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The U.S. Government's Global Hunger & Food Security Initiative

Cambodia Agriculture Competitiveness Opportunity Assessment

Final report – 9 January, 2019

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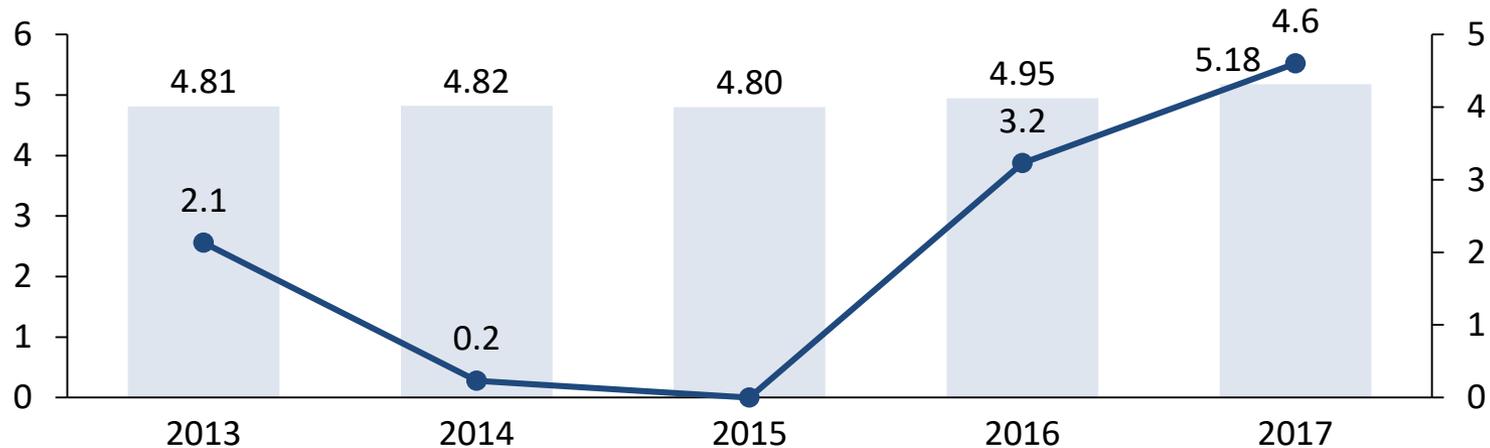
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THE AGRICULTURAL SECTOR IN CAMBODIA IS WORTH ~USD 5 BN, AND IS GROWING AT ~3-4% ANNUALLY

Agricultural growth has begun an upswing after a recent decline attributed to severe weather events

Net agricultural value added to GDP, and growth rate¹

USD Billion



Agriculture accounts for 26% of GDP; growth has been slower than industries and services



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Source: (1) [World Bank Database](#); (2) [MAFF Annual report, 2017](#)

~3 MN CAMBODIANS ARE ENGAGED IN AGRICULTURE PRODUCTION, EARNING AN AVERAGE OF ~\$1,200 A YEAR

Distribution of employment by economic sector¹



Most farmers are smallholders, with an avg. landholding of 3 acres

66%

Farmers own <4 acres of land

20%

Farmers own 4-8 acres of land

14%

Farmers own >8 acres of land

Majority grow only 1 crop and practice subsistence farming

58%

Farmers grow only one crop

79%

Farmers consume >50% of production

Incomes are volatile, affected by regular droughts and floods

108

Average \$ monthly income for a farmer, 36% less than minimum wage of \$170



Drought caused a fifth of rice losses between 1997-2010²



Significant floods have been increasing since 1970³



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PROVINCES AROUND TONLE SAP AND THE MEKONG BASIN ACCOUNT FOR THE BULK OF PRODUCTION

Siem Reap – Mango, Mung bean

Battambang – Rice, Cassava, Maize, Mung Bean, Fruits

Pursat – Rice, Maize, Cassava

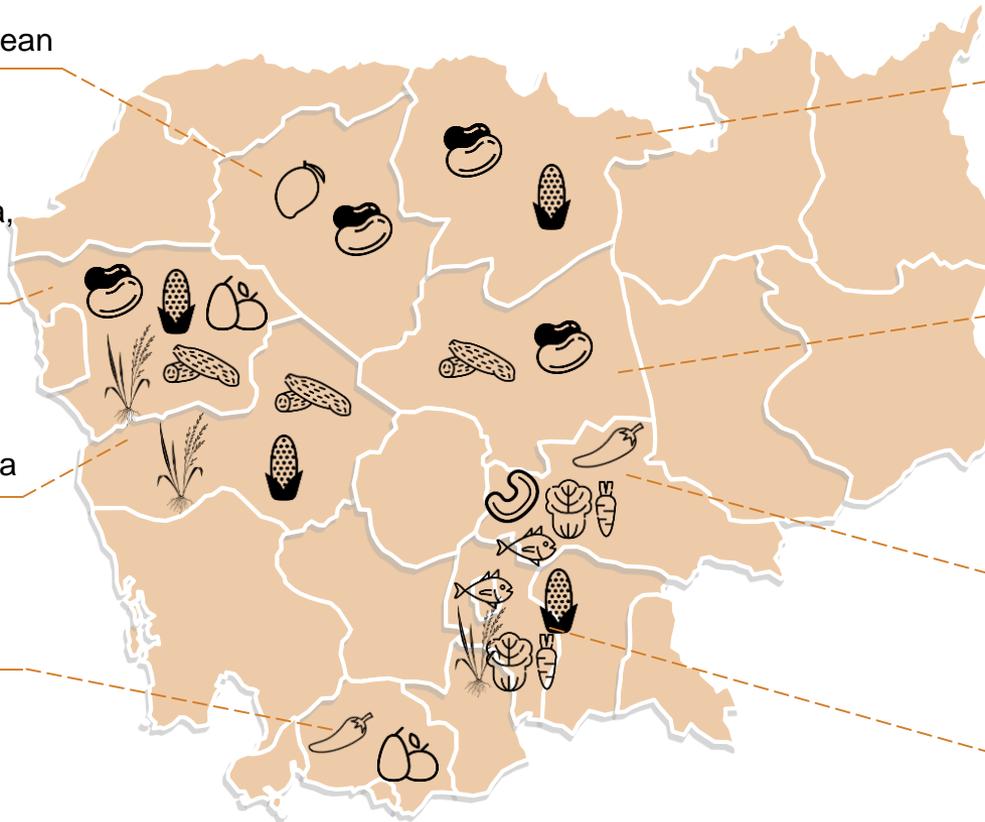
Kampot – Fruits, Pepper

Preah Vihear – Mung bean, Maize

Kampong Thom – Cassava, Mung bean

Kampong Cham – Rubber, Cashew, Vegetables, Pepper

Kandal – Rice, Maize, Vegetables, Sugarcane

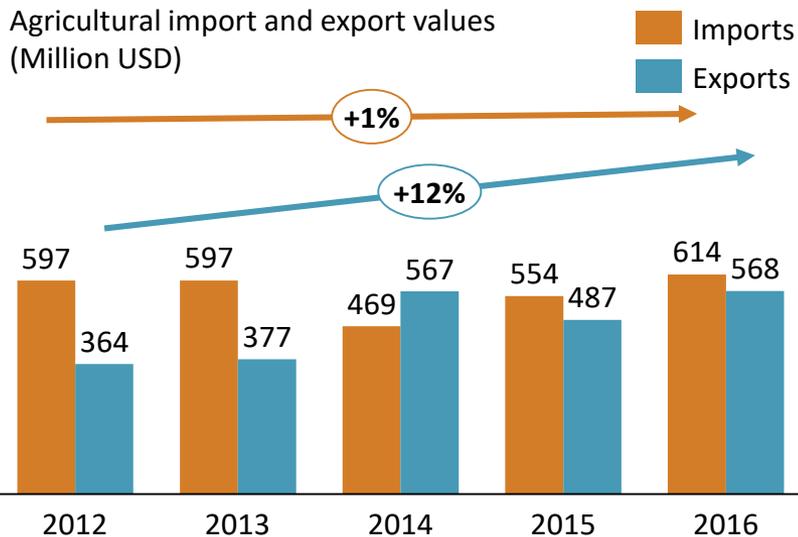


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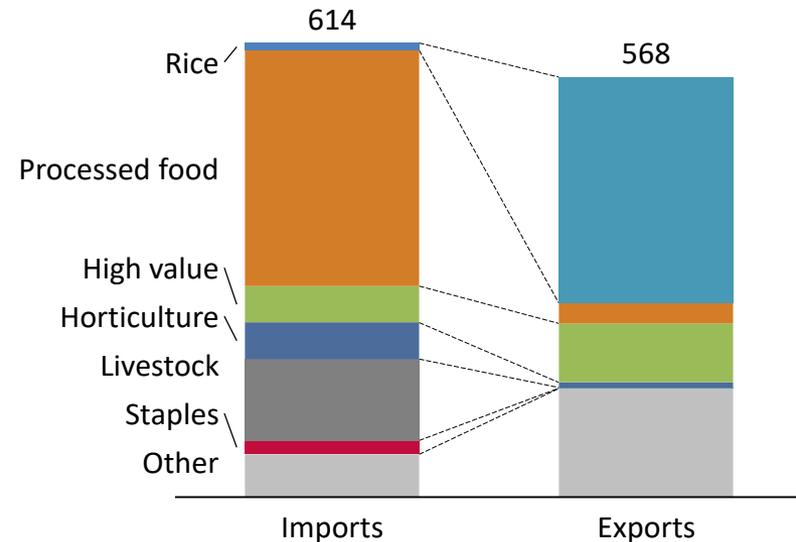
Source: Dalberg Analysis, [MAFF annual report 2017](#)

CAMBODIA IS A NET IMPORTER OF AGRICULTURAL COMMODITIES, BUT ITS DEFICIT HAS BEEN DECREASING

Cambodia is a net importer of \$50+ Mn



Breakup by segment*



- Significant quantity of informal trade (e.g., ~\$200 mn of vegetables are imported informally)
- Porous borders with Thailand and Vietnam – inputs, finished products, etc. imported regularly
- Cambodia also trades with ASEAN, the EU under EBA, the US, and China

THE GOVERNMENT DEVELOPED A CROP MASTER PLAN IN 2016; TRADE COMPETITIVENESS IS AN IMPORTANT ELEMENT

8 value chains identified from a long list of 28*

Crop	Vision 2030
1 Rice	Cambodia is in the top 3 exporters of fragrant rice globally
2 Maize	Cambodia is a reliable supplier of feed grains (maize and pulses) to the Asian Economic Community (AEC)
3 Cassava	Cambodia is a sustainable and major supplier of cassava starch and cassava chips to Asia
4 Mungbean	Mungbean is an important source of improved soil fertility and crop rotation in addition to fulfil market demand
5 Mango	Cambodia is one of the five major exporters of quality fresh mango in the world
6 Cashew	Cambodia is the world leader in organic cashews
7 Pepper	Cambodia is a leading exporter of quality pepper including the globally recognized Kampot pepper
8 Vegetables	Cambodia is a largely self-sufficient in safe vegetables



- For each value chain, there are **strategies for investments, institutional reforms**, as well as **policy** and regulatory support
- The **budget** for the value chain programs for **2016-2030** is **\$272 Mn** (rice: 51%, cassava: 12%, vegetables: 10%), in addition to policy and capacity building

IT ALSO INITIATED A PROGRAM IN 2016 – “BOOSTING FOOD PRODUCTION” – FOCUSED ON IMPORT SUBSTITUTION

Overview

- **3-year initiative** launched in mid-2016 to **reinvigorate rice and vegetable farming** following the **Good Agriculture Practices (GAP)** standards
- Developed by MAFF, it focuses on **rice** (in 11 provinces) and **13 vegetables** (including lettuce, chili, bok choy, tomato, cucumber and zucchini) in 8 provinces
- The main goal was to introduce **160T/day of high-quality locally produced vegetables to reduce dependence on vegetable imports**, estimated at 500-600T/day and often considered unsafe
- The program signs contracts with farmers and provides them with **technical training, infrastructure** (water pipes) as well as **improved inputs**

Scale

- **\$20 Mn** (self-financed by the government)
- The program signed on **2,060 vegetable farmers** and **260 rice cooperatives**

Funding and stakeholders involved

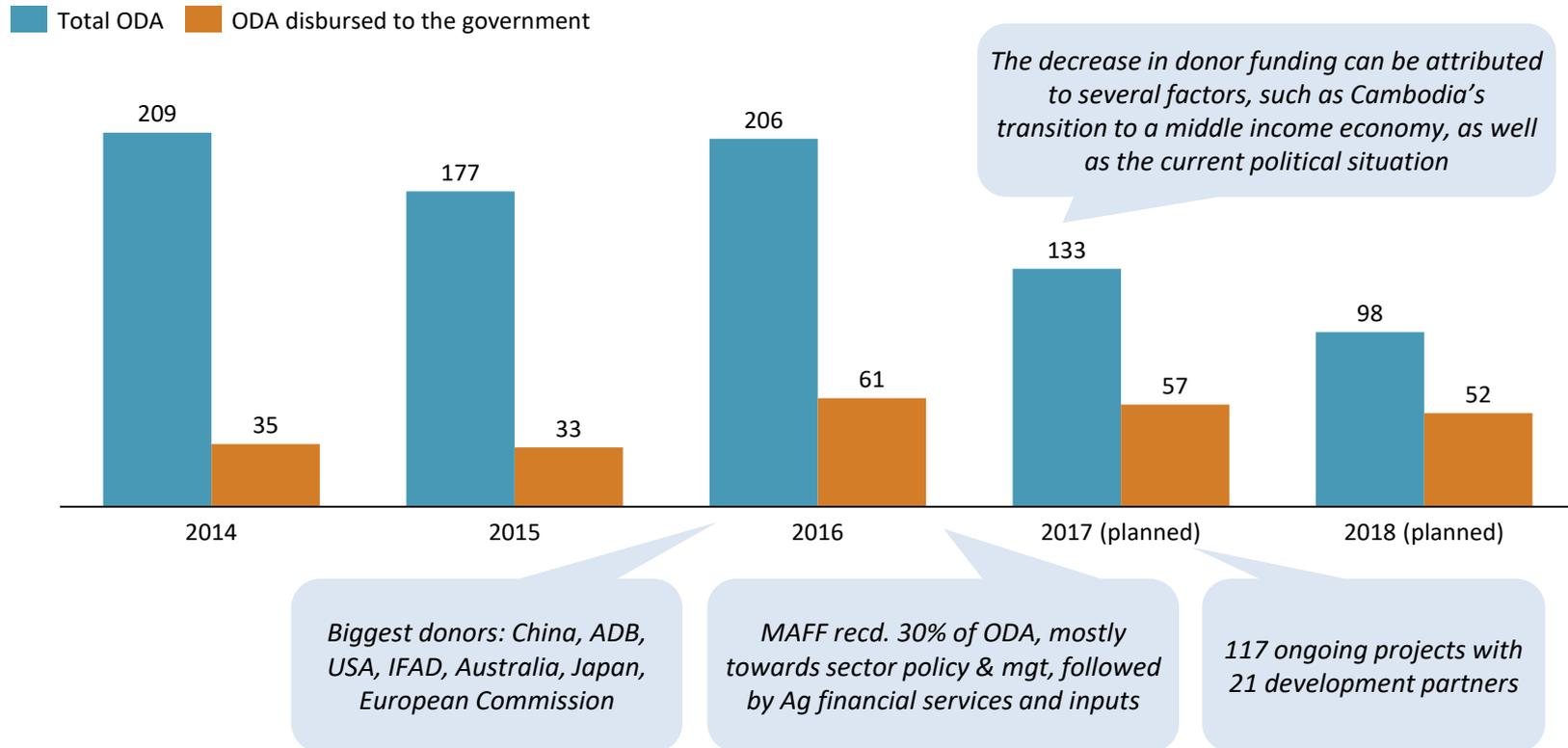
- Implementation led by MAFF’s **General Directorate of Ag** and the **Department of Horticulture and Subsidiary Crops**
- Technical support provided by Center for Policy Studies

