



# Cambodia's Cassava in Regional Value Chain

Keo Sombath, Sim Sokcheng and Sey Jakkrya

Draft Research Report



May 2024





## ACKNOWLEDGMENTS

Cambodia's cassava in regional value chain is a study conducted by the **Cambodia Development Resource Institute (CDRI)** with financial assistance from **Michigan State University (MSU)**. We are deeply grateful to MSU for its support since the start of the project.

I would like to express my deepest gratitude and special thanks to **Dr. Sim Sokcheng**, Director of the Center for Policy Research in Agriculture and Rural Development (CPARD). He played a leading role in providing professional guidance, insightful consultation, and invaluable comments throughout every stage of this research endeavor. His expertise, dedication, and unwavering support have been instrumental in shaping the direction of this study and steering it towards successful completion.

I would like to extend my extremely gratitude and thanks to **Dr. Suresh Babu**, Head of Capacity Strengthening and Senior Research Fellow at the International Food Policy Research Institute (IFPRI), for generously offering his time and expertise to provide commentary during the research seminar. Dr. Suresh's insightful commentary and constructive feedback added immense value to the seminar, enriching the discussion and enhancing the quality of our research findings.

I extend my sincere thanks to **Ms. Sey Jakkrya**, research assistant, and **Ms. Phoung Sokhim**, intern, whose significant contributions were indispensable to the successful completion of this report. Their dedication, diligence, and expertise played a pivotal role in various aspects of this research project, particularly in the meticulous collection and analysis of data.

I would like to express my heartfelt appreciation to the **General Department of Customs and Excise (GDCE)** for their invaluable assistance in providing data related to the export of raw cassava and starch within the region. The data provided by GDCE played a significant role in our analysis, enabling us to gain crucial insights into the dynamics of cassava trade and market trends within the regional context.

I extend my sincere thanks to the local processing factories in Cambodia for their gracious cooperation and willingness to participate in interviews for this research. Their invaluable insights and perspectives have been instrumental in providing a deeper understanding of the intricacies of cassava processing and its role within the local and regional value chains.

## EXECUTIVE SUMMARY

This research study investigates the role of Cambodia's cassava sector within the regional value chain, focusing on post-harvest production, local processing, and export in regional market. Cassava holds significant economic importance in Cambodia, particularly as a cash crop for smallholder farmers, and processing factories. Understanding its position within the regional context is essential for enhancing its competitiveness and sustainability.

The study employs a qualitative approach, using key informant interviews (KIIs) with key processing factories to gather insights into processing facilities, challenges, and opportunities. Secondary data were collected from the General Department of Custom and Excise of Cambodia (GDCE) to provide a comprehensive overview of the cassava value chain and Ministry of Agriculture, Forestry and Fisheries (MAFF) to understand of the production.

Key findings reveal that Cambodia's cassava sector within 14 million tons of production were divided into two main channels, export and local processing. Cassava is mainly exports accounted for 96%, with the majority of fresh cassava roots being sent to Vietnam and Thailand. The data highlights Cambodia's significant role in the regional market as a key supplier of raw cassava. Additionally, the low percentage (4%) of fresh cassava roots used for local processing. Native starch emerges as a key export product, predominantly destined for China. This export destination underscores the growing demand for value-added cassava products, presenting an opportunity for local processor. However, local processing in Cambodia face significant challenges. The most pressing difficulties include complaints about shortages of cassava raw materials, high processing costs, and fluctuations in raw cassava prices. These issues hinder the efficiency and profitability of local processing operations, emphasizing the need for strategic interventions to support this sector.

In conclusion, this research highlights the imperative for targeted policy interventions and collaborative efforts to optimize the utilization of Cambodia's cassava resources. By addressing the challenges faced by processors, diversifying export destinations, promoting local processing, and enhancing value addition, Cambodia can enhance its competitiveness and foster sustainable growth in the regional cassava industry.

## **ABBREVIATIONS AND SYMBOLS**

ADB:	Asian Development Bank
CCFTA:	Cambodia-China Free Trade Agreement
CNCP:	Cambodia National Cassava Policy
GDCE:	General Department of Custom and Excise of Cambodia
IPSARD:	Institute of Policy and Strategy for Agriculture and Rural Development
MAFF:	Ministry of Agriculture, Forestry and Fisheries
RGC:	Royal Government of Cambodia
UNDP:	United Nations Development Programme

## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	i
EXECUTIVE SUMMARY .....	ii
ABBREVIATIONS AND SYMBOLS.....	iii
TABLE OF CONTENTS.....	iv
LIST OF FIGURES .....	vi
LIST OF TABLES.....	vii
1. INTRODUCTION .....	1
1.1. Background .....	1
1.2. Objectives of study.....	2
2. OVERVIEW OF CAMBODIA TRADE RELATIONS IN THE REGION.....	3
2.1. Cassava in regional value chain: Cambodia-Thailand & Cambodia-Vietnam .....	3
2.2. Cambodia-China trade relation and trade agreement.....	3
3. METHODOLOGY .....	5
4. CURRENT CAMBODIA’S CASSAVA IN REGIONAL VALUE CHAIN.....	7
4.1. Production .....	7
4.2. Estimated demand .....	9
4.3. Processing .....	10
4.4. Exportation and market access.....	11
4.5. Mapping of Cambodia’s cassava value chain .....	12
4.5.1. Business models of Cambodia's cassava processing factory .....	12
4.6. Key challenges and opportunities .....	14
4.6.1. Key challenges .....	14
4.6.2. Key opportunities.....	15
4.7. Government policy on Cambodia’s cassava 2020-2025.....	16
5. POLICY RECOMMENDATION.....	18
REFERENCES .....	19



## LIST OF FIGURES

<b>Figure 3.1. Mapping of Study Area .....</b>	<b>5</b>
<b>Figure 4.1. Total estimated demand for Cambodia's cassava .....</b>	<b>9</b>
<b>Figure 4.2. Business models of Cambodia's Cassava processing factory.....</b>	<b>14</b>



## LIST OF TABLES

<b>Table 3.1. Respondent profile .....</b>	<b>6</b>
<b>Table 4.1. Cassava production in the last 4 years 2020-2023.....</b>	<b>8</b>
<b>Table 4.2. Cassava highest production in the 7 provinces .....</b>	<b>8</b>
<b>Table 4.3. Statistic of cassava domestic processing.....</b>	<b>10</b>
<b>Table 4.4. Formal and informal Cambodia’s cassava regional export .....</b>	<b>11</b>
<b>Table 4.5. Total cost of starch processing between Cambodia and Vietnam .....</b>	<b>15</b>

