer Enterprises (KE) is the implementing entity for a government trust fund titled Entrepreneurship Development Fund (EDF). Similar to support provided by SHE Investments and Impact Hub, KE provides financial and non-financial support to entrepreneurs, innovative start-ups and enterprises that show potential to grow into SMEs.
7. Ali-SME is a network/program initiated by Aliments Organic and Healthy Foods, an SME that currently runs an organic shop, works with farmers to source healthy and organic food and partners with food processors to produce safe and healthy foods. The primary goal of Ali-SME is to promote small businesses, share knowledge to develop their marketing and branding and link them to the market.

In terms of support received, Harvest II seems to have worked with enterprises at all stages of business and product development. They are mentioned by 4M, Aliments, Sna Dai Me and Leang Leng enterprises. Their training, technical assistance through expert consultants, linkages to suppliers for raw produce and exposure to potential business partners are mentioned as being particularly helpful for these enterprises.

SHE investments was mentioned by one food processor and DakDam by another, but overall there seemed to be a lack of awareness among the food processors interviewed about what types of training, financial support and technical assistance are available to Cambodian food businesses. There is an opportunity to create a knowledge sharing platform that brings all the stakeholders together so that food processors know when programs are being offered by private, non-profit, international, local and government entities.

### 4.3 Challenges of food processors in Cambodia

#### Lack of technical knowledge in country

Interview with 4M highlighted the lack of technical knowledge available in the country about food processing. Mean was frustrated that after receiving training from Harvest II, his company still did not know how to make soymilk safe and stable. While a professor at the Institute of Technology Cambodia (ITC) is helping him research this issue, Mean was not sure when he would be able to start production and sales of his product. "There are no short-term courses on food processing, only degree programs," he explained.

Piseth (Leang Leng enterprises) received this technical know-how from being part of his family's fish sauce business before venturing out on his own. Sna Dai Mei was able to rely on Socheata's mother's recipe, and DARM had the recipe from the original noodle maker who trained Pilika's mother. Aliments decided to partner with a local food processor circumventing this product development challenge. However, other food businesses with no background in

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food processing and those without options to partner with others who know how to produce a certain type of food will face challenges similar to 4M.

***Lack of knowledge in food processing:*** Interviews with other stakeholders confirmed that this lack of technical knowledge in-country became a greater bottleneck during the pandemic when international experts could not travel to Cambodia and provide in-situ support. Interviews with technical support program managers and food processors confirmed that online training and consultations proved insufficient to meet the needs of trainees.

***Lack of knowledge in machinery maintenance:*** In addition to lack of knowledge on food processing, there is also a deficit of skilled manpower to operate, maintain and repair the machinery required for food processing. As all machinery used for food processing is imported from countries such as China, Thailand, Korea, Germany and Thailand, there is a lack of skilled technicians in Cambodia who know how to work with them. Enterprises, especially small enterprises face challenges when the machines need minor or major repairs.

Recognizing the steep costs that need to be incurred by food entrepreneurs due to the lack of local and affordable technology, Impact Hub Phnom Penh is looking to replicate a Maker's Lab program that is implemented by Impact Hub Yangon. This could address many of the challenges early stage food businesses are facing by providing access to machinery and technical assistance that will allow food entrepreneurs to test their products in the market quickly and without making large financial investments for production, labelling or storage.

## Challenges around food safety and certification

Lack of skilled manpower is mentioned in several other contexts, especially by enterprises who have crossed the early stages of the business. Sna Dai Mei, Leang Leng Enterprises and Aliments mention challenges in finding skilled manpower who are knowledgeable about food safety protocol that would allow the company to procure food safety certifications. In order to meet food safety norms, a business needs to employ a multidisciplinary team with experience in primary production, microbiology, public health, food technology, environmental health, chemistry and engineering. There is a lack of skilled manpower to meet these needs of food MSEs who would like to improve their production processes.