Status and impact

- The **program was able to supply only 50T of vegetables per day**, less than a third of the initial objective, given higher production costs & prices and lack of enforcement of safety norms on cheap imports from neighbors

DESPITE A DECREASE IN FUNDING, INTERNATIONAL DONORS FINANCE THE MAJORITY OF ACTIVITIES IN THE SECTOR

Official development assistance (ODA) disbursement in the agriculture sector (in millions of USD)



WHILE DONORS ARE VERY ACTIVE IN THE SECTOR, FEW FOCUS ON AGRICULTURAL TRADE COMPETITIVENESS

Overview of donor interventions

- Most donor programs focus on improving productivity and diversification. There are limited programs that target challenges that affect trade competitiveness (ex. processing, barriers to private sector investment, certifications, etc.)
- Many donor programs in the agriculture sector are focused on rice, followed by fisheries, horticulture, and crops such as cassava or maize, which are used to promote diversification
- Not many programs are focused on specific value chains or specific challenges
- Many large projects in the agriculture sector are concessional loans to the government instead of grants (ex. the ASPIRE project by IFAD, Chinese projects on irrigation, etc.)



THERE ARE A VARIETY OF FINANCIAL INSTITUTIONS, ALTHOUGH THEY ONLY FUND 11% OF CAPITAL INVESTMENTS IN AGRICULTURE

Commercial banks

- There are 37 commercial banks in Cambodia
- In 2015, commercial banks provided a total of \$1.19 Bn USD in loans to the agriculture sector
- Commercial finance is the most popular form of formal finance for agri-businesses (~77% of borrowing)
- More than half of the loans are from four banks: ACLEDA bank, Bank for Investment and Development of Cambodia, Cambodian Public Bank, and Canadia Bank Plc.



Microfinance institutions (MFIs)

- The microfinance sector is relatively mature in Cambodia, with 58 active MFIs that lent \$1.11 Bn USD to the sector in 2015
- MFI lending has risen more than 10-fold since 2010, while the average loan size has increased 5-fold from 2004-2010, to \$1,000
- MFIs are focused on small individual loans (ex. smallholder farmers) and only provide ~9% of agri-business funding
- A recent cap on MFI interest rates (18%) was introduced in 2017. This has had a negative but still unclear impact on lending

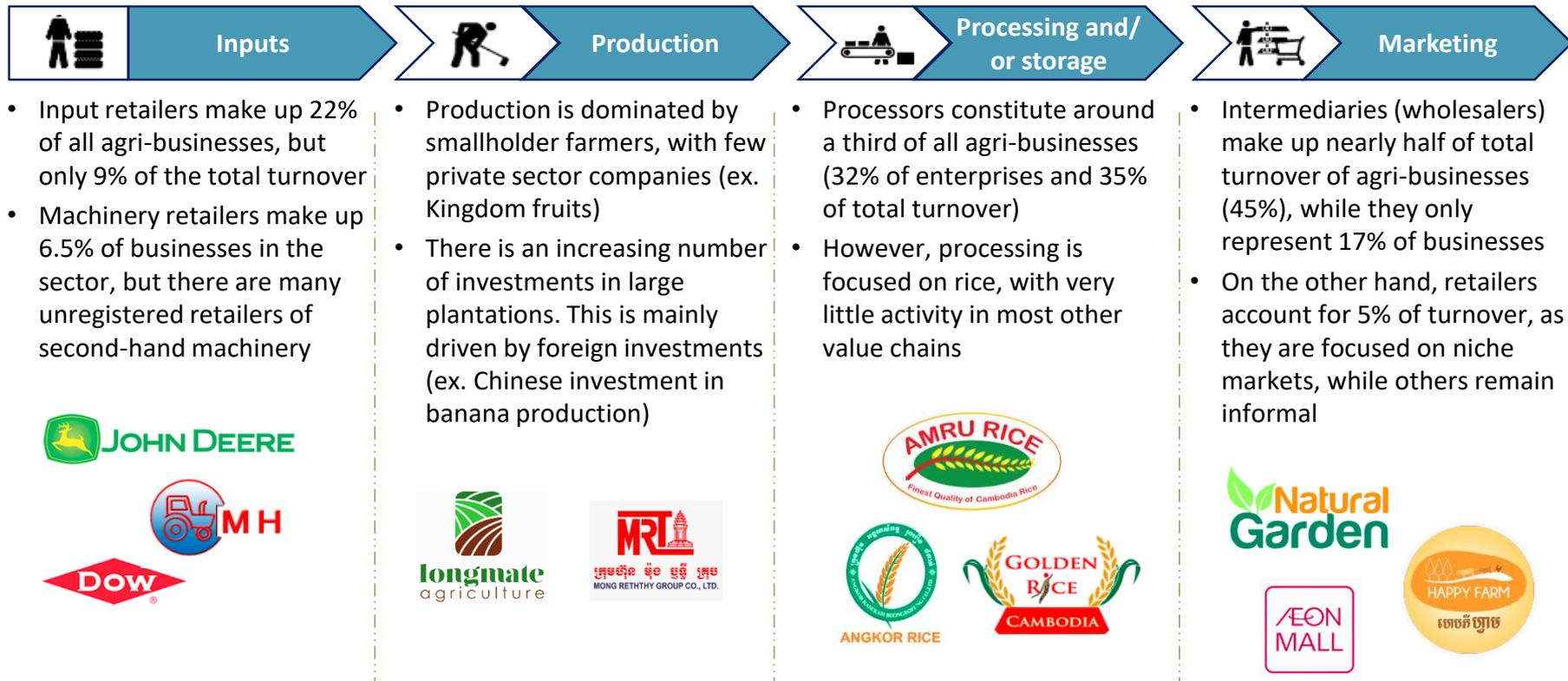


Venture capital/ Equity

- Venture capital is still nascent and provides an insignificant portion of funding in the sector
- VC funding is focused on foreign-owned enterprises with social impact objectives, not on mainstream agribusiness

The majority of funding in the agriculture sector still comes from informal sources

80% OF PRIVATE SECTOR ACTIVITY IS IN THE RICE VALUE CHAIN, AND MOST BUSINESSES REMAIN SMALL AND INFORMAL





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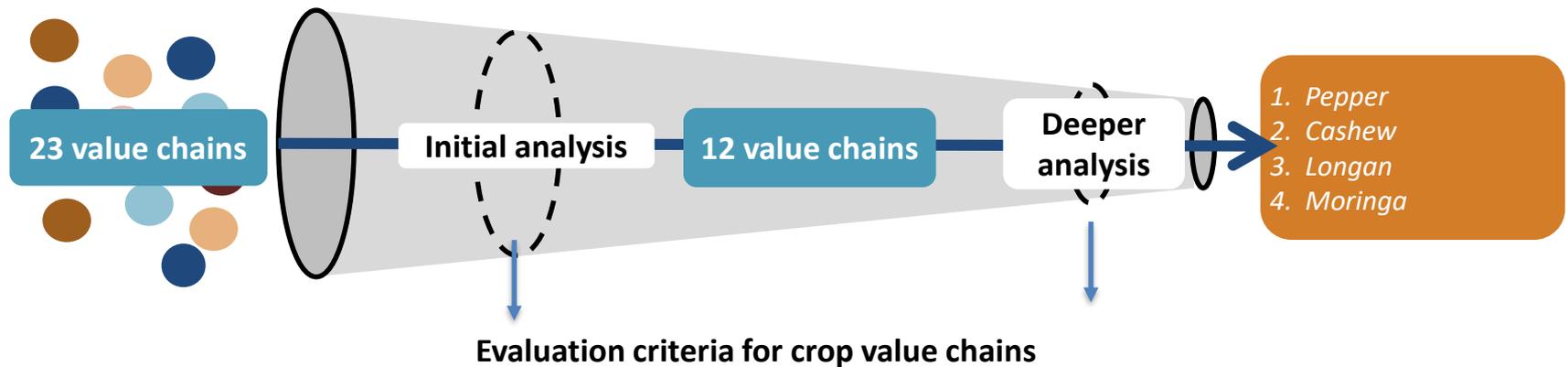
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WE USED A ROBUST METHODOLOGY TO IDENTIFY AND PRIORITIZE VALUE CHAINS



Relative trade opportunity

Incremental trade opportunity that can be unlocked by focusing on the VC

Livelihoods impact

The relative impact that unlocking the trade opportunity would have on farmers

Alignment with govt. priorities

The alignment of the value chain with govt. priorities

Potential to capitalize

Relative solvability of the challenges faced by the VC

Additionality

The extent to which donors/ govt. is working to unlock the trade opportunity

Alignment with USAID experience

Experience that USAID has had with the value chain



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WE IDENTIFIED AN INITIAL LIST OF 23 VALUE CHAINS OF WHICH 12 WERE PRIORITIZED FOR DEEPER ANALYSES

Segment	Trade data		
	Major imports	Current exports	Potential exports
Horticulture	1. Carrots 2. Tomatoes 3. Onions 4. Cabbage 5. Lettuce 6. Spinach (Vegetables)	7. Pepper 8. Mangoes 9. Cashew nuts	10. Mung bean 11. Banana 12. Coconut 13. Orange 14. Cucumber 15. Longan
High value agriculture		16. Aromatic rice 17. Cassava	18. Sugarcane
Fisheries	19. <i>Aquaculture</i> (considered a standalone value chain due to the relative scarcity of data on individual products)		
Livestock	20. Animal feed 21. Poultry 22. Pigs (Livestock) (Milk)	23. Live cattle	(Moringa)