# 1. INTRODUCTION

## 1.1. Background

Cambodia plays a pivotal role in the regional agricultural landscape, particularly as one of the major producers of cassava in the Southeast Asian region. Cambodia's cassava is now an essential agricultural commodity, contributing significantly to the country's economy and also to rural livelihoods (Asian Development Bank (ADB), 2021). It is widely recognized as the second-largest crop in terms of production and consumption after rice. Cambodia's cassava production presents a strategic opportunity to enhance economic diversification, expand market access, and promote sustainable development (United Nations Development Programme (UNDP), 2021). Cambodia's geographical proximity to major cassava-consuming countries in Southeast Asia, such as Thailand, Vietnam, and China, positions it strategically within the regional cassava value chain (Kasumi et al., 2021). Leveraging this proximity, Cambodia has the potential to enhance its participation in regional trade networks and capitalize on the growing demand for cassava-based products (Cambodia National Cassava Policy (CNCPP), 2020). Therefore, Cambodia's cassava in regional value chains, especially Thailand, Vietnam, and China have been a topic of interest for researchers recently. In the last decade, cassava productions have been commonly exported formally and informally in the regional market. Vietnam imported both dried chips and fresh roots, while Thailand imported mostly dried chip from Cambodia. Native starch is exported predominantly to China, the EU, and other countries (Ministry of Agriculture, Forestry, and Fisheries (MAFF), 2022-2023).

While Cambodia possesses abundant natural resources and favourable agro-climatic conditions for cassava cultivation, the cassava sector in Cambodia faces several post-harvest challenges that affect its quality and profitability (Martin, 2023). One of the main issues is the rapid deterioration of cassava roots after harvest, which occurs within 12-72 hours after detachment from the plant. This necessitates farmers to either sell their produce immediately or convert it into dried chips or starch in order to maintain the quality and quantity for market risk and demand. Other challenges included limited access to technology and modern agricultural practices, inadequate infrastructure for post-harvest processing and transportation, and fluctuating market prices (Peuo et al., 2020; V. Peuo et al., 2021). Transporting and selling cassava directly from producers's to processing factories over distances ranging from 50 km to 400 km in Cambodia is not cost-effective. This makes the cassava price unstable and it becomes challenging for stakeholders in the value chain. Addressing these challenges is crucial to

unlocking the full potential of Cambodia's cassava sector and fostering sustainable economic growth.

Moreover, the cassava processing capacity in Cambodia is limited and often small or medium scale. Most of the cassava produced in Cambodia is exported as low-value products such as chips and starch, while high-value products such as modified starch, ethanol, and glucose are not widely produced. This makes the Cassava sector reliant on border trade and susceptible to market volatility and trade restrictions and limits the potential for value addition and diversification of the cassava industry.

## **1.2. Objectives of study**

1. To examine the existing cassava post-production value chain in Cambodia and identify associated challenges and constraints
2. To explore potential opportunities and strategies to improve the value chain and increase the competitiveness of Cambodia's cassava in the regional market

The study will cover the following aspects:

- The demand and supply of Cambodia's cassava in the region, especially from China, Vietnam, and Thailand. China is the main importer of processed cassava products, while Vietnam and Thailand are the main buyers of raw cassava from Cambodia.
- The mapping of cassava processing facilities in Cambodia, including their capacity, technology, quality standards and market access. The study will identify the gaps and opportunities for upgrading and expanding the processing industry in Cambodia.
- The analysis of the models of agribusiness development beyond production of Cassava. The study will explore how to boost local investment in processing and value addition, as well as how to create linkages between farmers, processors and markets. We will also examine the incentives and challenges for agribusiness development, such as tax policies and agriculture industrial park.
- The exploration of the private sector's role and potential in cassava sector development, especially from China. The study will look at the existing and potential Chinese investments in cassava processing in Cambodia, as well as their business models, impacts and challenges.

## **2. OVERVIEW OF CAMBODIA TRADE RELATIONS IN THE REGION**

### **2.1. Cassava in regional value chain: Cambodia-Thailand & Cambodia-Vietnam**

Cassava holds significant economic importance for Cambodia, Thailand, and Vietnam in the region. The cassava in the regional value chain between Cambodia and Thailand, Cambodia and Vietnam are important, and given the significant economic relationship that involves various stages of production, processing, and trade between these countries.

Thailand has been a major exporter of cassava for decades, while Cambodia has seen a significant increase in cassava production in recent years. The connection of the cassava value chain between these two countries primarily involves the export of raw materials from Cambodia to Thailand to meet its processing needs. Thailand has established processing facilities that convert raw cassava into products such as cassava starch, cassava flour and animal feed, which are then exported to international markets (Cassava Industry Outlook, 2023-2025). This trade contributes to the economy by providing income for farmers, creating jobs in processing plants and generating revenue from exports. However, it is difficult to assess the exact value of Cambodia's cassava exports as most of it is exported informally through the borders of the countries.

Vietnam imports cassava from Cambodia through border regulation between the two countries to meet the demand for domestic use as well as for export. By importing raw and dried chips cassava from Cambodia, Vietnam can ensure a stable supply to support the processing industries while also leveraging the export potential to capitalize on international markets. Moreover, according to Vietnam Trade Promotion Agency, the current domestic cassava growing in Vietnam can serve only 30-40% of the capacity of factories. Therefore, Vietnam needs to import raw materials from Cambodia to facilitate its cassava processing industry and meet the demand for both domestic consumption and export markets. Cambodia's cassava production offers favourable conditions such as cost-effectiveness and quality that make it advantageous for Vietnam to import