In addition to manpower, the business needs to invest in upgrading the production premises as well. According to food safety regulations, the production area needs to be at least 62 sq mts, and the materials for flooring, walls and ceilings need to be changed from wood to glass (and other recommended materials). It can cost \$13,000 and more to renovate the premises to meet food safety protocol.

Finally, there is a lack of food testing laboratories in Cambodia, further driving up costs for food businesses who need to send their products to Vietnam to get them tested for certification. Businesses also face challenges receiving certification due to lack of documentation from suppliers or the recurring cost for renewing certificates every 1-3 years.

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For example, ISO 22000, which is one of the most comprehensive standards and is required for import into the USA, is valid for 3 years but requires documentation from the entire supply chain. It costs \$1500-\$3000 for the initial audit, \$1000 for the second and third year and \$1200-\$2000 for recertification in the fourth year. After the initial audit, any recommendations provided by the auditor need to be addressed by the business which could include changes to where the product is sourced, stored, aspects of production or packaging and final storage or shipment. Any of these changes are additional costs for the business.

## Branding and packaging issues

Sna Dai Me, Aliments and DARM mentioned challenges around branding, marketing and packaging. As the business has crossed the first few stages of developing a product and finding a viable market, issues around better branding, packaging that meets both food safety standards, and is affordable and visually appealing become important to expand sales. Leakna (Aliments) is one of the most trained and qualified respondents in the study. She has worked with the ministry in several positions, and has been able to visit food processing facilities in Cambodia and abroad. Her experience allowed her to realise how important branding and packaging are for Aliments' products, and she mentioned how challenging and frustrating it was to not be able to find reliable companies that could provide labels that met her design needs and packaging that was affordable and high quality. "My expertise is in food production, not packaging", she mentioned. Pilika (DARM) mentioned getting advice that her packaging and labelling are not par to the quality of her product. "If people see my product next to other noodle products, they will buy the others. But if they taste my product, they will only buy mine. I need to improve how my product looks", she explained.

In order to compete with imported products from countries like Thailand and Vietnam, Cambodian food enterprises need access to affordable and reliable packaging and branding services. As this directly impacts their ability to penetrate the market and qualify for food safety certification, the current challenges are preventing the businesses from reaching their potential.

## Production costs

One of the challenges faced by local producers are the high costs of production due to the need to import machinery, high cost of skilled labour and small-scale production. Domestically produced products are more expensive than imported products, affecting their ability to expand their market share. While one of the stakeholder interviews mentioned electricity costs as being one of the drivers for some of the food processing businesses, only one producer mentioned electricity costs as an issue in production.

However, as most of the enterprises interviewed were at the smaller stages of production, cost of electricity has not come up as an issue yet. Perhaps, as these businesses become more efficient in their other processes, and as they expand production capacity, perhaps the cost of electricity (and other inputs) might become an issue. One of the stakeholders interviewed was interested in hearing if food processors had access to solar powered technology. All food

processors interviewed were using electricity or gas for processing so there was no scope to further improve their energy usage unless they could be moved to solar technology that allowed them more precise temperature control and allowed their products to reach the high temperatures they need for certain types of processing.

### Unfriendly financial products

While all enterprises interviewed mentioned that financial support would be helpful, they did not mention this as one of the biggest challenges they were facing. Only Leang Leng enterprises spoke openly about needing to make decisions between looking for investors or taking bank loans to fund the next phase of expansion. Aliments mentioned not receiving any financial assistance until very recently and having relied on investors to fund their operations so far. DARM was funded by individual savings from her family and their partner Veasna, and had not thought about how they would fund the new machine for packaging (\$5000) yet. Sna Dai Mei also did not mention specific financial needs that were coming up or plans on how she would be managing them.

Overall, it does look like financing for MSMEs can be improved, however, dearth in technical support, lack of access to affordable technology and scarce food safety infrastructure might be a bigger issue impeding the growth of businesses.