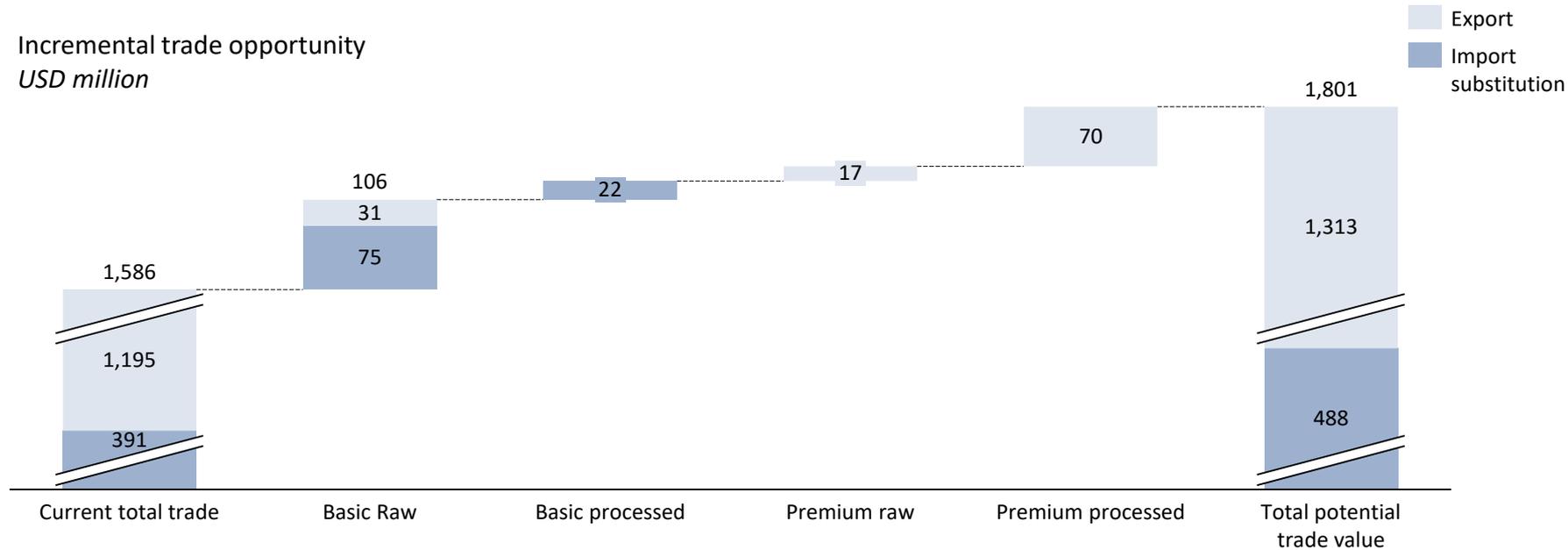
Indicates VCs selected for deep dive





THE INCREMENTAL TRADE OPPORTUNITY FOR THE 12 VALUE CHAINS IS \$200 M+, MOSTLY IN RAW AND PREMIUM PROCESSED

Incremental trade opportunity
USD million

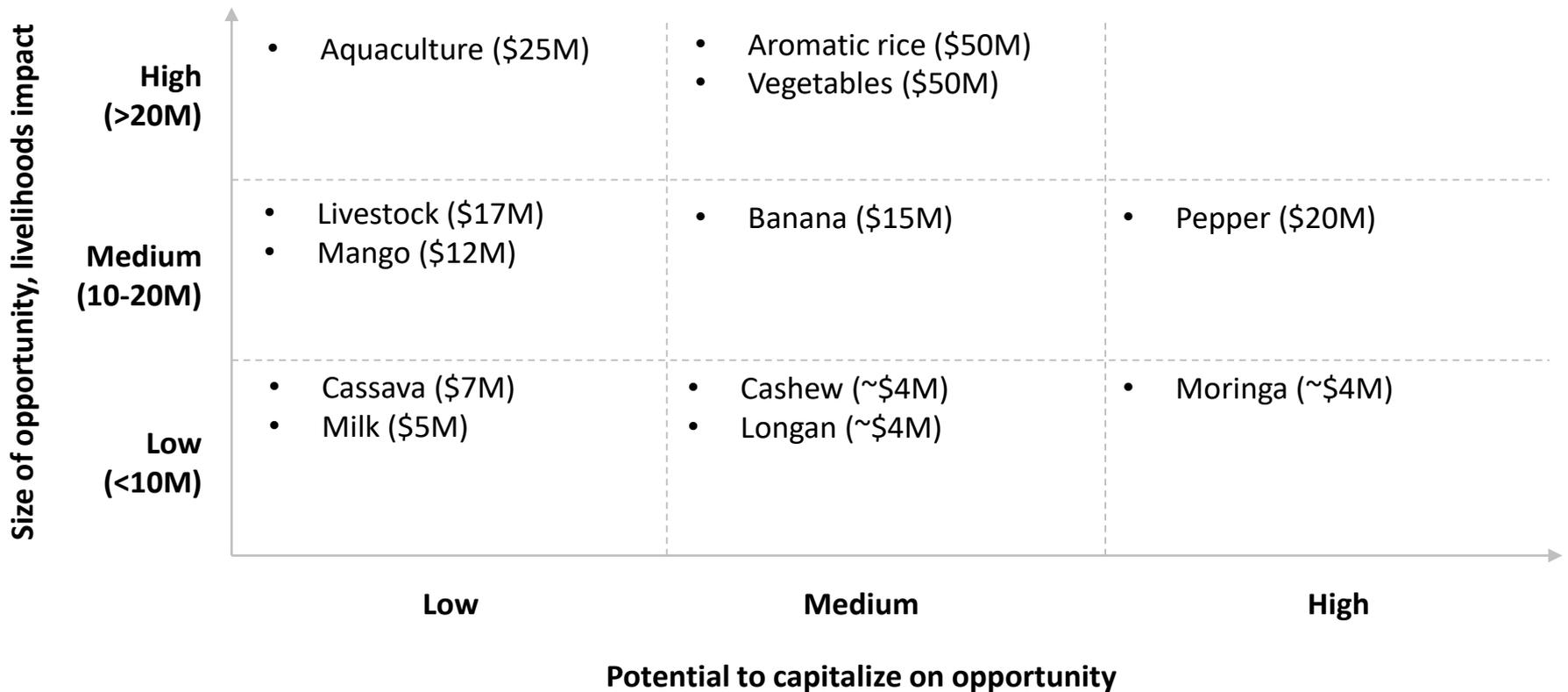


- ② Banana (\$15M)
- ⑦ Mango (\$12M)
- ⑫ Moringa (\$3.6M)
- ① Vegetables (\$50m)
- ③ Aquaculture (\$25 m)
- ④ Livestock (\$17M)
- ⑤ Milk (\$5M)
- ⑥ Pepper (\$8m)
- ⑧ Cashew (\$4.2m)
- ⑪ Longan (\$4m)
- ⑥ Pepper (\$12m)
- ⑨ Aromatic rice (\$51m)
- ⑩ Cassava (\$7m)



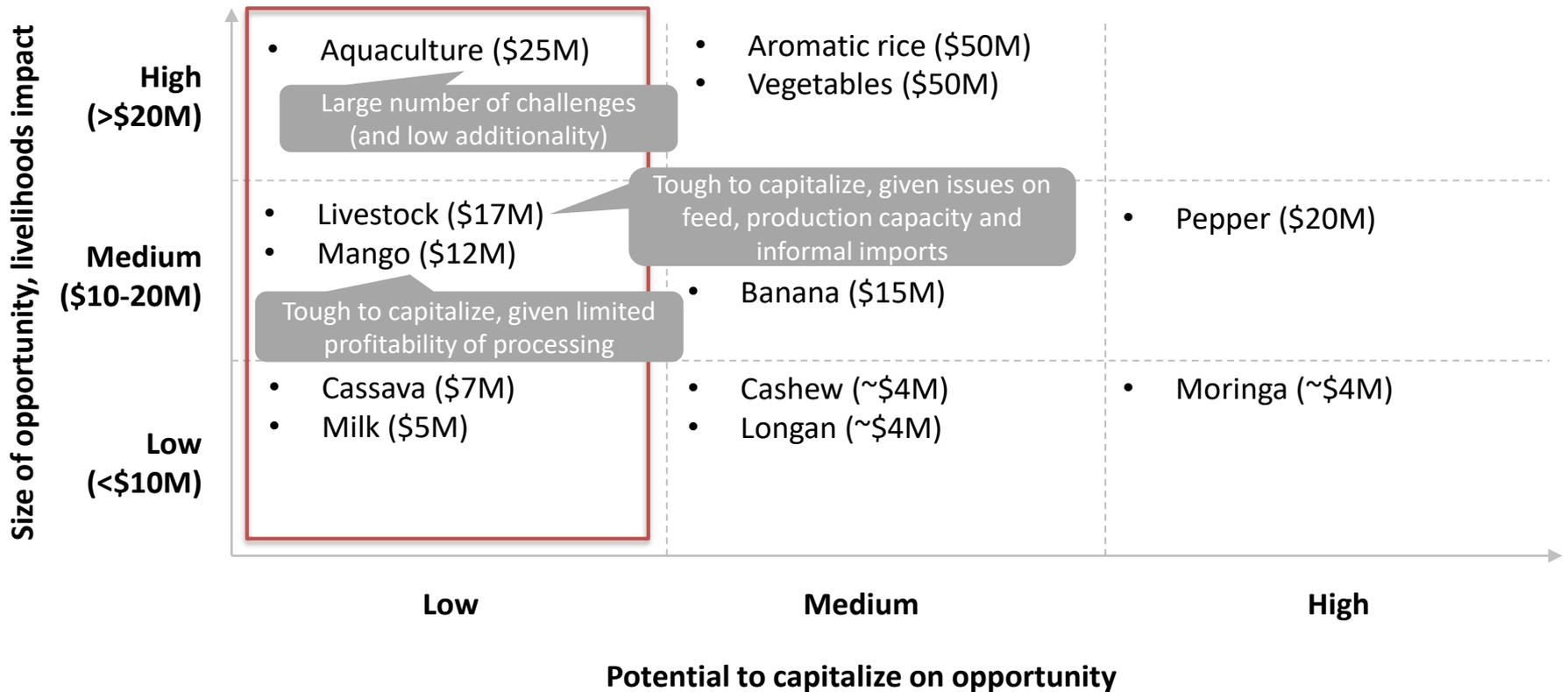


VALUE CHAINS WERE MAPPED ON 'OPPORTUNITY SIZE', 'LIVELIHOODS IMPACT', AND 'POTENTIAL TO CAPITALIZE'



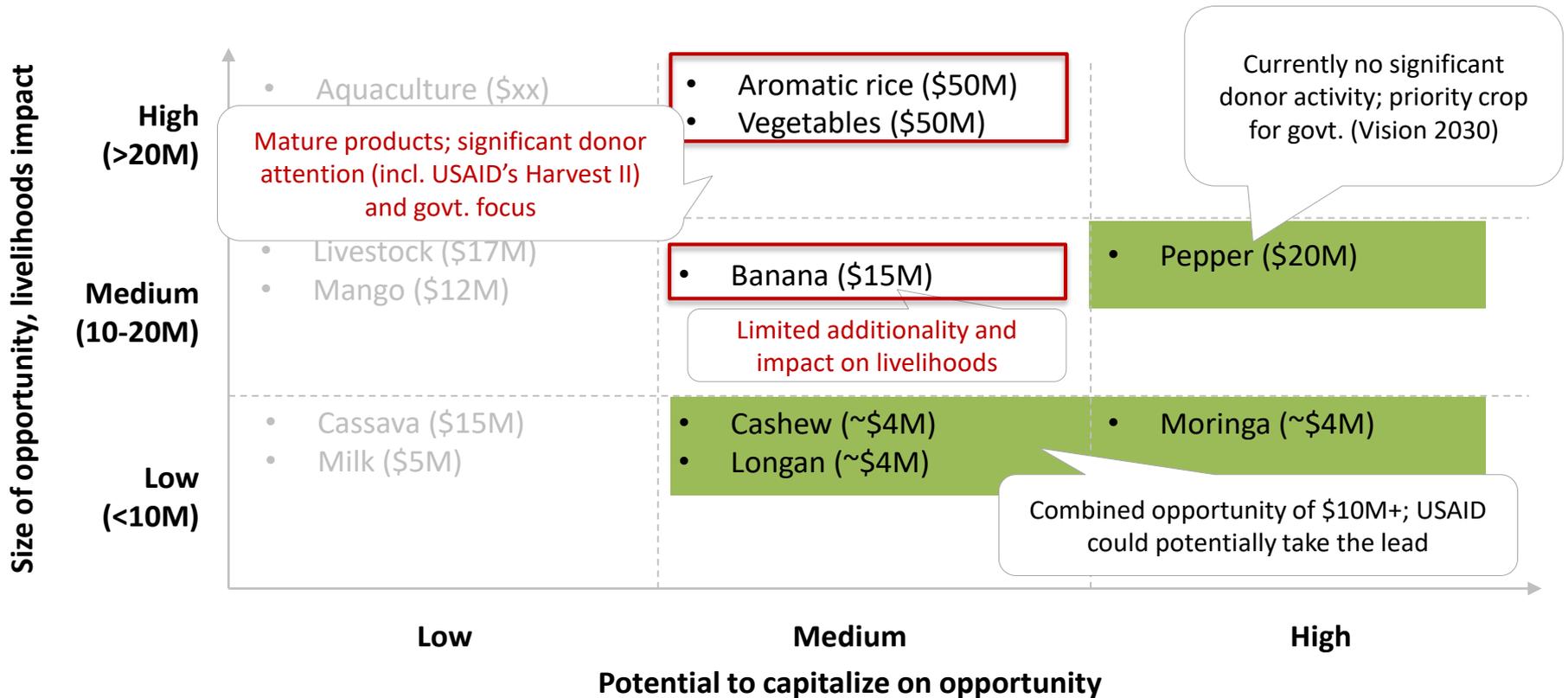


WE DEPRIORITIZED VALUE CHAINS THAT SHOWED A LOW POTENTIAL TO CAPITALIZE





OF THE SEVEN REMAINDER VALUE CHAINS, FOUR WERE SELECTED BASED ON USAID PREFERENCES



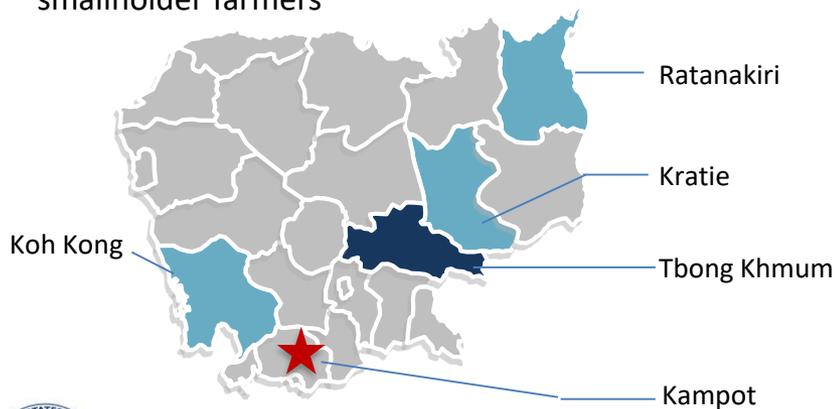
The subsequent slides describe the opportunities for Pepper, Cashew, Longan and Moringa



CAMBODIA PRODUCES 4% OF THE WORLD'S PEPPER, AND IS RENOWNED GLOBALLY FOR ITS GI CERTIFIED KAMPOT PEPPER

Pepper is an important crop for Cambodian farmers

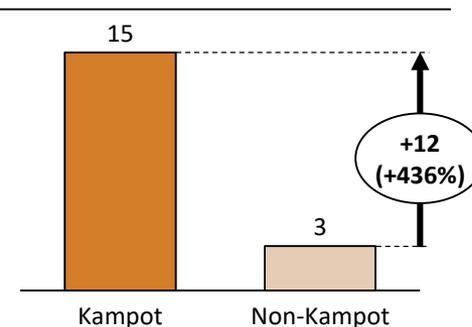
- Cambodia produces over 20k tons of pepper per year, most of which is black pepper
- The Memot district in the Tbong Khmum Province produces 90% of Cambodian pepper, followed by the provinces of Kratie and Ratanakiri
- There are about 4,500 households producing pepper in 2,400 Ha in Memot, 99% of which are smallholder farmers



Kampot pepper is globally renowned for its quality but is experiencing market saturation

- Kampot pepper is globally recognized and was granted official geographical indication status in 2009. As a result, its farm gate price is 5x other pepper
- However, it only makes up 0.35% of total production, and has a sales value of \$ 600K (40 T in 2018)
- Production of Kampot pepper fell to 70T in 2018 from 102T in 2017 due to weather conditions
- Market saturation in the EU led to 30T of unsold stock

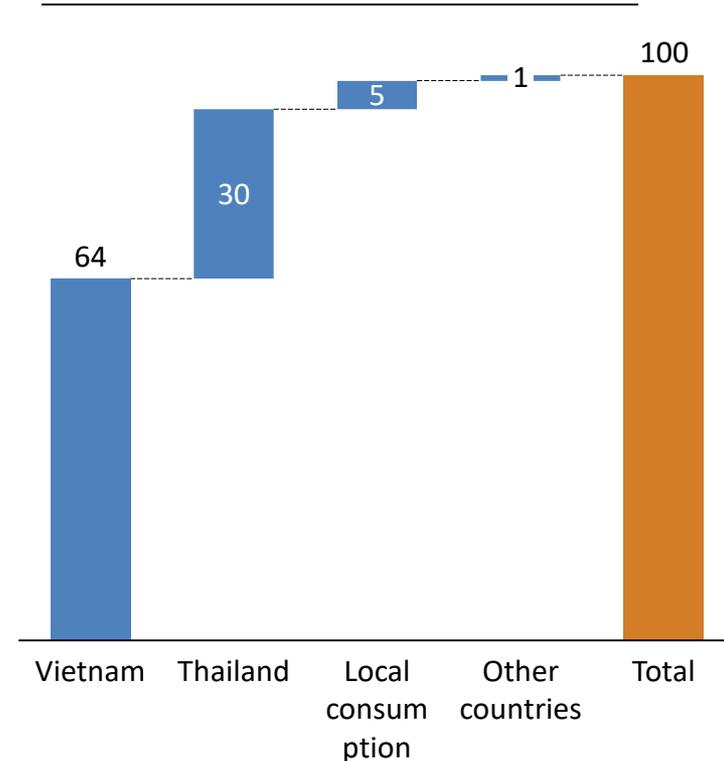
Farm gate prices (USD)