### **2.2. Cambodia-China trade relation and trade agreement**

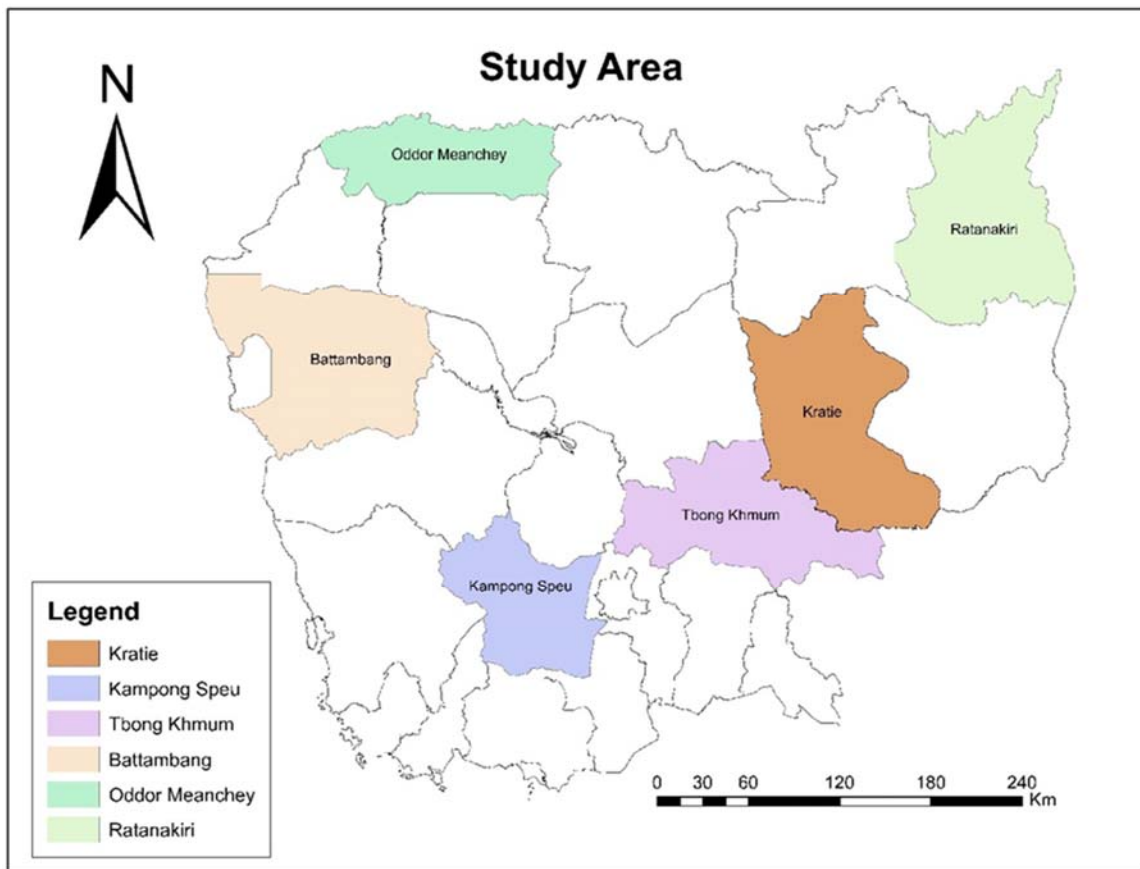
Cambodia-China trade relations have seen significant growth and development over the decades, with China emerging as one of Cambodia's most important economic partners. The relations are characterized by growing trade volume, significant Chinese investment in infrastructure development, and increasing economic cooperation, politics, and security. The

Cambodia-China Free Trade Agreement (CCFTA) was signed in October 2020 and came into effect on January 1, 2022. The China-Cambodia Free Trade Agreement (CCFTA) was finalized rapidly with only eight months of negotiations. The first round of negotiations in January 2020 between the two parties held extensive talks on trade in commodities, customs processes, trade facilitation, rules of origin, trade in services, transparency, economic and technological cooperation under the Belt and Road Initiative, e-commerce, and related legal matters. In the second round of negotiations in April 2020, the parties came to a comprehensive consensus over the contents of the agreement, which completed the meetings on investment cooperation. CCFTA aims to enhance economic cooperation and trade relations between Cambodia and China by reducing or eliminating tariffs on a wide range of goods traded between the two countries. It is seen as a significant milestone in bilateral economic relations. Cambodia and China committed to exceed the bilateral trade volume by reaching \$11.1 billion dollars in 2021. In 2022, China accounted for 5.5% of all exports from Cambodia in 2022, with exports to the country in the amount of US\$1.24 billion, making it the country's biggest export market. During the same time, China accounted for 10.4 billion US dollars' worth of Cambodia's total imports, which is approximately 34.1% of total imports. Cambodia's principal exports to China included milled rice, bananas, mangos, cassava, fishery products, and apparel, while imports from China primarily the raw materials for the textile industry, machinery, electronics, construction materials, and others (Chheang, 2023). In the first two months of 2024, trade between the two countries reached \$2.2 billion, an increase of 29% compared to \$1.7 billion in the same period in 2023 (May, 2024).

### 3. METHODOLOGY

The study used a combination of the two approaches: desk review and qualitative data. The desk review included reviewing policy documents, literature review and overview of statistical data. For the qualitative data, we use the interview guide to collect data from the cassava processor both native starch processor and animal feed processor by using Key Informants Interviews (KIIs). The processor factories are located in six provinces, including Battambang, Ratanakiri, Kratie, Oddormeanchey, Tbong Khmom, and Kampong Speu (see Figure 3.1). These provinces are intensive in Cassava production.

Figure 3.1. Mapping of Study Area



Key Informants Interviews were conducted with local processing factories which include starch and feed processors. The respondents had extensive experience in the value chain in managing and operating a local processing facility specializing in starch processing and feed processing. They possess in-depth knowledge of processing technologies and operational best practices specific to starch and feed production. The respondents provided

context-based perspectives and insights within Cambodia’s cassava in the regional value chain research framework. Of the seven factories, four are involved in native starch processing, while three focus on animal feed processing (see **Table 3.1**). Moreover, two provinces, Rattanakiri and Battambang, have the capacity to export to China through the Vietnam and Thailand border.

**Table 3.1. Respondent profile**

Provinces	Typing of Processing	
	Native Starch	Animal Feed
Kratie	1	-
Kampong Speu	-	2
Tbong Khmum	-	1
Battambang	1	-
Oddor Meanchey	1	-
Ratanakiri	1	-
<b>Total</b>	<b>4</b>	<b>3</b>

Source: author’s interview with processing factories

The in-depth interview was conducted from late Feb until March 15, 2024, using the interview guide to collect information focused on various aspects including general information about the factories, statistics of the cassava processor factories, market access, institutional policy, partnership, challenge and opportunities, and government support.

Secondary data were collected from crucial stakeholders including the General Department of Custom and Excise of Cambodia (GDCE), the Ministry of Agriculture, Forestry and Fisheries (MAFF) and others, significant in supporting production and export.

Due to the research focus on cassava post-production, the sampling framework encompasses some stages of the cassava value chain, including processing facilities, trade routes, and stakeholder interviews. Moreover, the sampling methodology utilized the snowball sampling technique to identify additional stakeholders and experts through referrals and recommendations from initial interviewees.