## 5. VIGNETTES OF FOOD PROCESSORS

### 5.1. Diverse channels of support



*Figure 6: Pilika transporting her products to her retail partners*

Pilika and her mother moved from Battambang to Phnom Penh around three years ago. They heard people talking about the delicious pumpkin noodles that come from Battambang. “My mother made friends with the producer and we started selling his product in Phnom Penh. But there was so much loss from breakage. Four out of ten noodles would be broken by the time it reached us. So I suggested to my mother to try making it by herself here.” This was the beginning of DARM.

Veasna (Founder of SouHean), Pilika’s mother’s godson joined her mother to set up this business three years ago. “I am not a food expert. He knows a lot about the food industry. He studied at the Royal University of Agriculture and went to Israel for an internship. He and my mother have been running the business for the last 2 years. But he had to leave in December 2020.”

“I just joined the company three months ago”, Pilika explained in November, during the interview. “When he left, it became very hard for my mother to manage on her own. So, I learnt from her step by step. Finally, after 3 months, I found myself. I have a vision now. I want my people (customers) to eat food without chemicals.” When asked what kind of support she received for her business, Pilika mentions receiving help from people she befriended over Facebook. She calls them friends and during the interview she mentioned two who are helping her tactically with her business operations and branding.

“One of my clients from my fitness coaching days told me I should do digital marketing and through her I am doing free business training from WELL. I am learning how important it is to think about my staff safety and security. Now the production team wears gloves and hats, there is a fire extinguisher and I am also looking into getting them health insurance.” Another friend suggested that Pilika buy a machine for packaging so she can save on labour costs. “She is looking into which machine to buy and from where. She knows more about this and is making sure I get a good price.”

“I like social media very much. I am shy, but on social media I am able to speak about my product and ask for help. Friends from social media gave me good advice.” Pilika’s openness to reach out on social media and receive advice and help could be pivotal to where her business is right now and how it will grow.



*Figure 7: DARM's products*

DARM now sells dried noodles made from Pumpkin, Taro and Sweet potato and will soon introduce purple cabbage noodles as well. Currently DARM noodles are available in ten grocery stores around Phnom Penh.

DARM’s journey began with her mother befriending a noodle maker in Battambang and the company was born when she and her godson decided to partner together and make noodles in Phnom Penh. Now with Pilika at the helm, she continues to grow her support network through social media. Her future plans based on advice she has received is guiding her toward having better branding and packaging for her product, mechanizing packaging to increase her production capacity and reduce costs and most importantly, improving working conditions for her staff (three people work with her mother on production).



*Figure 8: DARM's production staff*

## 5.2. Building and growing together

Aliments started in 2016 with a vision to develop all aspects of the agricultural supply chain such as providing inputs to farmers and developing retail outlets, but the start-up faced steep challenges in the initial years, and decided to focus only on developing the retail outlet. They currently operate one organic store in southern Phnom Penh.