94% OF CAMBODIAN PEPPER IS PROCESSED IN VIETNAM AND THAILAND BEFORE BEING RE-EXPORTED TO FINAL MARKETS

- **94% of Cambodia's pepper production is exported** (~\$60 M*), largely informally to Vietnam (64%) and Thailand (30%) – where it is processed, packaged then re-exported
- **Only 5% of the pepper production is consumed locally**, 50 tons of which is for high quality niche markets; and only 1% is directly exported to other countries
- Two companies (“Tiger head” and “Two dragons”) process low quality powdered pepper for the domestic market
- SELA pepper is **the only processing facility that produces pepper for export markets**, mainly the US and the EU, and they only process 100T per year
- **Global pepper prices have dropped from \$9 (2015) to \$2.6 in 2018 due to an increase of global supply.** Although experts expect this trend to continue for a few years, Vietnam (40% of global production) announced a plan to cut back its pepper planting area by 26.7%, which might accelerate the increase in prices

Breakdown of pepper production (%)

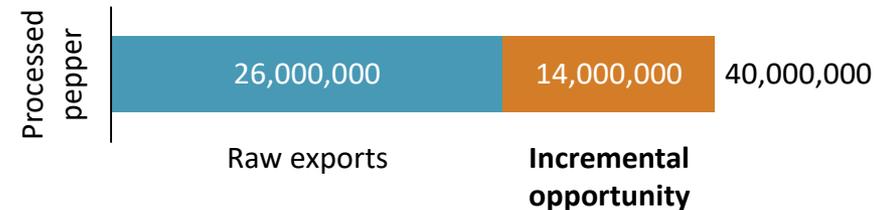


THERE IS AN OPPORTUNITY TO BYPASS INFORMAL EXPORTS AND PRODUCE PROCESSED PEPPER IN BULK FOR DIRECT EXPORTS

- While Vietnam drives world exports (40% of global production) at low prices (\$3.3/ Kg), **Cambodian pepper is recognized for its higher quality** and has the potential to command a price premium (ex. \$4/ kg) if sold directly to final markets
- **The processing required for pepper is relatively simple** (drying and sorting) and is therefore less challenging for Cambodian companies
- **99% of smallholder pepper producers are in one district**, which facilitates linkages
- The Ministry of Commerce has recently announced a new strategy that promotes pepper processing

- Because pepper processing is not complex, it can **potentially be taken up by cooperatives** (ex. Dar-Memot Pepper Agriculture Development Cooperative*). Therefore, **overhead costs are expected to be lower than private companies**
- While raw pepper is sold at around \$2.6, processed pepper from Cambodia is currently sold at \$4. If 50% of the total production is processed, **the incremental opportunity can be up to \$14 M**

Breakdown of the opportunity (USD)





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Pepper



Cashew



Longan



Moringa

THIS REQUIRES SUPPORT ACROSS THE VALUE CHAIN TO ENSURE PROFITABILITY AND ACCESS TO MARKETS



- There is a need to ensure that farmers are accessing high quality inputs and are aware of their appropriate use

- There is a need to train farmers on ensure that international standards are followed consistently
- Cooperatives will require support to improve coordination among smallholder farmers and strengthen their leadership capacities

- Existing processing companies and cooperatives that start processing will need easier access to finance (profitability levels are likely going to be too low in the first few years to afford interest rates). In addition, they will likely need additional support to navigate red tape and higher processing costs

- Cambodian exporters will need to establish linkages with buyers in the EU & US that recognize Cambodia's higher quality

Potential risks

- Further research needs to be conducted to determine the exact level of price premiums that Non-Kampot Cambodian pepper can command in global markets

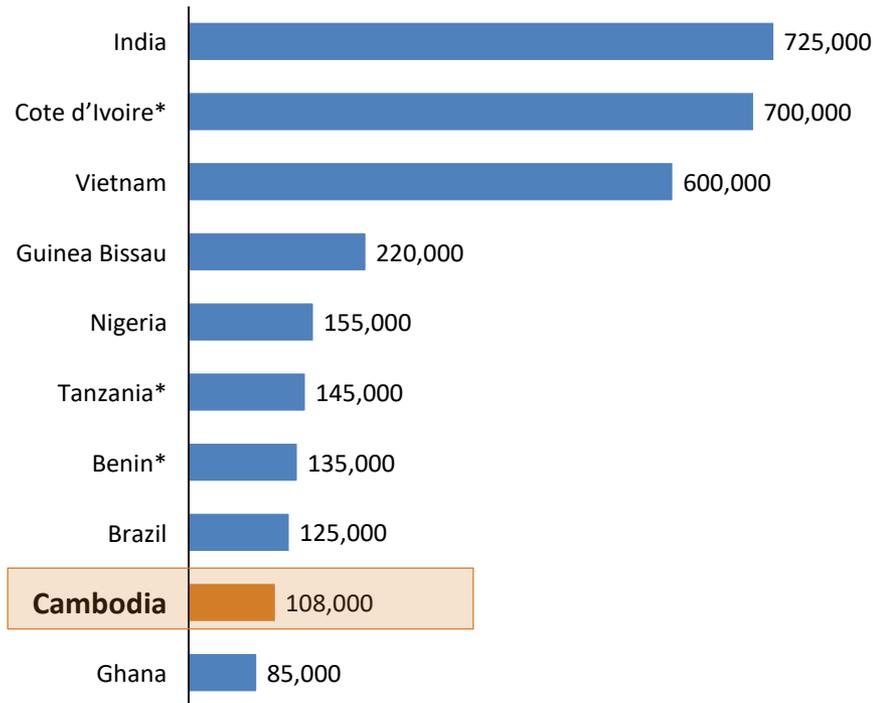


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Sources: stakeholder interviews, Dalberg analysis

CAMBODIA IS ONE OF THE TEN TOP CASHEW PRODUCERS, WITH OVER 140,000 HECTARES OF CASHEW PLANTATIONS

Top Raw Cashew Nut (RCN) producing countries in 2015* (Metric tons)



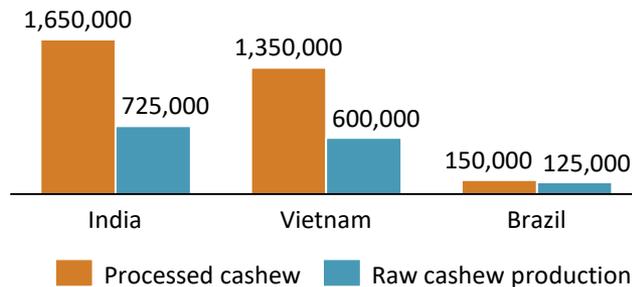
- Cambodia produces 140,000 tons of raw cashew per year in ~140,000 Ha, which makes Cambodia **one of the 10 top producers globally**
- **Cashew is produced in several provinces across Cambodia**, but the leading provinces in terms of cultivation area are Kampong Thom (27%), Kampong Cham (18%) and Ratanakkiri (17%)
- Cashew is **generally produced by smallholder farmers**, but an increasing number of people are investing in large scale plantations
- **Cambodian cashew is known for its relatively high quality**. The kernel outturn of 24% to 28% is similar to that of Vietnam (mid-range quality) but the size is generally larger (large cashew nuts account for ~15% of the produce)

CAMBODIA'S POTENTIAL FOR PROCESSING IS LOW, AS CASHEW PROCESSING IS GLOBALLY LED BY VIETNAM AND INDIA

Vietnam and India process the majority of the world's cashews

- **Almost the entire production is informally exported in raw form** (shelled) to Vietnam at \$1.6 to \$2/kg (total of ~ \$250 M of exports), where it is processed and re-exported to the EU and the US
- **India, Vietnam and Brazil account for 95% of the world's processed cashew.** India and Vietnam process nearly twice their own production levels, and rely on imports from other countries

Cashew processing vs. production (tons)



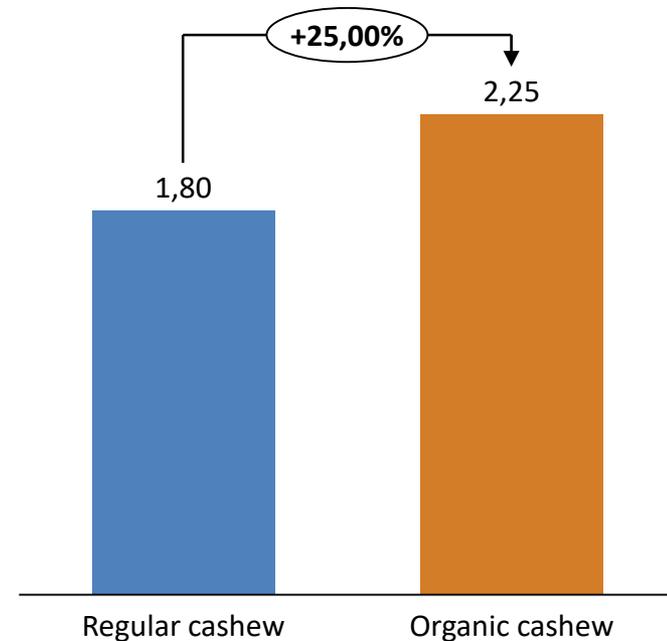
Although there are attempts to process cashew locally, competitiveness remains unproven

- **There are upcoming plans to process cashew domestically**, such as an MOU with Malaysian owned Camcashew Company and South Korean Naroo Marine Company to invest \$100 M in a processing plant, but progress to date is unclear
- **However, it will be difficult for Cambodia to compete in processing**, especially that it borders the world's biggest processor that has decades of expertise. In fact, there have been previous attempts that failed (ex. CAMAG)
- Due to the porous borders with Vietnam, Vietnamese traders buy cashew at the farm gate in cash, which means that **local processors will face intense competition from Vietnamese traders**

HOWEVER, CAMBODIA HAS A POTENTIAL TO PRODUCE RAW CERTIFIED CASHEW TO MEET INCREASING GLOBAL DEMAND

- **There is a growing market for organic and Fairtrade cashew in premium markets**, mainly the US and the EU
- Although global demand for premium cashew is currently very small (~5K T for organic and ~14K T for Fairtrade*), it is **growing rapidly**
- In addition, **Vietnam has plans to strengthen its Fairtrade cashew industry** (under a brand of Fairname cashew), which constitutes an opportunity for Cambodia's raw cashew producers
- **There are existing certified cashew producers in Cambodia**. For example, in 2011, an IFC project supported ~4,000 organic cashew farmers producing 6,000+ tons of raw cashew
- This opportunity is in line with the **government's vision to promote organic cashew production and exports** (MAFF's vision 2030)

Prices of organic vs. regular cashew (USD)





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Pepper



Cashew



Longan



Moringa

THIS REQUIRES SUPPORT ACROSS THE VALUE CHAIN TO ENSURE QUALITY PRODUCTION AND ACCESS TO MARKETS



- **Training:** farmers will require support to maintain international standards
- **Coordination:** Certification costs are high, so smallholder farmers will need to coordinate to cover them
- **Access to finance:** producers and cooperatives will likely require loans to cover initial certification costs

- **Market linkages:** farmer groups will need support to establish linkages with organic cashew processors in Vietnam and India

Potential risks

- **Increasing use of chemicals:** a new high yielding but less resistant variety of cashew (M23) has been introduced, and is being sold with chemical fertilizers and insecticides
- **Limited cooperation from farmers:** cashew is a popular crop among migrants who leave their farms in the care of parents. Therefore, farmer trainings and coordination might face low uptake

- **Demand from Vietnamese processors:** additional market research is needed to quantify the demand from Vietnamese processors and assess the competition from certified Vietnamese cooperatives



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Sources: stakeholder interviews, Dalberg analysis

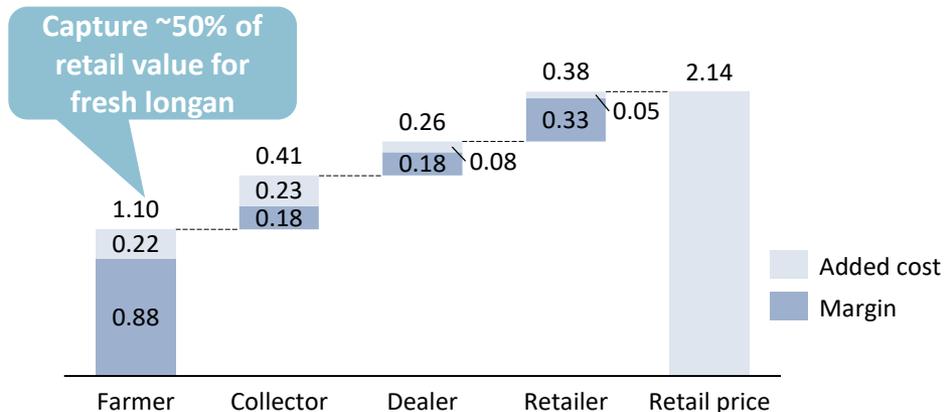
CAMBODIA PRODUCES ~26,000 T OF LONGAN, PRIMARILY IN TWO PROVINCES

~26,000 T produced, mainly in 2 provinces

- Cambodia produces ~**26,000 T**¹ of Longan (2015 est.); there has been significant growth in production over the last few years
- While Longan is grown in 10 provinces, **2 provinces** – Battambang and Pailin (bordering Thailand) – account for **~80% of production**²
- A large majority of the produce is consumed domestically, and prices spike around new years since longan is looked at as a religious fruit
 - 50-60% of production is of Grade C variety (12.5 g/fruit) and doesn't meet Thai import requirements²