#### 4. CURRENT CAMBODIA'S CASSAVA IN REGIONAL VALUE CHAIN

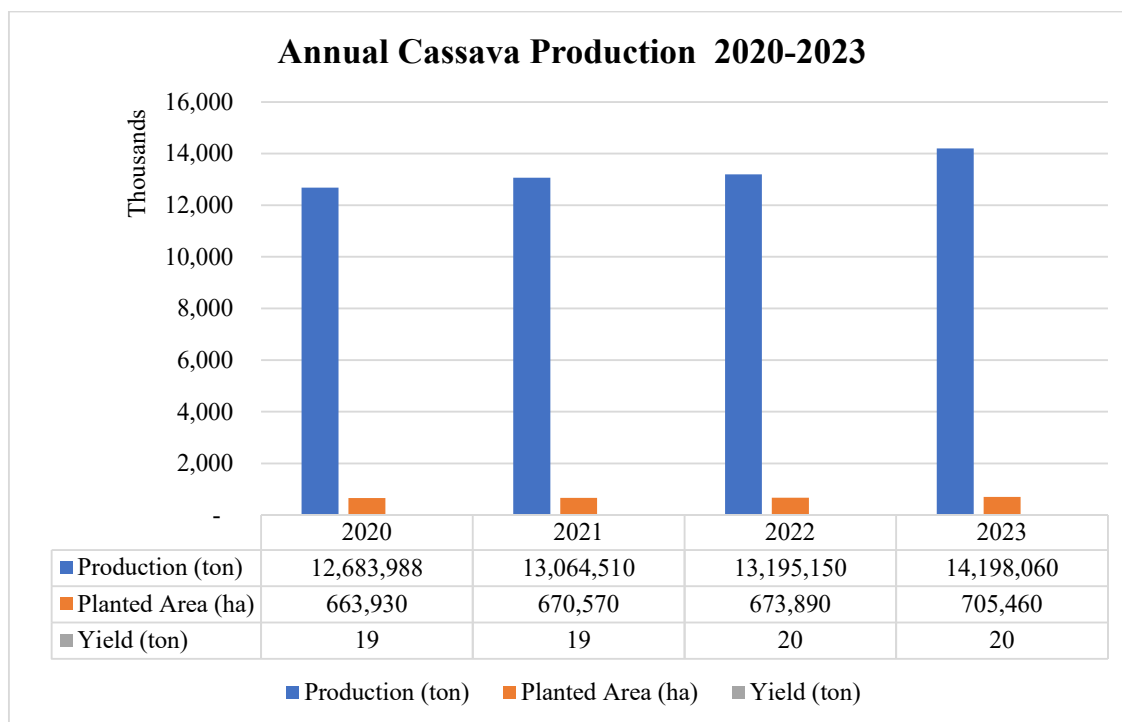
In terms of regional value chains, Cambodia's cassava sector was integrated into the broader Southeast Asian market, with various stakeholders involved in production, processing, and exportation. The value chain typically involves smallholder farmers cultivating cassava, which is then processed into various products, such as cassava chips and native starch. These processed products are then exported to neighboring countries and further exported to the international market. Overall, Cambodia's cassava sector's integration into regional value chains underscores the importance of collaboration among various stakeholders across the country to maximize the sector's potential and contribute to economic development in the region.

##### 4.1. Production

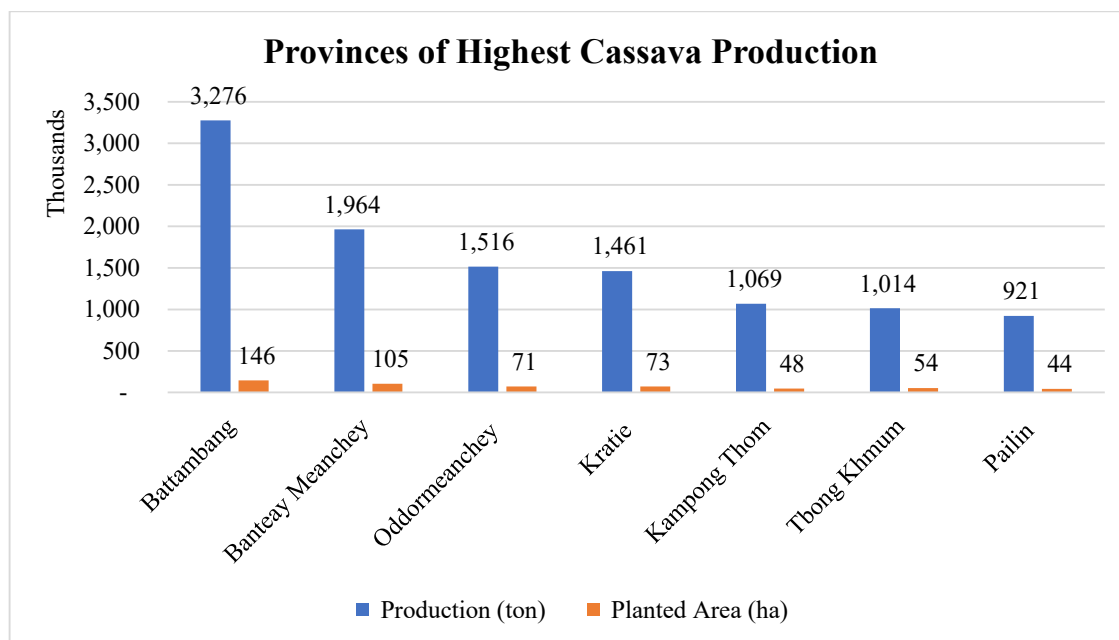
Cambodia is one of the countries in Southeast Asia where cassava production has been significant. Cassava production in Cambodia provides an important role in the country's agricultural sector and economy. Cassava is grown on the farms of smallholder farmers across Cambodia. These farmers are critically needed for the supply of raw cassava to the processing industry. They commonly employ conventional agricultural practices, although in an effort to increase output, there is an increasing tendency towards more mechanized and technological farming methods. Cassava production areas in Cambodia increased from less than 30,000 hectares in 2004 to more than 400,000 hectares in 2011 and 670,570 hectares in 2021 (MAFF, 2015-2021). Its yield is approximately 12-15 million tons, or over 18 tons per hectare (**see Table 4.1**). The highest cassava production have been noticed in 7 provinces which included Battambang, Banteay Meanchey, Oddormeanchey, Kratie, Kampong Thom, Tbong Khmum and Pailin. Battambang and Banteay Meanchey had the highest percentages of growing cassava. The highest cassava production were in Battambang 3,276,073 tons while in Banteay Meanchey 1,964,098 tons with a yield of more than 19 tons per hectare. Pailin had the lowest production compared to the other 6 provinces with the yields approx. 20 tons per hectare. The cassava yields of each province depend upon the planted and harvested area (**see Table 4.2**). Low cassava production were noticed mainly in the northeastern province including Stung Treng, Ratanak Kiri, and Mondul Kiri less than 500,000 tons annually. These provinces are located near the borders of Vietnam and Thailand, where transportation is advantageous for exporting commodities (MAFF, 2021). Currently, the price of cassava roots is in the range of 300-550 riel/kg, while dried chip cassava prices are between 225-250 US dollars per ton.