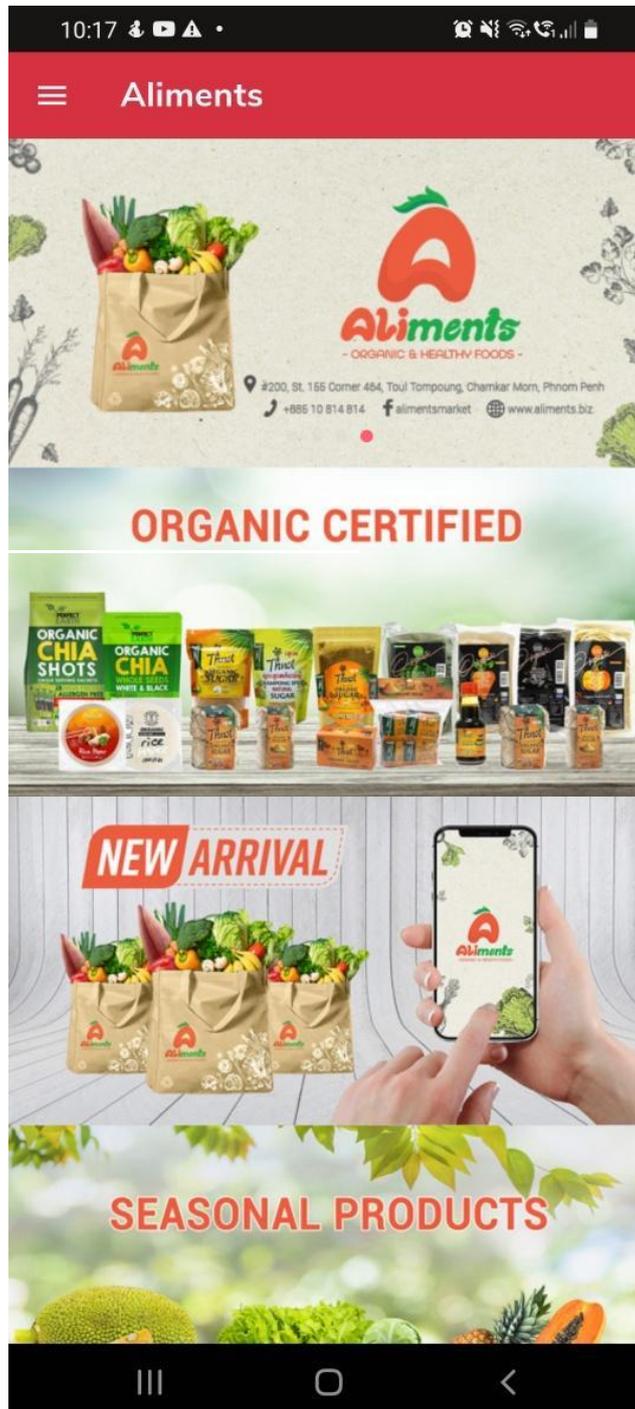


Figure 9: Aliments mobile app

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The company started some food processing activities in 2018 in an attempt to reduce wastage of farm produce. They process kimchi, and some vegetable pickles, and offer fresh juices and a salad bar in their store. “We are starting small and keeping it simple. The products we chose are not complicated to make and store, and don’t need machinery,” explained Leakna (Aliments).

Recently, the company has decided to expand their product range by co-branding with a local food processor who supplies dried fruits and vegetables to their store. “We would like to build that brand. Customers are beginning to recognize us and we want to build more trust among the customers. We will source the vegetables for Navitas, and they will do the processing and packaging. Co-branding allows us to leverage each other’s strengths. We have more experience in marketing and have a market presence which they will benefit from,” Leakna explained.

Ali-SME is a program that was initiated by her in response to the challenges she and other food businesses in her circle were experiencing. “We are busy as SMEs, we need reliable companies that can provide us quality packaging and branding services. We do not have a specialty in this area. This was why we realized it is important to share our knowledge with each other. Navitas, one of the processors who are working with Aliments and is part of Ali-SME program received a lot of publicity recently and this has elevated Ali-SME in the sector and now a lot of NGOs are interested in this network/program. One of the key goals for Ali-SME is to link small businesses to markets and help promote them.

### 5.3. A global vision

Socheata introduced herself as the COO of her company ‘Sna Dai Me’ which translates to ‘Mother’s achievement’. “It is important to have a clear goal and vision”, she continued. “We started the company in 2018 with four reasons in mind: (1) We saw many foods imported from other countries, but they are similar to our food; (2) my mother’s recipes; (3) we saw many foreigners don’t know about Khmer traditional food; and (4) we can help farmers by helping sell their products (e.g pickling their cucumbers).”