~1,000 farmers involved; there is growing interest

- **Longan is grown by ~1,000 farmers**; most of them rely on it as a primary source of income
 - 60% are grown by large farmers (~10 ha)
 - 40% are grown by smallholders (~1-1.5 ha)²
- There is **increasing interest in longan production**, given high farmer value capture and margins (~\$0.9/kg)² – see below



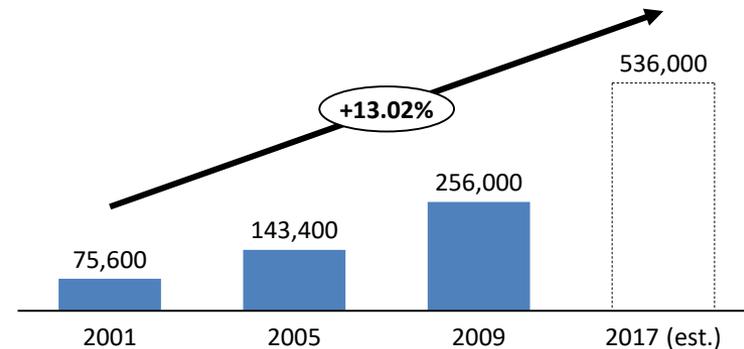
CAMBODIA EXPORTS ~1,500 T TO THAILAND WHICH RE-EXPORTS TO CHINA, THE LARGEST CONSUMER OF LONGAN

~1,500 T exported to Thailand, from where it is re-exported to China

- ~1,500 T of fresh longan exported to Thailand (2016 est.), worth ~\$2 mn¹
 - Exports grew strongly in 2015 (60%) and 2016 (30%)
 - Price realization: \$1-1.5/kg
- In Thailand, this produce is likely sorted and packaged, and/ or processed as dried/canned Longan for re-export to China, which is the largest consumer of longan globally (see graph on right)
 - Chinese traders facilitate this movement to a large extent

China is the largest consumer of longan (~2.3 mn T), importing ~530K T for ~\$450 mn

China longan imports (tons)³



- Average price realization: \$0.9/kg
- Thailand and Vietnam account for the large majority of exports to China

The government is in the process of establishing SPS protocols (with GIZ support) to enable direct export to China²



NEGOTIATING AN SPS AGREEMENT WITH CHINA COULD UNLOCK A \$3-5 MN OPPORTUNITY TO SELL DIRECTLY TO CHINA

The opportunity

- Once an agreement is in place, **there is opportunity to increase production of export-grade longan**, develop **sorting and packaging** facilities, and **sell directly** to Chinese buyers at a **price premium**
- This could be a **\$3-5 mn opportunity**, assuming 3-5K T @ \$1/kg (premium of packaged over raw)
 - 10% share of incremental demand in China (est. at 50K T, assuming 10% growth on base of ~500K)
- There could also be **opportunity to time the sale of longans to improve price realization**: they are in high demand during Chinese new year (Dec – Feb), when they command 40-50% price premium¹

Rationale

- **Sorting and packaging for longan is basic** – Cambodia unlikely to have a significant competitive disadvantage to Thailand
- Since **production is geographically concentrated in 2 provinces**, coordination and capacity building is less challenging (v/s dispersed production) ; moreover, many farmers are large
- **Limited retaliation by Thailand**: given China's incremental import demand of 50K T p.a., Thailand & Vietnam will have a large market even if Cambodia was to supply 5K T





THIS REQUIRES SUPPORT ACROSS THE VALUE CHAIN TO ENSURE QUALITY AND MARKET ACCESS



- **Improving crop varieties:** Current seedlings are imported from Thailand, are not always suited for export requirements

- **Water management:** Longan is highly dependent on water, and there is a lack of irrigation systems / ponds, dependence on rainfall
- **Improving cultivation practices:** Farmers are not aware of proper application of chemicals to induce off-season production; fertilizer use, and pruning techniques

- **Sorting and Packaging:** Currently all done in Thailand
- **Storage improvements:** Very perishable; seasonal prices – peaking during Chinese new year

- **Establishing SPS trade agreement with China:** Currently in negotiation stage
- **Market links:** Establish linkages between importers in China (e.g. Pagoda) and the Pailin Longan Agricultural Cooperative

Potential risks

- **Access to finance:** Longan takes about three years to grow, requiring an investment of ~\$3,500/ha as an investment cost, and a total cost of ~\$8,000/ha for three years

- **Global Competition:** Given that China, Thailand, and Vietnam are increasing production as well, there is a risk of oversupply leading to a decline in prices, however currently, prices are forecast as remaining stable (\$1.25/kg)





Pepper



Cashew



Longan

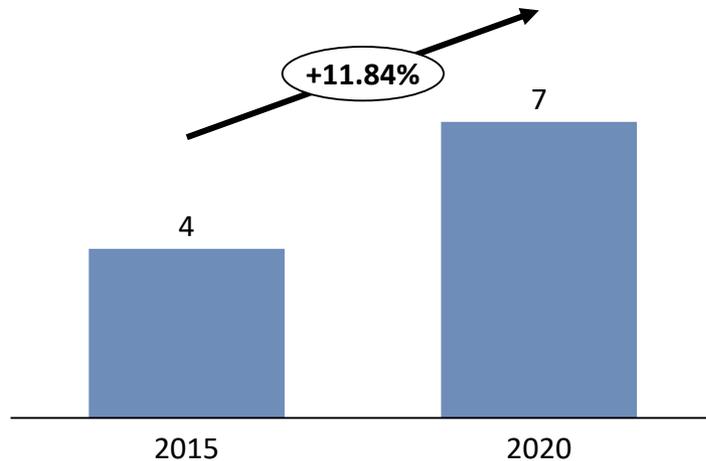


Moringa

THE GLOBAL MARKET FOR MORINGA PRODUCTS IS ESTIMATED AT \$7 BN BY 2020; IT IS TOUTED AS THE NEW “SUPERFOOD”

The global moringa products market was \$4 bn in 2015 and is expected to reach \$7 bn by 2020¹

Global moringa market (USD billion)



Growth is driven by an increased understanding of its nutritional benefits

Growth drivers

- Growing reputation as a ‘superfood’ due to health benefits (leaves are rich in proteins, minerals, Vitamin A, B and C)

Consumption is primarily driven by the **US, UK, Germany, France**

End products include: nutritional supplement, oil, herbal tea

We have focused on its potential as a nutritional supplement

These markets import moringa powder in bulk and then process, package and brand it for retailing



INDIA ACCOUNTS FOR 80% OF GLOBAL EXPORTS; CAMBODIAN PRODUCTION IS NASCENT

India accounts for 80% of global exports

- **India** accounts for the bulk of global production and **~80% of global exports of moringa powder**
 - However, European buyers have expressed concerns around the quality of Indian moringa powder (in terms of extent of chemical use, etc.)¹
- **Emerging moringa exporting countries** include **Kenya, Ghana, South Africa, Malawi and Mozambique**¹

Production in Cambodia is nascent

- While data on overall Moringa production in Cambodia is not available, we have identified 2 companies—**BacaVilla** and **RingaCam**—that engage in production
 - **BacaVilla:** supplies leaf powder, pills, soaps, oil and seed
 - **RingaCam:** procures from small farmers,
 - Total production estimated at ~100 T of leaves
 - Total revenue estimated at \$1-2 M



THERE MAY BE AN OPPORTUNITY FOR CAMBODIA TO EXPORT MORINGA POWDER, INCL. ORGANIC VARIETIES

Opportunity

- **Produce and sell quality moringa powder in bulk packaging to the EU & US**, where they get processed and packaged for various retail uses
- **This could be a \$3.5-7 mn opportunity for Cambodia—300,000 kg @ EUR 10-12/kg—assuming:**
 - Global export opportunity of \$350 Mn (5% of \$7 Bn retail value*)
 - Cambodia captures 1-2% of the market, given dominance of India (80% export share) and emergence of other exporting nations
- **This implies the need for ~300,000 moringa trees, which will require ~1,500 ha**

Rationale

- **Better quality:** less chemical use (V/s India); can do “organic” as well
- **Favorable impact on smallholder farmers**
 - Can grow in most soils; is weather resilient
 - Low gestation periods: trees reach a height of 2 meters within the first 3-5 months; farmers can begin harvesting quickly
 - “swiss knife”: moringa trees offer several revenue generating opportunities beyond powder (E.g., oil from the seeds, fruits)
 - 20 trees can increase farmer income by 10% p.a.





THIS REQUIRES SUPPORT ACROSS THE VALUE CHAIN TO ENSURE PROFITABILITY AND ACCESS TO MARKETS



- **Sustainable production:** Identifying best practices for organic production

- **Expanding scale of production:** Farmers are not currently aware of best practices/ need to grow
- **Coordination:** Need for coordination among various smallholders for gathering leaves
- **Certification:** Certification costs are high, need for coordination

- **Processing and Packaging:** Meeting export norms for packaging

- **Market links:** Establish linkages between importers in the EU and the US, and processing companies in Cambodia (e.g., RingaCam, BacaVilla)

Potential risks

- **Being able to mobilize farmers to develop production**

- **Need for retail linkages:** Developing global retail branding is likely to be complicated and difficult





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Table of Contents

Macro overview of the agricultural sector in Cambodia

Value chains: Identification, prioritization, and detailing the opportunity

Common challenges: Identification, prioritization, and detailing the opportunity

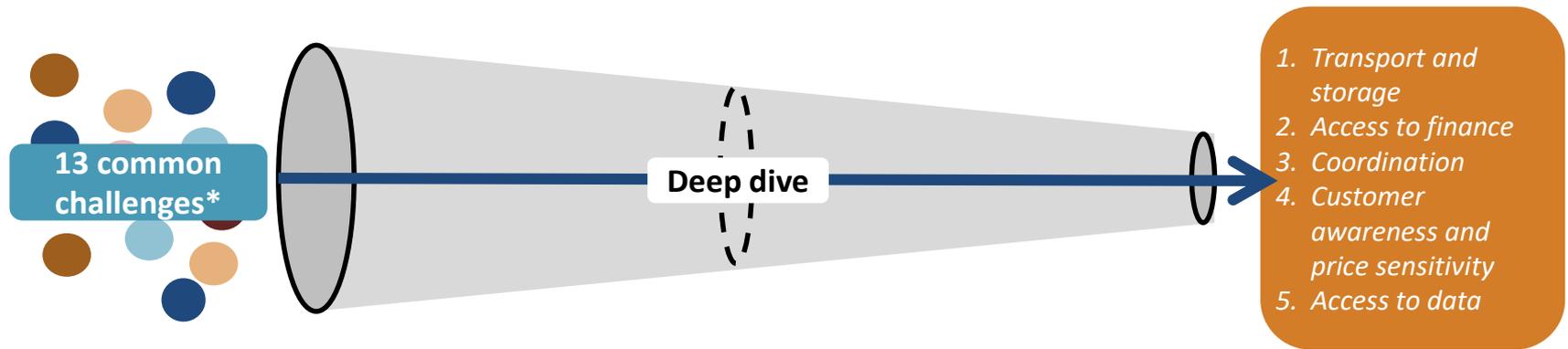
Annex



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WE IDENTIFIED 13 COMMON CHALLENGES THAT IMPEDE TRADE COMPETITIVENESS AND PRIORITIZED 5 FOR DEEPER ANALYSIS



Filtering criteria for common challenges

Size of trade opportunity unlocked

Incremental trade opportunity unlocked by addressing the challenge

Solvability

The ability to realize meaningful impact without significant reliance on government policy reform or support

Additionality

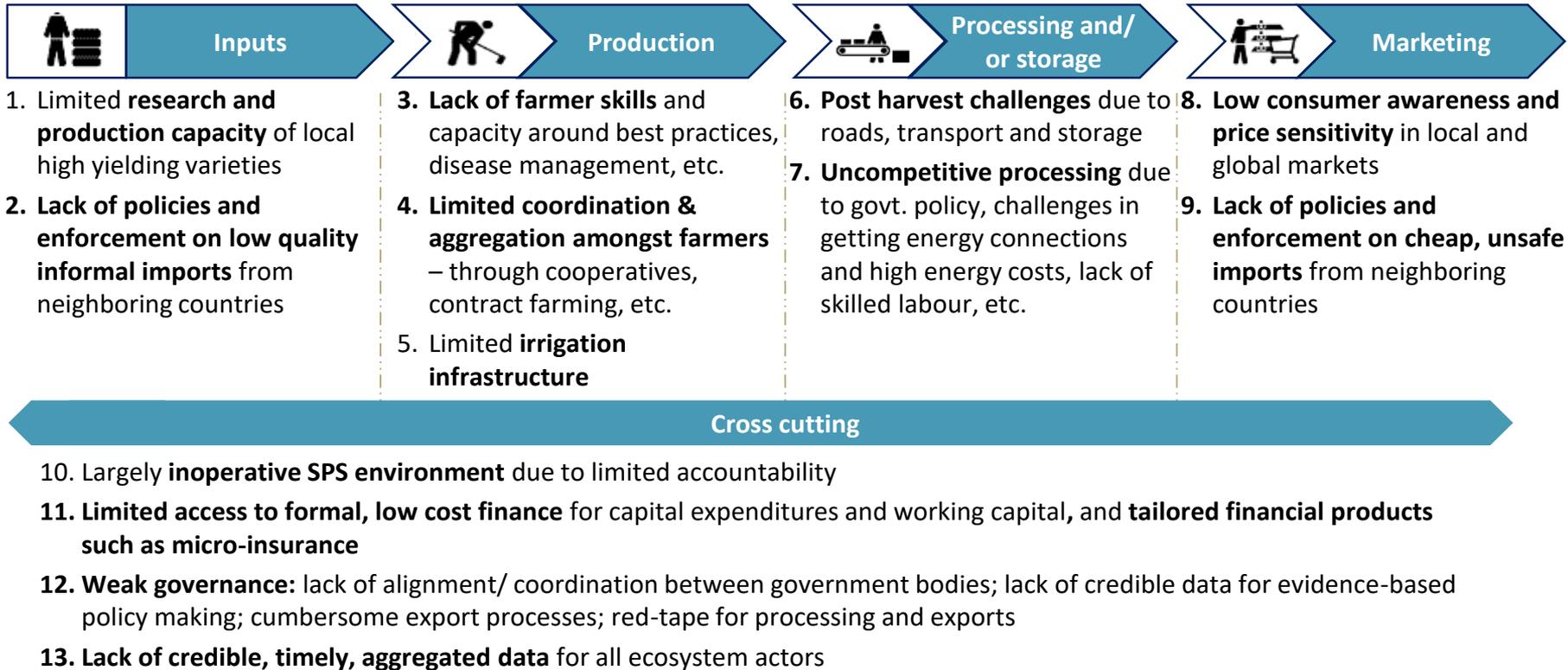
The extent to which donors/ govt. is working to solve the challenge