**Table 4.1. Cassava production in the last 4 years 2020-2023**



**Table 4.2. Cassava highest production in the 7 provinces**



## 4.2. Estimated demand

Cambodia produces 14 million tons of fresh cassava roots, with two primary distribution channels: export channel and domestic processing (see Figure 4.1).

### 1. Export channel

- Total exported: 13.45 million tons, which accounts for 96% of the total cassava production.
- Unrecorded exports: Within the exported cassava, 27% is not officially recorded and is likely exported to Vietnam.

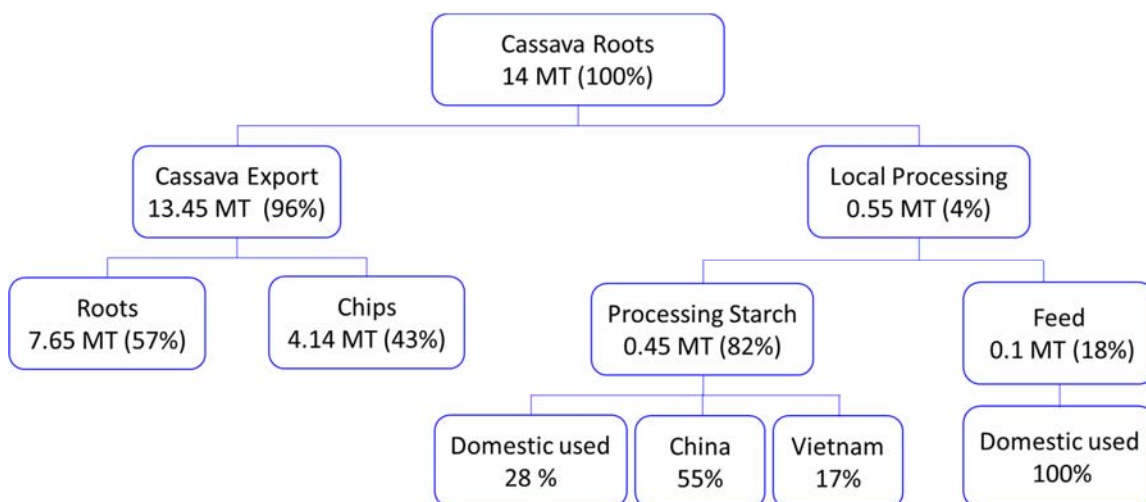
Breakdown to the export channels, 69% of the exported cassava (approx. 9.6 million tons) is officially recorded and mainly exported to Vietnam and Thailand. Unrecorded 27% of the exported cassava (approximately 3.85 million tons) is not officially recorded and is likely transported to Vietnam through informal trade.

### 2. Domestic processing

- Domestic: The remaining 4% of the cassava production is used for domestic processing, especially convert raw cassava to native starch and feeds.

Breakdown to the domestic processing, cassava involves converting fresh cassava roots into two main products: native starch and animal feeds. 82% of fresh cassava roots (approx. 0.45 million tons) convert to native starch and 18% (approx. 0.1 million tons) processing feeds.

**Figure 4.1. Total estimated demand of Cambodia's cassava**

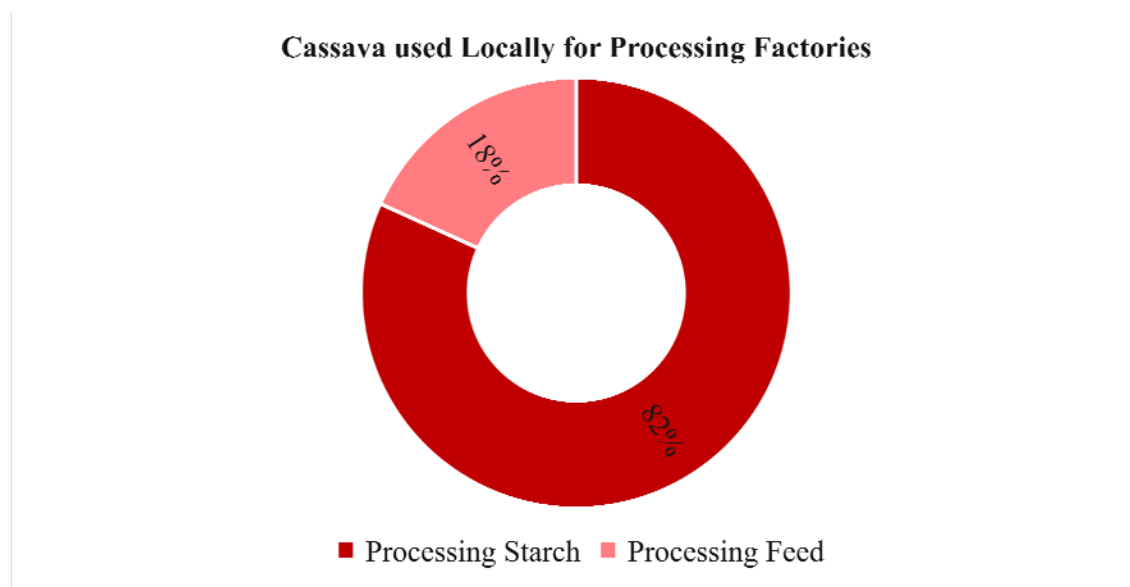


Source: author's calculation based on data from GDCE statistic, 2023 and interviews with factories

### 4.3. Processing

Cambodia currently has several cassava processing factories, contributing to the country's cassava value chain. They are typically located in areas with significant cassava production. Cassava processing factories in Cambodia convert raw cassava into value-added products such as cassava chips, native starch, animal feed and others. The processing capacity of cassava factories in Cambodia varies, ranging from small-scale operations to larger industrial plants. Some factories focus on producing basic cassava products such as dried cassava chips, while others have the capacity to produce higher-value products such as native starch. Dried cassava chips required lower processing capacities to process a few tons of cassava into chips per day, while larger operations could process up to ten tons. Processing facilities producing cassava native starch typically require higher capacity due to the more extensive processing involved. Local processing factories have capacities of hundreds of tons per day, depending on the scale of operations and raw materials for processing. These processing activities, provide income and employment opportunities, particularly in rural areas where agriculture activities are prevalent. The results of this research indicated that only half a million accounted for 4% of the 14 million tons of cassava roots cultivated around the country are processed locally into native starch (82%) and animal feed (18%). The local processing amounts are insufficient compared to the total production (See Table 4.3).