Sna Dai Me produces 10 different types of dry fish and pickles from radish and cucumber (separately). In addition to processing food, they have two organic shops in the outskirts of Phnom Penh. Their products are also sold at Chip Mong supermarket who are a large supermarket chain in Phnom Penh, with retail presence in several provinces as well. The company employs 5 people full time and during high season they hire up to 10 people (short-term) to increase production capacity.



*Figure 10: Dried fish and pickled bamboo shoots (From left side to right).*

Of the food processors that were interviewed in the study, Sna Dai Me had the strongest vision linked to traditional Cambodian foods. “In 5 years, I want my company to be a standard company. By standard company, I mean, I want to be able to export my products to Europe. There are so many Cambodians living there who don’t have access to food from their home. They must be missing their food so much. I want it to be the number one company, producing food without chemicals.”

When speaking about the company’s journey so far, she mentions learning a lot and some key support that helped. “Harvest II had consultants who helped me understand how to make the pickling process safe. They also provided two training sessions. I learnt the rest through google and YouTube.” She also received mentoring support from SHE Investments. “SHE advised me on business planning, cash flow and capital management, and staff management. “When the business had just started, I made so many mistakes when it came to cash flow management. It was a family business, so I was not keeping records too well. I have learnt a lot since then.” she laughed.

“Now I am planning to shift the fish drying from sun dry to using a dryer house which will run on electricity.” This decision was based on two issues the company was facing:

- 1) Hard to retain labour due to the harsh conditions of working under the sun. “They want to work in a factory – indoors – not in the sun.”
- 2) With a dryer house, we will be able to control the temperature. “During the rainy season, our drying production capacity drops because we are reliant on the sun.”



*Figure 11: Food testing laboratory*

When discussing impacts of COVID-19, unlike other food processors, Sna Dai Mei saw a surge in demand and initially faced some challenges when the lockdown cut off their supply chain for raw material. “We found a solution quickly. We got permission to send our own car out to the farm to procure the goods.” However, now, she mentions sales have reduced. “The economy is stuck. Our sales have dropped. But our expenses remain the same”, she shared.

When thinking about the future, and what she needs to reach her 5-year goal, she mentions the need to develop her staff capacity. “I need staff trained in managing sales, have knowledge about marketing, packaging, labelling, product development and food safety. After we have these skills, I know we can be a standard company”, she stated. This information is very much in line with the requirements on food safety and certification mentioned on the EuroCham webinar. Technical knowledge on these aspects are some of the key gaps in the local human resource pool in Cambodia. It will be of interest to see how Socheata and her team overcome these challenges in the coming years.

## 5.4. Gender in food processing

The study interviewed three male and three female run businesses. While the sample is not large, patterns around gender influences emerged in product choices and attitudes that impacted their businesses.

4M is a company that was founded by Mr. Mean and three others who realized there was an opportunity to produce and sell high quality, affordable products such as medicinal tea and soymilk in Battambang. The company decided to start their enterprise by producing and selling them through local grocery stores. After several rounds of testing their product, they were able to improve the taste of the soymilk based on customer feedback, but soon realised they needed to stop production and look into increasing shelf life of their product. “We found out that soymilk cannot be stored for more than 2-3 days. And we were producing more than how much the stores could sell over just a few days.” SouHean sells fresh tofu, soymilk, noodles and dried noodles. This was the first company that had such a high number of products at such an early stage in the journey. SouHean currently does not have linkages with retail outlets and sells products to customers over Facebook. SouHean was shortlisted for DakDam’s incubation program and is hoping to build his business further through this support.

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Sna Dai Mei, Aliments and DARM, chose longer shelf life products to produce and sell. They seemed to have started their journey observing the market and understanding sales needs. “We heard people talking about these delicious pumpkin noodles”, Pilika had explained. “There is a lot of interest in different coloured noodles,” she had clarified about why she was expanding her product range to include Taro, Purple cabbage and Sweet potato. Socheata from Sna Dai Mei mentioned noticing a domestic market opportunity in crowding out imported foods with her own, and an international market opportunity based on Cambodians living abroad. Her products were chosen based on her mother’s recipes – an important asset for a food company. Pilika had a similar advantage as well. Her mother learnt how to make the noodles from the producer, and got support from her godson on how to make the food safe and hygienic. “We started small and chose products that are simple to make and won’t need machines”, Leakna from Aliments shared.