* These challenges were identified based on the analysis that was conducted for the 12 value chains that were identified in the initial shortlist of value chains



THE 13 COMMON CHALLENGES THAT IMPEDE TRADE COMPETITIVENESS



These have been briefly described in the subsequent slides



INPUTS IN CAMBODIA ARE MORE EXPENSIVE AND OFTEN LOWER QUALITY THAN NEIGHBORING COUNTRIES

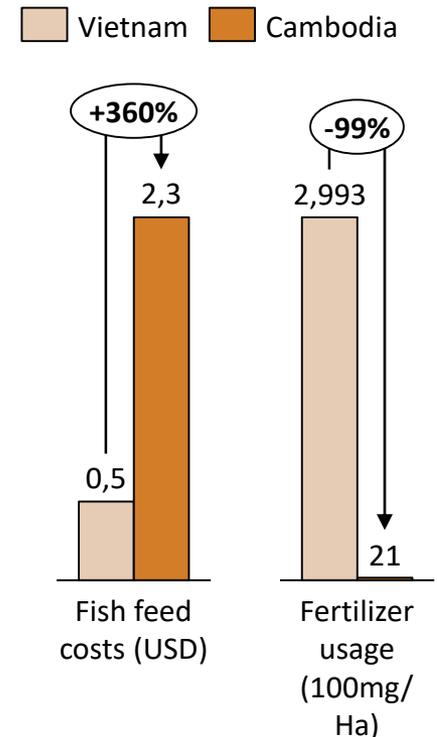
1. Limited research and production

- There is limited research on improved varieties of seeds across most crops. The national research center is mostly focused on rice, and R&D receives limited support
- Seeds, fertilizers, pesticides, etc. are mostly imported from neighboring countries at higher prices due to transport and intermediary costs, which causes lower usage
- Animal feed production is either inexistent or very small-scale, so farmers and investors have to source their own feed. As a result, feed costs are higher than those in neighboring countries and their quality is generally lower

2. Unregulated informal imports

- Imports of agricultural inputs are largely informal and unregulated at border points, especially with Vietnam
- Large quantities of informally imported inputs are non-certified, and farmers are often unable to distinguish high quality vs. low quality products. As a result, farmers sometimes unknowingly use ineffective or harmful chemical inputs

Comparisons on costs and usage



PRODUCTION IS HINDERED BY LIMITED SKILLS, ECONOMIES OF SCALE, AND IRRIGATION INFRASTRUCTURE

3. Farmer skills and capacity

- Farmer awareness of quality standards, input application, production techniques, crop rotation best practices, etc. is generally low across several value chains

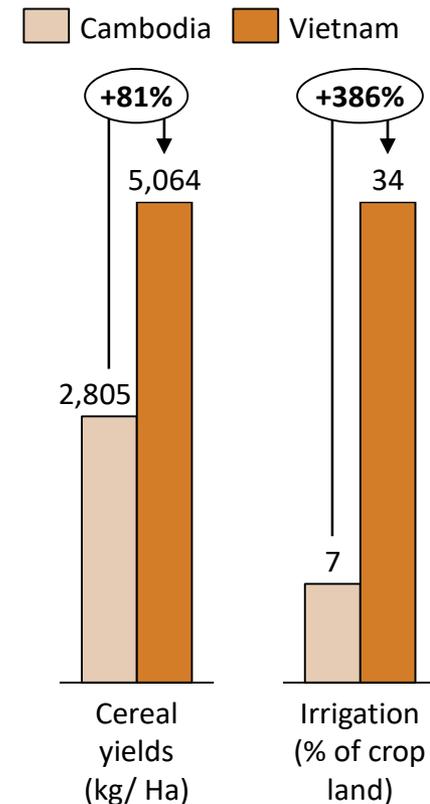
4. Limited coordination

- Coordination among farmers is limited, which prevents producers from benefiting from economies of scale
- This increases farmers' costs of procuring inputs and logistics services, getting certifications and sharing best practices. In addition, most farmers sell their products individually to traders or in wholesale markets, which limits their bargaining power
- Limited coordination among farmers as well as between farmers and buyers causes high volatility in prices due to supply gluts and scarcity in certain seasons

5. Limited irrigation infrastructure

- Only around 7% of farmland is irrigated, which limits yields and types of crops grown
- Last mile distribution for providing access to irrigation canals requires pumps
- There is some donor support to build irrigation infrastructure, but coordination among different ministries remains low

Comparisons of yields and irrigation¹



POST-HARVEST LOSSES ARE RELATIVELY HIGH, AND PRIVATE COMPANIES FACE UNCOMPETITIVE PROCESSING COSTS

6. Transport and storage

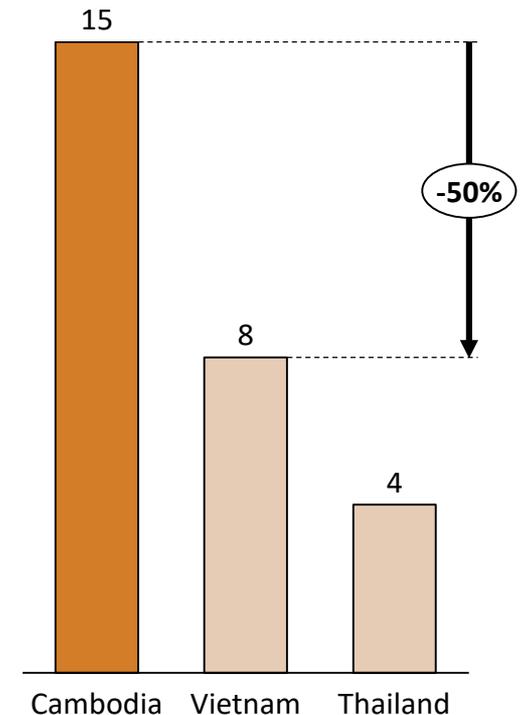
- Many farmers experience relatively high post-harvest losses, and are forced to sell their products at low prices due to their inability to store them
- Logistics costs are significantly higher than neighboring countries due to poor road connectivity and limited private sector involvement in logistics

7. Uncompetitive processing

Cambodia is ranked 135 on the Doing business index. Processors face several issues:

- Policies in Cambodia are largely unsuitable for agro-processing and few exemptions exist, which discourages private investments. For example, some fruit processors face a requirement to submit certificate of origin paperwork 10 business days (~14 days) before exports, which does not suit perishable products.
- Electricity costs in Cambodia (- \$0.17/kWh) are higher than those in Vietnam (\$0.11/kWh) and Thailand (\$0.13/kWh). In addition, Cambodia has a lower access to electricity rate (49.8%) than Thailand and Vietnam (100%). Therefore, setting up electricity for a large facility takes up to 179 days from submission and \$25,000+
- Red tape and bureaucracy limit private companies' ability to do business
- Packaging is imported from neighboring countries, and is often subject to import taxes (~20%) even when exemptions exist, in addition to transportation costs
- Labor costs can be higher than neighboring countries, especially in industries that require an experienced workforce

Transportation costs (\$ per ton for 100 km)¹





COMPETITIVENESS IS LIMITED BY LOW CONSUMER AWARENESS AND COMPETITION FROM INFORMAL IMPORTS

8. Awareness and price sensitivity

- Most domestic consumers are price sensitive and cannot pay premium prices for high quality/ safer products. Therefore, most traders and wholesale markets favor imported products to get higher margins
- Many domestic consumers are not aware of certain locally grown products, and of the dangers of consuming products with high chemical residue
- Premium export potential products such as Kampot Pepper, Aromatic Rice, etc. are not well known in global markets

9. Unregulated informal imports

- Informal imports go through the 15+ roads connecting Vietnam and Cambodia and they are currently not controlled
- There are multiple cases of low quality products entering Cambodia from Vietnam, which is harmful for producers as well as consumers
- There is limited political will to limit informal imported, even in cases of dumping. Many products have 'market rates' for unofficial payments – e.g. border agents charge \$5 per pig imported



SEVERAL CROSS-CUTTING ISSUES ALSO CONTRIBUTE TO CAMBODIA'S LIMITED COMPETITIVENESS IN THE SECTOR (1/2)

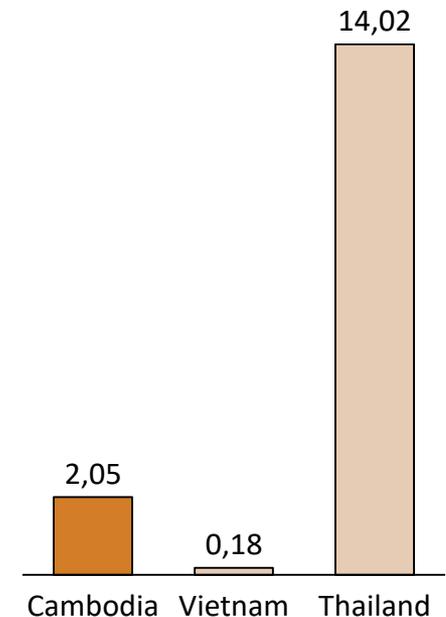
10. Inoperative SPS environment

- There is limited application of SPS standards across most value chains, from input traceability, to smallholder farmers' capacity and willingness to follow the standards, to the traceability of products at the marketing stage
- There is limited clarity around which actors in the value chain are willing to take up SPS application and monitoring costs
- SPS issues are handled across several ministries with limited clarity on responsibilities
- SPS guidelines are still not defined or await agreements at the national level (ex. the MOU between the Cambodian and Chinese governments for mango)

11. Limited access to finance

- Although the microfinance sector is relatively mature, the cap on interest rates by the government has caused many MFIs to become more cautious and/ or to limit lending
- Although around a third of Cambodian farmers use formal finance, loans are often not used for agricultural activities
- Unlike neighboring countries, Cambodia doesn't have a specialized bank for agriculture
- Traders and wholesalers have limited access to working capital (long payment terms)
- The ecosystem for start-ups in Cambodia is very nascent
- Many agricultural finance services, such as crop insurance, are largely unavailable

Microinsurance coverage in 2017 (%)





SEVERAL CROSS-CUTTING ISSUES ALSO CONTRIBUTE TO CAMBODIA'S LIMITED COMPETITIVENESS IN THE SECTOR (2/2)

12. Weak governance

- The strategic planning for some crops is split among several ministries and departments, with limited clarity around roles and responsibilities. As a result, some value chains have opposing visions (ex. pursuing organic cashew production in Vision 2030 vs. increasing raw cashew exports to Vietnam according to the MOU between MOC and Vietnam)
- Collaboration among different ministries is often very difficult (ex. MAFF and MOC)
- Private sector companies have reported high costs and lengthy procedures that involve multiple departments and ministries along the value chain
- The Ministry of Agriculture has limited budget and capacity for implementation (ex. limited number of extension workers), and heavily relies on donor funding (~80%)

13. Limited access to data

- Credible & timely data is largely unavailable for various decision makers along the value chain (ex. government, investors, researchers, farmers, traders)
- Farmers are generally not aware of future market demand and prices
- Although some initiatives have been put in place (ex. AMIS, the geospatial mapping initiative by ICCO), they still face challenges such as limited user-friendliness for farmers or limited scale





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WE EVALUATED THESE 13 COMMON CHALLENGES ON THREE CRITERIA

1 Size of trade opportunity unlocked

What is the incremental trade opportunity that gets unlocked by addressing the challenge?

2 Solvability

How feasible is it to address the challenge without significant government policy reform or support?

3 Additionality

To what extent are donors already working on addressing the challenge?



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BASED ON OUR EVALUATION, 5 CHALLENGES EMERGED AS MORE ATTRACTIVE THAN OTHERS

	Challenge	Description	Size of trade opportunity unlocked	Solvability	Additionality	Overall rating
Inputs	Research & prod.	Limited varieties, high cost of imports	\$20-25M	Low	Medium	Medium
	Informal imports	Low quality unregulated imports	\$5-10 M	Low	High	Medium
Production	Farmer capacity	Limited training on techniques	\$20-25 M	High	Low	Medium
	Coordination	Limited economies of scale	\$25-30 M	High	Medium	High
	Infrastructure	Lack of irrigation	\$20-25 M	Low	Low	Low
St. & P	Transport & storage	Challenges in transport/ storage	\$10-15 M	Medium	Medium	Medium
	Uncompetitive proc.	Packaging, electricity, roads, etc.	\$10-15 M	Low	High	Medium
Marketing	Customer awareness & price sensitivity	Limited awareness of safety and unwillingness to pay high prices	\$5-10 M	High	High	High
	Unregulated imports	Dumping from Vietnam, etc.	\$15-20 M	Low	High	Medium
General	SPS environment	Limited guidelines, respect, etc.	\$10-15 M	Low	High	Medium
	Access to finance	Lack of affordable formal finance	\$10-15 M	Medium	Medium	Medium
	Governance	Policies, processes, etc.	\$ 15-20 M	Low	Low	Low
	Access to data	Limited data across the VCs	\$5-10 M	Medium	High	Medium

The 5 shortlisted challenges have been detailed on the subsequent slides

Please refer to the linked [annex slides](#) for more detail on this evaluation

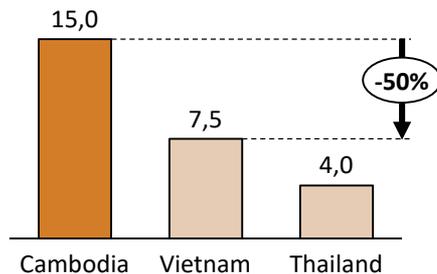
Note: The size of trade opportunities was estimated based on the number of VCs in the study that were impacted, and the extent of impact on each

BOTH INTER-COUNTRY AND INTRA-COUNTRY TRANSPORT ARE UNCOMPETITIVE COMPARED TO THAILAND AND VIETNAM

Intra-country transport

- Most intra-country transport is conducted by road instead of waterways
- In-land transport in Cambodia costs twice and almost four times as much as in-land transport in Vietnam and Thailand respectively