**Table 4.3. Statistic of cassava domestic processing**



Source: author's calculation based on data from GDCE statistic, 2023 and interviews with factories

#### 4.4. Exportation and market access

Growing global demand for cassava products has created market opportunities for Cambodian farmers, incentivizing them to increase cassava production. Cambodia has been exporting cassava primarily to neighboring countries such as Thailand and Vietnam, as well as to international markets like China and the European Union. Currently, cassava is mainly used for starch and ethanol production in China (Van, 2023). The growing demand for dry chips for ethanol and starch in China creates a dynamic trade system for Southeast Asia countries including Cambodia. According to MAFF data reported in 2023 in the first three months showed that:

- Cassava chips 822,728 tons exported where Thailand is the top importer with 723,700 tons, followed by Vietnam with 99,000 tons and China with 28 tons
- Cassava roots 155,210 tons exported where Vietnam accounted for the most at 131,710 tons, followed by Thailand at 23,500 tons
- The export for native starch was 14,701.30 tons, of which 14,642 tons were shipped to China, 25.30 tons to Japan, 17 tons to Italy, and 17 tons to India.

The total exports in 2023 from Cambodia formal and informal had a remarkable achievement in cassava exports regionally, export almost 13.45 million tons of fresh roots based on the conversion ration from dried chip. These exports with a multi-faceted approach, covering fresh roots, dried chips, and native starch, encompassing both formal and informal channels. Breaking down the numbers, exports included 7,644,671 tons of fresh roots, 4,147,092 tons of dried chips, and 70,378 tons of native starch. Cassava roots accounted for almost 2.5 million tons formal and 3.8 million tons informal exported to Vietnam, while Thailand exported 547,304 tons formal and 764,096 tons informal. Thailand was the highest import of dried chips both formal and informal up to 3 million tons which is a huge amount compared to Vietnam only 1 million tons (see **Table 4.4**).

**Table 4.4. Formal and informal Cambodia’s cassava reginal export**

Regional Market	Export status	Fresh Roots (tons)	Dried Chip (tons)	Native Starch (tons)
Thailand	Formal	547,304	1,150,406	-
	Informal	764,096	1,817,991	99
Vietnam	Formal	2,486,273	728,171	16,630

	Informal	3,846,998	429,427	-
China	Formal	-	5,669	33,539
	Informal	-	15,428	20,110
Total		7,644,671	4,147,092	70,378

Source: author's calculation, data from GCDE, UN comtrade database

#### 4.5. Mapping of Cambodia's cassava value chain

##### 4.5.1. Business models of Cambodia's cassava processing factory

Cambodia has a significant cassava industry with two main channels for its products. Exporting raw cassava or dried chips to neighboring countries like Vietnam and Thailand can provide immediate economic benefits. Meanwhile, utilizing raw cassava for processing within the country adds value to the product and contributes to the domestic economy through manufacturing and employment opportunities.

The business model for cassava processing factories in Cambodia often follows a similar pattern, as per interview. Typically, these factories play a crucial role in the cassava value chain by purchase fresh cassava from local farmers, process it into cassava base-products such as cassava starch, and then sell these processed goods to local or international markets. This model involves several stages, including sourcing raw materials, processing, packaging, and distribution (see Figure 4.1).

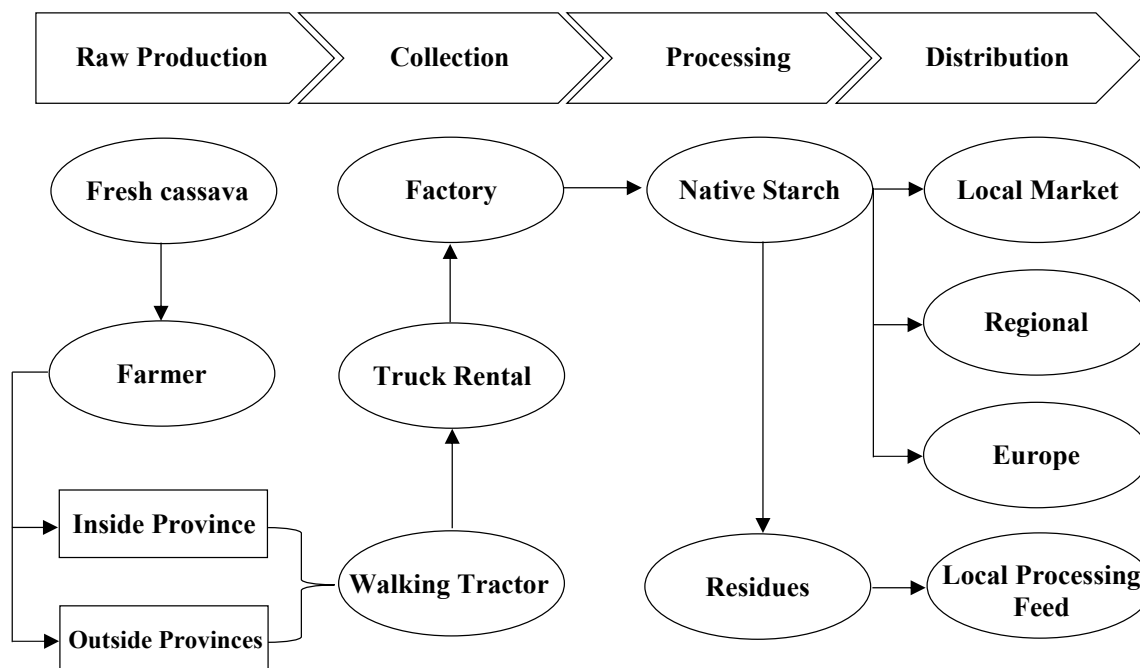
Once harvested, cassava roots are collected by farmers and transported to processing factories using truck rental. Generally, local factories always collect cassava roots from local farmers in the province or other provinces if there is not raw production enough for processing. According to the processor, it is common for the purchasing price of raw cassava products which are influenced by export markets, especially when neighboring countries like Vietnam and Thailand are major buyers. Therefore, export prices will significantly impact what processing factories can offer to local farmers for their raw cassava. This situation creates a challenge because processing factories cannot afford to pay farmers more for their cassava than what they can get by selling it in the export market. Moreover, The inability of processors to negotiate contract farming with farmers due to the influence of export markets on raw cassava prices is an interesting challenge. when export prices fluctuate significantly or are higher than what processors can offer, it becomes difficult for processors to enter into such agreements with farmers. In such cases, farmers prefer to sell their cassava directly to the export market to