**Practical experience:** When comparing the five companies, Aliments, Sna Dai Mei and DARM are at a much more developed stage. While 4M is just a few months old, SouHean and 4M both face an additional challenge related to product development, food safety issues and ability to expand sales due to the nature of the product chosen – a fresh and perishable product. While the women, perhaps because of existing knowledge from managing their kitchens, seemed to have chosen products that were easier to store, with no requirement for cold supply chain to reach the customer.

In addition to product choice, DARM and Aliments had a cautious and focused journey for their business. “I will need to test my new product out for 6 months before it is ready to sell to customers,” Pilika explained when talking about her new purple cabbage noodles. Leakna’s strategy for Aliments was to focus on just retail, try a few simple foods for processing and now co-brand with another processor to expand their business without needing to invest in new operations.

**Risk:** In contrast, Veasna (SouHean), despite being in the research and testing phase of his company, is offering four products, a risky decision that stretches their scarce start-up resources over multiple channels instead of focusing on one product. During the interview he mentioned interest in further expanding his product range to dried fruits as well. A similar risk-taking behaviour can be observed in the story of 4M, where machinery to produce soymilk was procured before assessing market potential and exploring product stability and shelf life. “We don’t know how to assess market potential and need help with this”, Mean mentioned as one of the challenges his company is facing.

**Negotiating power/presence:** When interviewing Socheata and Pilika, two instances highlighted how their gender affects their business. Despite having run the company since 2018, Socheata mentioned that her husband’s support has been very important to her as he advises her and also accompanies her when meeting suppliers/farmers. It is interesting to see this reliance on a man to conduct price negotiations for her supplies, a role that is traditionally assigned to men in agrarian communities.

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***Fear/reluctance to scale or Identity as a business owner:*** In Pilika's case, when she was informed of SHE investment's Thrive program, as an avenue she could explore, she was extremely reluctant to apply as she believed she was not ready. "When I don't know anything, I don't want to apply. I am very traditional about selling. We are like a family; we sell simple products. I just think it's simple. My friends push me to 'grow up' but maybe I am like this because I am very new in the business". Pilika's reluctance to seek support from organisations like SHE Investments and Impact Hub, stands in stark contrast to SouHean's journey. Despite being at a much earlier stage in the business journey, the company has received \$5000 from Khmer Enterprises and is currently shortlisted for the DakDam at Impact Hub and if successful will receive \$5000 more in funding and valuable business training and support over the next 6 months.

Women entrepreneurs such as Pilika, who have not fully assimilated their identity as being a food business owner, might be more reluctant to seek the help that they most direly need. Incubator and accelerator programs might need to develop their promotional material, and even examine their application processes to see how gender neutral or women-friendly they are.

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## 6. CONCLUSION

Overall, most MSME sized food enterprises that were interviewed in the study are using electricity as their primary source of energy, perhaps due to the design of machinery they need for production. There seems to be little scope on this front to further improve energy consumption unless they are provided solar options. As electricity and access to machinery were mentioned as challenges for small food enterprises in the interviews, providing affordable technology that is energy efficient along with training for personnel on how to operate and repair the machines will address multiple pain-points identified in the study.

While different support programs are available in Cambodia that provide some combination of financial, technical and market linkage support, there seems low awareness about these programs among the processors who were interviewed. A short-term intervention that improves and eases access to the programs that are already being provided by the different government ministries, non-governmental organisations and private sector can help more MSMEs improve their business practices, improving the quality of their products they produce and becoming more financially viable businesses. The intervention could involve doing a more comprehensive survey of the different types of programs, and developing a directory that gets regularly updated.