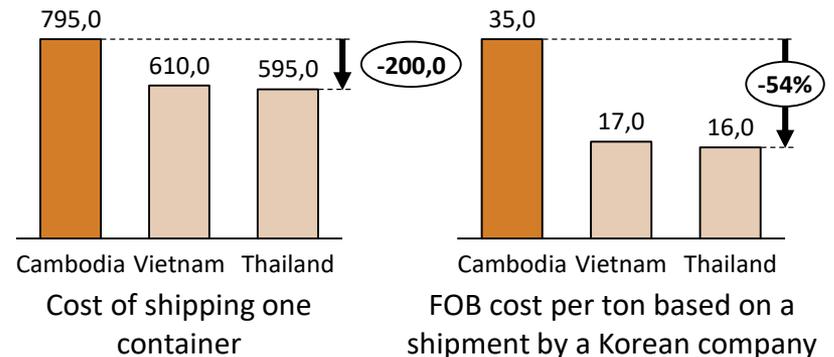
In-land transport costs (\$/ ton/ 100 km)



Inter-country transport

- Transportation of export products is currently not competitive in Cambodia
- This is due to the high shipping and Freight On Board (FOB) costs compared to neighboring countries

Comparison of In-land transport and FOB costs (USD)





THIS IS DUE TO 3 CROSS-CUTTING ISSUES: PRIVATE SECTOR PARTICIPATION, INFRASTRUCTURE AND POLICIES

Private sector participation

- There are only ~100 trucking companies, most of which are small and informal. The largest 20 companies have ~1000 trucks
- Trucks are second-hand and old
- Most companies only operate on 2 routes (Sihanoukville and Ho Chi Minh City)
- Most logistics and trucking companies focus on non-perishable products
- Limited scale and coordination of producers and traders significantly increases costs
- Trucks are generally underutilized (5-6 trips/ month)

Infrastructure

- There is a lack of funding and capacity to build and maintain transport infrastructure
- Only 11% of roads are paved, compared to 66% in Vietnam and 81% in Thailand
- Most road building is delegated to donors, and there is a lack of systematic road maintenance
- Road conditions are significantly worse during the rainy season
- Cambodia currently does not have a deep water port, which limits its access to some markets

Government policies

Policy formulation

- There are gaps in policy (ex. the road law is not in place)

Enforcement

- Informal fees have a significant impact on overall transport costs and are a major constraint for companies (~\$180 to \$210 to clear each 20-foot container)
- Some licenses are very difficult to obtain (Phnom Penh – Bangkok route is monopolized by a few companies)

Transport & storage





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Transport and storage



Access to finance



Collaboration



Awareness and price sensitivity



Access to data

THERE ARE OPPORTUNITIES TO PROMOTE INNOVATIVE BUSINESS MODELS IN TRANSPORT SERVICES

Private sector participation

Limited evidence of donor interventions

Infrastructure

Several donors are providing concessional loans to the government and/ or implementing projects to improve road infrastructure: ADB, WB, PRC, etc.

Government policies

Limited evidence of donor interventions

Interventions

Potential opps

Build cold chain capacity for agriculture

Improve efficiency at the sectoral level (ex. Uber for trucks)

Explore innovative low-cost transport equipment for farmers and cooperatives (ex. Tuktukbots*)

Expand investments in physical infrastructure (roads and ports)

Improve government capacity for systematic maintenance

Improve government capacity to enforce laws

Improve government capacity to fill policy gaps in transport



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Sources: Stakeholder interviews; Dalberg analysis

* Tuktukbot are Tuktuks with an added coolers to the trailer

LIMITED STORAGE SKILLS, EQUIPMENT AND INFRASTRUCTURE LOWER THE COMPETITIVENESS OF CAMBODIAN PRODUCTS

Post harvest quantity and quality losses

- **High post-harvest losses:** Losses from harvest and storage range from 20% to 50% for rice, and are over 30% for vegetables
- **Losses in quality:** In addition to spoilage, inadequate storage lowers the quality and competitiveness of Cambodian products

Volatility in supply and prices

- **Supply gluts and shortages:** Farmers and traders generally sell all their products immediately after the harvest, which causes fluctuations in supply levels and shortages during the dry season
- **Price fluctuations:** unstable supply leads to price volatility. At the same time, farmers are often not able to wait until prices rise before selling their products

- **Decreased farmer incomes:** Smallholder farmers lose income due to a decrease in quantities sold and sub-optimal prices for lower quality products
- **Continued reliance on imports:** There is evidence of traders and wholesalers that prefer to buy lower quality Vietnamese products, even when Cambodian products are sold at the same price. This is due to the lack of stability in Cambodian supply
- **Limited potential for processing:** Existing and potential processors face liquidity and infrastructure challenges because they have to buy a whole year's supply and store it in-house



THIS IS DUE TO A LACK OF FARMER AWARENESS AND CAPACITY, AS WELL AS INFRASTRUCTURE ON & OFF THE FARM

Key challenges and drivers

Farmer skills and practices

- Farmers are often unaware of **best practices in storage**
- **Storage in some value chains is relatively technical** (ex. temperature and humidity control), which requires skills that most smallholder farmers currently do not have

Access to on-farm storage

- Most farmers **lack access to improved storage equipment** at the farm
- Few cooperatives are efficient and large enough to invest in **shared storage equipment and infrastructure**, such as warehouses. In addition, they are limited by challenges such as access to affordable finance

Access to off-farm storage

- Logistics companies and commercial **warehouses are concentrated around Phnom Penh**
- Storage services are mostly **focused on non-perishable products** for import and export and are **not equipped for the agriculture sector**

“Because of a lack of cold storage at most of the country’s farms, farmers are unable to save their vegetables for more than a few days at a time. Almost 50% of some vegetables are lost due to the heat”

Phnom Penh Post

“Cambodia’s rice storage capacity still falls 60 percent short of the level needed for the country to achieve its goal of 1 million tons of annual rice exports”

Phnom Penh Post



THERE ARE OPPORTUNITIES TO PROMOTE ACCESS TO INNOVATIVE STORAGE EQUIPMENT AND INFRASTRUCTURE

Existing interventions

Potential opportunities

Farmer skills and practices

- Some training on basic storage skills by donors as part of various production programs

- Disseminate best practices in storage across value chains (ex. produce guidelines for cooperatives, digital)

Access to on-farm storage

- Provision of small storage equipment by some donors (ex. ex. plastic crates by HARVEST), as part of programs focused on production and/ or market linkages

- Catalyze innovations in on-farm storage equipment for farmers and cooperatives (ex. solar powered storage facilities, Coolbot rooms*)

Access to off-farm storage

- Increasing level of private investment, but with a big focus on rice (ex. MOU with 2 Chinese companies on rice)
- MOU with China to invest in an SEZ for storage and processing
- Project by SNV to implement a WRS* project (rice, cassava, etc.)
- Rural Development Bank loans for a rice storage facility

- Develop a pay-per-use model for agricultural (non-rice) storage

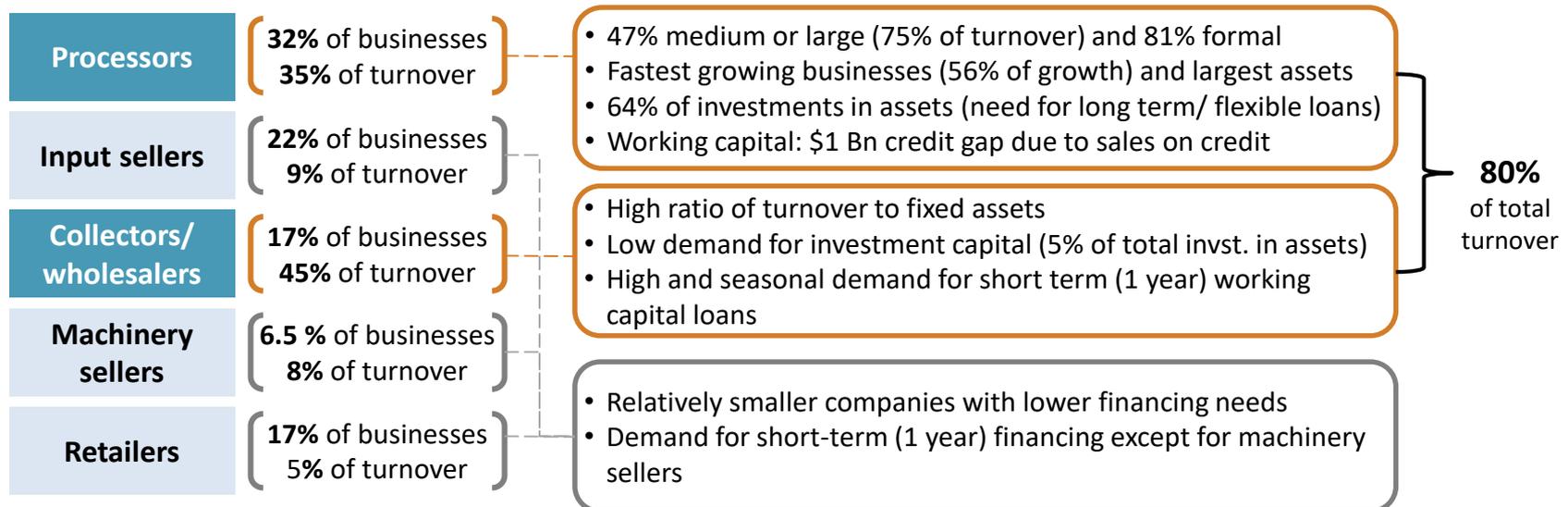
DEMAND FOR FINANCE IS DRIVEN BY PROCESSORS AND COLLECTORS, AND IS CONCENTRATED ON THE RICE VALUE CHAIN

~3,800* agri-businesses in 2011 (1% of all large businesses and 32% of SMEs)

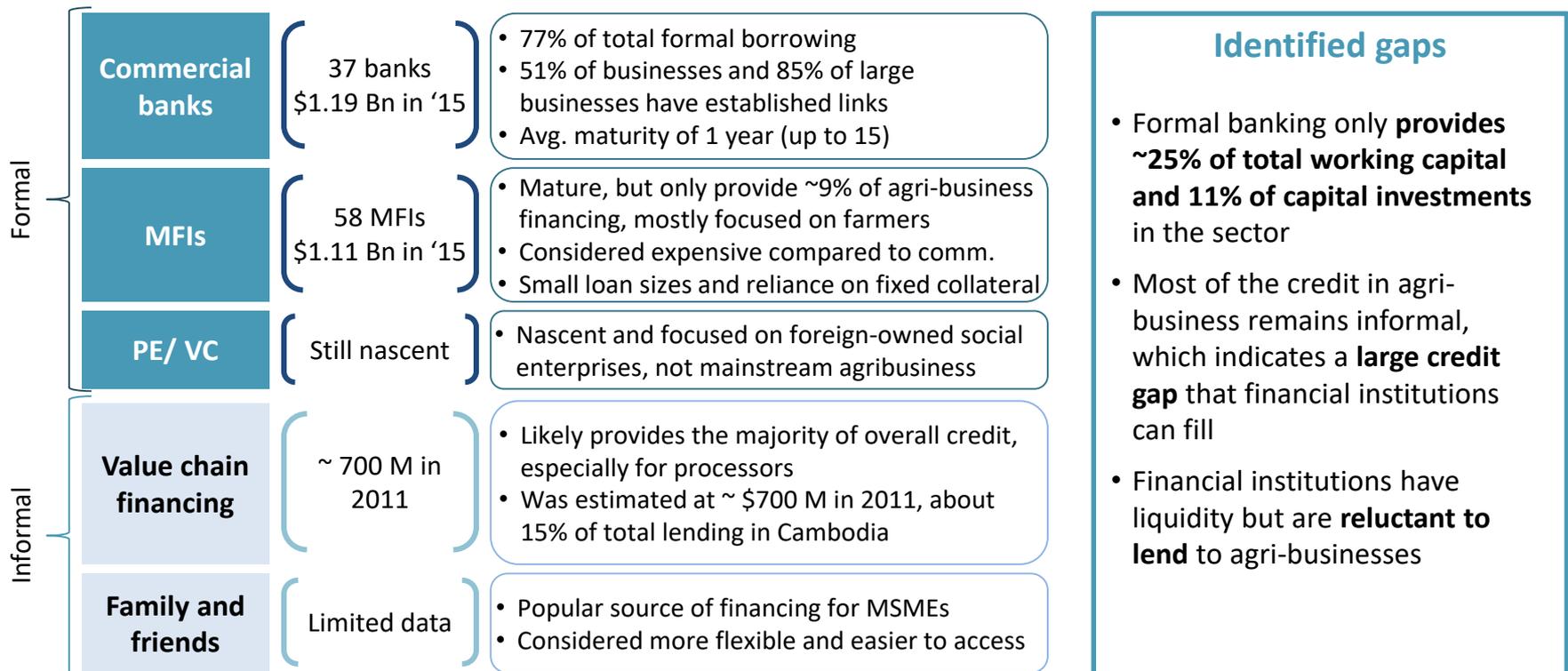
80% of agri-businesses operating in the rice value chain

82% informal, but great variability, however this goes down to 5% for large companies

97% micro-businesses, however 77% of total turnover is by large companies



THERE IS A GAP BETWEEN AGRI-BUSINESSES' BORROWING AND THE CURRENT FORMAL SUPPLY OF FINANCIAL SERVICES





THESE GAPS ARE DUE TO DEMAND AND SUPPLY SIDE CHALLENGES

Demand side

- **Limited profitability** of agri-businesses: in 2011, the average gross margin of agri-businesses was only 11%
- **Informality:** Many businesses prefer to remain informal to avoid interactions with authorities
- **Absence of credit history:** ~92% of payments are made on cash and only 50-60% of agri-businesses prepare financial records (82% of those are informal PNL)
- **Limited assets:** A 2011 survey estimated total agri-businesses assets at only \$280 million (vs. to total lending of \$450 million)
- **Limited capacity to plan:** 80% of agri-businesses can't determine future needs and 50+% do not have adequate business plans
- **Limited awareness of existing financial services:** especially for MSMEs and services like insurance

Supply side

- **Difficulty to access loans without fixed asset collateral:** acceptance of moveable collateral is very limited, while acceptance of intangible collateral is still near inexistent
- **Limited flexibility of financial services offered:** financial institutions. For example, the average length of loans to agri-businesses is only one year
- **Limited private equity, impact investing and venture capital**
- **Limited knowledge of the sector:** Many financial institutions have limited awareness of the needs and trends in agriculture, especially beyond rice





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Transport and storage



Access to finance



Collaboration



Awareness and price sensitivity



Access to data

THERE ARE OPPORTUNITIES TO IMPROVE THE CAPACITIES OF BOTH SMES AND FINANCIAL INSTITUTIONS

Interventions

Limited readiness of the P.S.