capitalize on potentially higher prices, rather than committing to a fixed price through contract farming, said by processing factories. The current situation of Cambodia's local cassava processing factories faces a shortage of cassava roots for processing. Through the interviews with processing factories, the main challenge of the shortage of cassava roots for processing is due to cassava roots being exported to neighboring countries especially Vietnam, and also some potential reason is low cassava yields. The growing industrial sector and high demand for cassava roots for various products in Vietnam led to competition for raw materials in Cambodia's local cassava processing factories. The price dynamics of cassava roots in Vietnam can influence the flow of raw materials from Cambodia. The notice of the relative prices of cassava roots in Cambodia and Vietnam, if prices are higher in Vietnam due to some factors such as government policies, or local demand, Cambodian processors will face challenges in securing an adequate raw material for processing.

Moreover, in the collection stage factories prompt cleaning and grinding to minimize the risk of spoilage, ensuring that the roots remain fresh and suitable for processing due to cassava roots deteriorate rapidly after harvesting, usually no later than 24 hours after collection. Processors said that grinding the roots within 24 hours helps preserve the nutritional value of the cassava products, ensuring that they retain their beneficial attributes, provide better quality and quantity and also ensure that the products meet the standards and enhance marketability.

After producing native starch, Cambodian cassava local processing factories signed contracts, especially with Chinese partners. China is a significant market for cassava products, including native starch. By signing contracts with Chinese partners, Cambodian processing factories can secure a reliable export market for their products, ensuring a steady income stream and enhancing the competitiveness of the cassava industries. Moreover, it can establish long-term business relationships and partnerships that provide stability and reliability in trade. These partnerships involve commitments for regular product supply, pricing agreements, and mutual cooperation in market development and expansion efforts. Besides exporting cassava native starch to China, processing factories also supply native starch to the local market in Cambodia. The domestic demand for native starch within Cambodia itself is significant in supporting the local economy. Within this process, the local supply chain contributes to the economic development of Cambodia by supporting various industries, creating employment opportunities, and promoting the utilization of locally sourced raw materials.

**Figure 4.2. Business models of Cambodia's Cassava processing factory**



## 4.6. Key challenges and opportunities

### 4.6.1. Key challenges

Although cassava is an increasingly attractive crop for export to neighboring countries like Thailand and Vietnam, it faces several challenges. The most significant difficulties processors encounter include complaints of shortages of cassava raw materials, transportation costs, and price fluctuations.

- **Shortage of Cassava Raw Material:** Most of the processing factories in Cambodia face a shortage of raw materials for processing. The shortage can be attributed to several challenges, such as crop vulnerability due to drought, flooding and pests and the direct export of cassava roots to neighboring countries. Additionally, the direct export of cassava roots is driven by the high demand for processing in Vietnam and Thailand.
- **Cost of Processing:** Cassava processing factories in Cambodia generally face higher operational costs compared to Vietnam processing factories. The significant difference in overall expenditure for starch processing between Cambodia and Vietnam, where Cambodia's costs account for 21.3% of

expenditures compared to Vietnam's 14.5%. Electricity in Cambodia is more expensive than Vietnam, this drives up operational cost as processing factories require substantial energy for their operations (**see Table 4.5**). Long distances of production's farm and less efficient logistics systems increase transportation costs, making it more expensive to move raw materials and finished products.

**Table 4.5. Total cost of starch processing between Cambodia and Vietnam**

No	Cost of production per tons	Cambodia* (%)	Vietnam** (%)
1	Fresh cassava roots	78.7	85.5
2	Electricity, water, energy	6.69	2.2
3	Transportation	4.61	3.3
4	Packaging	n/a	1.1
5	Labour wage	4.4	3.8
6	Others	5.6	2.9

Source: \*author's calculation, \*\*IPSARD, 2020

- **Price fluctuation:** When a large amount of Cambodia's cassava is exported to Vietnam and Thailand, local processing factories face challenges in obtaining enough raw materials to keep their operations running smoothly. The competition for cassava roots from Vietnam and Thailand can push prices up, making it harder for local processors to find affordable raw materials. When raw material prices are high, it significantly increases the operational costs for processing, especially electricity costs, impacting the overall expenses of processing facilities.

#### **4.6.2. Key opportunities**

Cambodia's cassava crop has a high potential for economic growth, given its ideal production conditions, processing opportunities, and rising export markets.

- **Production:** Cambodia boasts suitable areas conducive to high cassava yields, as the crop is easy to cultivate and harvest, with a typical harvest cycle of around 9-12 months. Its low maintenance requirements enable farmers to maximize yields and expand production. Moreover, farmers have acquired technical skills in cassava cultivation, transitioning from traditional methods to modern practices by employing machinery, materials, and improved growing techniques. The government's policy on Cambodia's cassava for the period 2020-2025 aims to encourage farmers to expand their cassava production. Recognizing cassava as a



priority crop in agriculture, the government views it as a potential driver of economic growth in Cambodia.

- **Processing opportunities:** In Cambodia, processing firms involved in cassava production may benefit from various incentives to encourage investment and support the growth of the industry. These incentives include tax incentives such as corporate income tax exemptions or reductions and tax holidays for a certain period, as well as special arrangements for land use, including preferential lease terms or access to designated industrial zones. Customs duty exemptions or reductions may be granted on imported machinery, equipment, and raw materials used in cassava processing to lower production costs and facilitate importation. These incentives collectively aim to attract investment, promote competitiveness, and stimulate growth in the cassava processing industry in Cambodia.
- **Export Opportunities:** Cambodian factories possess the capacity to export solely native starch products to China, Vietnam, Thailand, and the European Union, with Vietnam and Thailand boasting substantial food processing sectors utilizing cassava starch in diverse products like noodles and snacks, whereas China primarily imports cassava for industrial applications, notably ethanol production.