A Facebook group could provide this information to all food processors who are interesting in accessing the program. If this already exists, then it would be helpful to promote this and check the quality of membership, content and engagement. Interviews indicated that connecting MSME food processing on one platform can help with knowledge exchange and faster learning cycles for their businesses.

In the medium to long term, in-country technical capacity in food processing for locally relevant products is required. Currently, experts from other countries are required to train food enterprises, and the training courses that are available are university degrees which are not suited for businesses. Short-term specialized courses need to be developed to build in-country capacity. In addition to product development expertise, topics related to food safety in food processing, marketing strategies including but not limited to appropriate packaging and labelling, how to assess market potential and implement different marketing tactics including digital and traditional modalities, were frequently mentioned as areas that enterprises needed support. The businesses mentioned needing to be trained on these topics, having difficulty finding staff who are skilled in these areas and finding service reliable and affordable providers in country in these topic areas.

While improving food safety was not mentioned by many enterprises as a challenge, most were unaware what the requirements were to get certified. The few that were trained in the topics, or were at that stage in the business where they wanted to standardize their operations and get certified, mentioned some challenges. There are no food testing laboratories in Cambodia, very few service providers who can refurbish production facilities, and cost of receiving certification is expensive and sometimes challenging when working with suppliers

who do not understand or unable to provide documentation required by international food safety protocols. There is therefore a steep cost for enterprises when they decide to improve their operations to meet these international protocols, further raising the cost of their production and product.

A deeper and more holistic research focussed on how and when food safety impacts different types of enterprises (size, stage in business, type of product etc.) is required. As food safety affects all stages of a food processing business, right from input procurement all the way to packaging, storage and conditions at point of sale, future research into this topic should allow for a holistic and comprehensive investigation.

Most enterprises and stakeholders interviewed mentioned these as the key challenges that were impeding the local food processing industry from growing and compete with imported products. While more can be done to improve the financial products that are currently available for MSMEs, the study was not able to investigate this deeply enough to understand what pain-points exist, but could be the topic for future research.

In addition, a new perspective to consider from energy losses and sustainability, is packaging technology to support circular economy principles. As Cambodia's food processing industry is at a nascent stage, there is an opportunity to provide disruptive technical inputs that can allow the industry to leap-frog into zero-waste packaging and reuse-return models of packaging, without needing to invest in recycling and incineration technology. While a large section of the population shop in wet markets where products at sold unpackaged, plastic bags are still used to portion and sell products at point of sale. New aspirational models of purchasing can be introduced with bulk stores or pre-packed foods in returnable containers to help the sector become more energy efficient and sustainable.

## 7. LIMITATIONS AND CHALLENGES

One of the limitations of the study was the limited sample size that could be interviewed in the allocated time and budget. The small sample size introduces limitations on how the insights generated can be used.

To optimize resources allocated for the study, stakeholder interviews and food processors interviews were prioritized as the sample for interviews and excluded customers. In addition, among the food processors, only MSME-sized food processors were included within the scope of the study. All home-based enterprises that were supplying processed foods to the wet markets were excluded from this study, limiting the ability to get a complete picture of food processing in Cambodia.

Due to restrictions imposed by the pandemic, most of the interviews were conducted virtually, limiting the team's ability to visit the processing facilities and take photos.

One of the key challenges faced was finding time within a business owners' schedule is challenging and the team is very grateful for the enterprises that were willing to speak with us on such short notice. Due to the urgent timelines and small sample sizes, enterprises that were included in the interview were based on their availability. While the team attempted to contact a diverse set of enterprises, if more time and resources were available, more enterprises could have been contacted based on products stocked in supermarkets and wet markets.

This study hopefully opens the opportunity for a deeper study to understand the landscape of processed foods that allows the inclusion of small, home-based enterprises that are one of the major suppliers of processed foods in Cambodia.