#### **4.7. Government policy on Cambodia's cassava 2020-2025**

In recognition that Cambodia's cassava is one of the most potential crop commodities that is easy to access the market, the Cambodian government established a policy aimed at building sustainable cassava production to be an original country of cassava processing industries and a reliable supplier of cassava products for the international market. In order to accomplish this goal, the government has identified three main objectives as follow:

- To transform from subsistence to commercial cassava production, where the profitability of farmers is enhanced to generate incomes in the context of price volatility, sustainable land use, and climate-smart agriculture
- To support active processors and attract investment to produce value-added cassava-based products to supply diverse markets
- To enhance trade competitiveness by turning from market access to market presence, in proving trade facilitation and reducing trade-related costs.

By implementing these objectives, the Cambodian government determined the following strategies to be conducted immediately such as:

- Production strategy: developing a production strategy for cassava involves a comprehensive approach to various factors, especially farmers and processors need to work together through contract farming to ensure supply and demand. Strengthen post-harvest management practices to reduce losses and maintain product quality for yield improvement, cost reduction, and quality assurance. Access the value chain of cassava production and investment plan for the private sector to optimize the chain efficiency in the area.
- Processing strategy: developing a processing strategy for cassava in Cambodia involves creating a framework that enhances the value chain by upgrading existing processors and attracting investment. The capacity of cassava processing factories can produce products with large outputs as regional processors to make a competitive cost. Promote the adoption of modern processing technologies and equipment for cassava processing to manage pollution through sustainable processing practices that minimize environmental impact.
  - Export strategy: enhancing farmers' profitability is crucial for sustaining their livelihoods and supporting the long-term viability of processing industries, especially in regions where cassava production is suitable. Research and development need to be involved to develop the production system. Promoting agricultural mechanization will be used to replace labor-intensive work to address higher labor costs and improve efficiency in processing. Moreover, upgrading input markets and ensuring the availability of quality agricultural inputs is essential for promoting productivity, sustainability, and profitability in cassava production.

## 5. POLICY RECOMMENDATION

**The government should consider providing additional incentives, reducing operational cost, and improving profitability for processing factories:** provide tax breaks or exemptions for processing factories, particularly for investments in machinery, equipment, and infrastructure. Lowering tax burdens can improve cash flow and profitability, enabling processors to reinvest savings into their operations. Ensure reliable and affordable access to utilities such as electricity, transport, and others. Governments can negotiate preferential rates with utility providers or invest in infrastructure development to lower operational costs for processing factories.

**Promoting local cassava processing factories:** increase the processing of raw cassava by 10-15 percent of total production in order to meet the full capacity of the machinery can have numerous benefits for the economy and sustainable development for the processing factories.

**Promoting small-scale SME processors in cassava processing:** following the business model of Vietnamese cassava processing with lower capacity for starch production, can be a viable strategy to foster economic growth and empower local communities. Small-scale operations generally have lower overhead costs compared to larger facilities. They require less infrastructure, smaller production spaces, and fewer administrative expenses, resulting in reduced operational costs.

**Enhance contract farming arrangements:** Improving contract farming agreements between farmers and factories, as well as between farmers and the government, can provide a framework for stable production and supply of cassava. By formalizing agreements that outline pricing, quantities, and quality standards, both farmers and processors can better manage risks and plan their operations effectively. Additionally, government involvement in contract farming initiatives can provide support and oversight, ensuring fair and transparent dealings for all parties involved. By strengthening these partnerships, local processors can expand their capacity to process more cassava, meeting export demand and generating increased profits. This, in turn, contributes to the overall growth and sustainability of the cassava industry in Cambodia.

**Export facilities:** improving export facilities for processors exporting products across various ports of the country is indeed critical for enhancing the efficiency and competitiveness of the export process.

## REFERENCES

- Asian Development Bank. (2021). Cambodia Agricultural, Natural Resources, and Rural Development Sector Assessment Strategy, and Road Map.
- Cambodia National Cassava Policy. (2020). Kingdom of Cambodia Nation Religion King Royal Government of Cambodia National Cassava Policy. 2020, August.
- Chheang, V. (2023). Cambodia-China Perspective Trade Agreement: A Cambodian Perspective. *Iseas – Yusof Ishak Institute*, 46, 1–10.
- Kasumi, I., Aya, N., & Hisako, N. (2021). Status of Cassava Production and Distribution Channels in Cambodia: Prospects for Sustainable Production THAN THA. *ISERD IJERD-International Journal of Environmental and Rural Development*, 12–14.
- Martin, 2023. Cambodia: Cassava cultivation situation (ASEAN Cassava Center) <https://sustainablecassava.org/national-centre/article/cambodia-cultivation/#>
- May, 2024. Cambodia-China trade up almost 30% Jan-Feb. [www.phnompenhpost.com/business/cambodia-china-trade-up-almost-30-jan-feb](http://www.phnompenhpost.com/business/cambodia-china-trade-up-almost-30-jan-feb), accessed on Mar 30, 2024
- Ministry of Agriculture, Forestry and Fisheries. (2015). Cassava Handbook: China-Cambodia-UNDP Trilateral Cooperation Cassava Project Phase II.
- Ministry of Agriculture, Forestry and Fisheries. (2022-2023). Annual Report of Agriculture, Forestry and Fisheries 2022-2023. [www.maff.gov.kh](http://www.maff.gov.kh)
- Peuo, V., Mimgratok, S., Chimliang, T., Yagura, K., Huon, T., & Peuo, P. (2021). Economic analysis of cassava production in Cambodia. *International Journal of Agricultural Technology*, 17(1), 277–290.
- Peuo, Vibol, Mimgratok, S., Chimliang, T., Kenjiro, Y., Chaikul, S., & Peuo, P. (2020). Analysis of the cassava yield variation at Cambodia-Thailand border. *Asian Journal of Agricultural and Environmental Safety*, 2020(1), 17–27.
- United Nations Development Programme. (2021). New Cassava Policy to Transform Production of Crucial Crop, January 14, 2021. [www.undp.org/cambodia/press-releases/new-cassava-policy-transform-production-crucial-crop](http://www.undp.org/cambodia/press-releases/new-cassava-policy-transform-production-crucial-crop), accessed on Mar 11, 2021
- Cassava Industry. (2023). Thailand Industry Outlook 2023-2025. Cassava Industry. <https://www.krungsri.com/en/research/industry/industry-outlook/agriculture/cassava/io/cassava-2024-2026>
- Van, S. (2023). MoU spurs cassava exports to China. <https://www.phnompenhpost.com/business/mou-spurs-cassava-exports-china>, accessed on Mar 11, 2024