- Some donor programs on business and entrepreneurship training (ex. JICA's business training courses)

Offer of financial institutions

- Investments or grants for financial institutions to expand offer:
 - Investments in banks and MFIs like Acleda bank to expand financial services to SMEs (\$60 M by IFC, \$75 M by ADB, etc.)
 - USAID's DCA project
- Some projects include training for FIs (Amret and Agrifin)

Government capacity

- Limited evidence of donor activity
- The government has started to take steps towards improving the enabling environment for SMEs (ex. through the Industrial Development Plan)

Potential opps

Provide business trainings for MSMEs (ex. writing business plans)

Digitization of payments to build credit histories for SMEs

Expand FIs' loans to SMEs in the sector (ex. DCA)

Create tailored instruments for agri-business and develop playbook

Promote financing for innovative business models (ex. PFI)

Improve government capacity to enforce existing policies

Evidence-based policy formulation and amendment

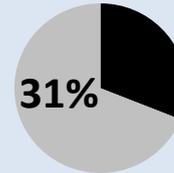


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Sources: Stakeholder interviews; Dalberg analysis

FARMERS DEMAND AND USE FORMAL FINANCIAL SERVICES, BUT THEY RARELY USE THEM FOR AGRICULTURAL ACTIVITIES

~**3.1 million*** farmers, in addition to 200,000 farm workers



of farmers use formal credit. 59% use formal finance in general

Working capital

- Over 50% of farmers do not fund any farming inputs
- 11% mainly use formal credit (from MFIs) to buy inputs
- 4% use informal borrowings (e.g. moneylenders)

Capital investment

- Cambodia has 20,071 tractors, a 9.5% increase since 2017
- Most machinery investments are in the rice value chain

Other financial services

- Formal payments are the most used service (36% of farmers)
- Minimal use of insurance products (4% use formal insurance and 2% use informal)
- Minimal use of formal savings (3%) with 56% of farmers not saving

Most smallholder farmers do not view agriculture as a business, so they invest minimal capital into farming. When they do use formal finance, it is often for the purpose of income smoothing rather than investments



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Awareness and price sensitivity



Access to data

THERE IS A LARGE OFFER OF FINANCIAL SERVICES, ESPECIALLY FROM MFIS, BUT SOME GAPS STILL EXIST

Working capital

Capital investment

Other financial services

Current supply

- MFI lending is relatively very high. The average loan went from \$200 to \$1000 from 2004 to 2014, growing at twice the pace of per-capita income
- The 2017 cap on interest rates for MFIs has discouraged lending or caused MFIs to go into loss
- Seasonal loans by MFIs (ex. loan of up to \$10,000 for 3-36 m)

- Some MFIs have special loans for agricultural machinery (ex. MFIs loans of \$1-35k loan for up to 60 months)

- Transfer services (ex. WING) have been growing fast
- Very limited offer of insurance services, especially micro and crop insurance

Gaps or challenges

- Interest rates and collateral requirements are still considered high by farmers
- Concerns about decreased lending due to the interest cap

- N/A

- Limited offer of insurance products



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Sources: Stakeholder interviews; [Bloomberg](#); Dalberg analysis



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Transport and storage



Access to finance



Collaboration



Awareness and price sensitivity



Access to data

THERE ARE POTENTIAL OPPORTUNITIES IN DEVELOPING TAILORED PRODUCTS AND PROMOTING DIGITAL FINANCE

Existing interventions

Potential opportunities

Limited access to micro-insurance

- The Asian Development Bank has a pilot on micro-insurance

- Potential to develop tailored products for smallholder farmers such as insurance and savings services to improve resilience

High interest rates and reluctance of MFIs to lend due to high risk

- The Agrifin project with Amret has developed a loan product with lower interest rates (0.1% lower)
- IDEO/ Agrifin initiative with Amret to explore digital finance

- Promotion of digital finance to build credit histories and lower lending risk and interest rates



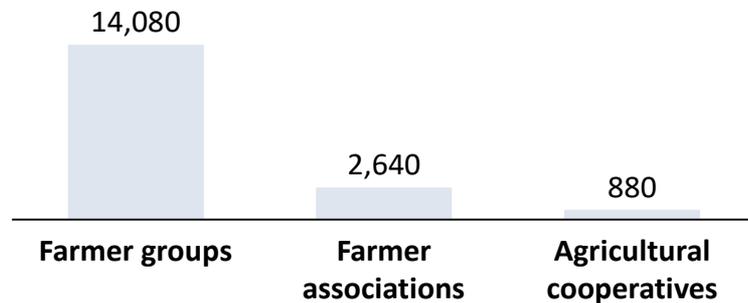
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Sources: Stakeholder interviews; Dalberg analysis

THE NUMBER OF FARMER ORGANIZATIONS (FOS) HAVE BEEN INCREASING, BUT THERE IS MUCH ROOM FOR GROWTH

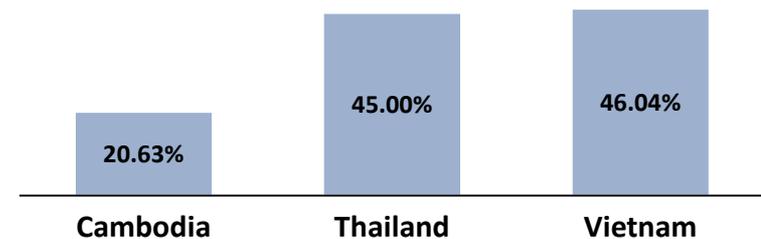
There are an estimated 18K FOs in Cambodia with ~430K members

Estimated no. of Farmer Organizations¹



However, net membership is comparatively low

Comparative membership of farmer groups²



Farmer organizations have three broad categories

- **Farmer groups** (5-30 members, likely unrecognized by the provincial govt.) – 80% of all FOs
- **Farmer Associations** (30-150 members, registered at the Ministry of interior) – ~10-15% of all FOs
- **Agricultural Cooperatives** (30-150 members, registered at the Department of Ag. Extension) – ~5-7% of all FOs³

The number of FOs have been growing, indicated by fact that the number of coops have grown 38% YoY since 2004, driven by:

- **Government focus:** MAFF has been actively promoting FOs through provincial governments and the Dept. of Ag Extension
- **Large donor push:** 61%³ of all FOs are supported by donors/NGOs, which play a critical role in assisting operations

MOST FARMER ORGANIZATIONS ARE CONSIDERED INEFFECTIVE GIVEN WEAK LEADERSHIP AND LINKAGES

Challenge

Description

Ineffective leadership

- Leaders are generally untrained, lack financial management and business skills
- Members often regarded as passive in decision making; and make unilateral decisions
- There is limited rotational leadership

Dependence on external support

- FOs rarely continue functioning when support agencies withdraw
- A majority of FOs are supported by donors/NGOs (61%), followed by govt./local authority (14%). None of the FOs surveyed by CDRI in 2014 were self-established.

Poor linkages to input providers, financial services, and markets

- **Input:** More than 75% of FO members continue to access inputs and outputs on an individual basis
- **Finance:** 83% farmers feel that there is insufficient capital raised from group savings and shares to meet credit needs; a lack of working capital finance for credit sales leads to farmer drop outs due to delayed payments
- **Markets:** 81% of members cite an absence of sufficient market support as a problem



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Transport and storage



Access to finance



Coordination



Awareness and price sensitivity



Access to data

STAKEHOLDERS OFTEN WORK THROUGH FARMER ORGANIZATIONS BUT DON'T FOCUS ON SYSTEMICALLY STRENGTHENING THEM

Challenge

Ineffective leadership

Dependence on donor organizations

Poor linkages to input providers, financial services, and markets

Interventions

- *Limited indication of focused leadership development programs in farmer groups*
- **IVY**, which has helped the Svay Rieng Agro Products Cooperative, has now begun to explore options to withdraw support and encourage self-sufficiency
- **JICA** is working with cooperative organizations to help them develop business models for self-sufficiency. However, the scale of this program is currently limited to approximately 50 farmer organizations
- **Inputs:** Most donor programs focus on input aggregation and training programs
- **Finance:** The **ADB** plans to roll out financing for agricultural SMEs and cooperatives as part of its \$70M Value Chain Infrastructure Improvement project
- **Market linkages:** Both **Harvest II** and **CHAIN II** focus on market linkages for farming agencies



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Source: Stakeholder interviews, Dalberg Analysis

HOWEVER, THERE ARE EXAMPLES OF FARMER ORGANIZATIONS THAT HAVE DEVELOPED AN ABILITY TO COMPETE

Melon association Siem Reap Meanchey

- Farmer association: ~150 farmers
- Farmers can earn up to ~10K USD/year, farmers on avg. grow about 2,000 melon trees each
- Facilitated by the New Zealand Aid Program

Primary activities

- Input procurement guidance; Technical skills; Coordinated growth; Market linkages

Drivers of success:

- **Coordinated production:** Used a production calendar to stabilize predictable production quantities, now produce 20-30 T/month (15T in off season)

Challenges:

- **Working capital finance:** Customer credit periods have gone over 6 months at times, leading to farmer dropouts
- **Certification control:** Ensuring that only their products have a label on them

Focusing vertically on a single VC has enabled them to develop a brand – have now begun expanding

Svay Rieng Agro-products Cooperative

- Originally evolved from a women's vegetable association, currently has 314 shareholders
- Facilitated by the International Volunteer Centre of Yamagata (IVY) in 2008, registered as a coop. in 2011.
- IVY has been reducing support to encourage self-sufficiency.

Primary activities

- **Technical skills:** 40 types of organic vegetables produced
- **Market linkages:** ~16 T/Month distributed, anchored around key partners (casino in Bavet)
- **Transport and distribution:** Recently procured a cold-storage truck; village collection sites for farmers' groups

Drivers of success:

- Developing anchor demand partners

Challenges:

- Lack of self-sufficiency
- Low incentives for mgmt. committee (30K Riels/month)

Identifying an anchor customer, and developing production around them has enabled a sustainable base for growth

THERE ARE OPPORTUNITIES TO DEVELOP STRONGER FARMER ORGANIZATIONS AND INSPIRE OTHERS TO FOLLOW SUIT

Opportunity	Description
<p>Build leadership capacity and independence</p>	<ul style="list-style-type: none"> • Developing best practices for FO management and train leaders accordingly • Identification of areas of dependence, factors that lead to it and address these
<p>Create 'role model' FOs</p>	<ul style="list-style-type: none"> • Identify or develop Farmer Organizations that fulfill identified KPIs e.g. indicators of self sustainability – independent & democratic decision making, ability to access finance, impact on farmer livelihood, developing market connections • Develop and disseminate best practices based on learnings



B2C: THERE IS DEMAND FOR LOCAL PRODUCE, WHICH IS PERCEIVED TO BE SAFER

Income levels are increasing, but the large majority of the population likely unable to pay a premium for safe produce

However, there is a demand for local produce, which is perceived as safe

Positive indications of increasing incomes:

- Cambodia GDP consistently growing at 7% YoY; middle class has grown 60% since 2012¹
- Approximately 27% of households earn between \$4-800 per month, and 10% earn more than \$800 per month – leaving some disposable income²
- Media exposure increasing
 - 90% of urban, and 78% of rural households have a TV²
 - 12 million internet users as of June, 2012 (~7 M Facebook accounts)³
- Small, but growing movement towards higher quality products – emerging companies like AEON mall and Natural Garden have found growth based off a premium, quality model

However, large proportion likely to be price sensitive

- Two thirds of households live on less than \$400/month, and are likely to be highly price sensitive. Poverty estimates stretch as high as 35%⁴ of the population.
- This segment of the population is not likely to be able to pay a premium for safer produce
- Govt. has been regularly promoting need to replace food imports, especially for vegetables
- There is also a general perception that local produce is safer to consume, with fewer chemicals used as compared to imports
- **Retailers prefer imported products**; available at a lower price and give higher margins
- **Vegetables procured from traders** both domestically and via imports are mixed on retail shelves, and **are not distinguishable from each other**



EXISTING INITIATIVES FOCUS ON EDUCATING END USERS; LIMITED FOCUS ON PROVIDING MEANS TO DISTINGUISH

Awareness for need to consume safe produce:

Mass media:

- Regular newspaper articles describing unsafe imports from Vietnam
- Regular social media posts describing unsafe food, including from government leaders

Donors:

- Safe Food Fair Food for Cambodia: USAID FTF – generate evidence on the health and economic burden of foodborne diseases in animal-sourced value chains
- CEDAC, COAA, GIZ – documentary on safe food
- Mekong Institute – PROSAFE (NZAP): goal of engaging key actors from public and private sector to develop significant changes in food safety perception and practices in the region

Existing and planned initiatives on labeling:

- COAA – Organic labeling
- Melon Association – Labeling of products grown by association members, using defined techniques
- Participatory guarantee system – FAO and IFOAM initiative that enables low cost organic self-certification

Planned initiatives:

- The government is in the process of developing certification programs for safe/organic produce
- IFAD is exploring options for certifying safe produce

There are limited indications of efforts being made to label local produce, apart from produce grown by farmer groups



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Transport
and
storage



Access to
finance



Collaboration



Awareness
and price
sensitivity



Access to
data

THERE IS ALSO A POTENTIAL TO INCREASE DEMAND FOR SAFE PRODUCE FROM INSTITUTIONAL BUYERS

- **Safe produce is likely to cost more, given the need to develop systems of traceability, certification of produce. However, there is low potential for B2C reach, given that at least two thirds of the population are extremely price sensitive.**
- **Institutional buyers (schools, govt. offices, hospitals, restaurants) likely procure a large quantity of produce**
 - **Schools:** 3 million students in 13K schools¹
 - **Garment factories:** 1 million workers; 67% in Cambodia do not provide a canteen for food²
 - **Restaurants and hotels:** ~2,000 registered restaurants, and thousands more that are unregistered, ~800 hotels
 - **Retailers:** Organized, modern retail is nascent but growing; thousands of street stalls and wet markets
- **There have been nascent efforts to work with institutional buyers to develop awareness on the need for safe produce**
 - **School Meals:** Supported by the United States Department of Agriculture (USDA) McGovern Dole Programme, WFP's School Meals Programme has been providing nutritious school meals to ~500K Cambodian pre and primary school children. ~75% of produce is procured locally from smallholders³
 - **Garment worker meals:** Govt. has begun enforcing norms for factories to provide food to workers
 - **Restaurant licensing:** There are efforts to register restaurants, which involves compliance with health and safety standards, as well as using local ingredients



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(1) [Public Education statistics 2017](#) (2) <https://www.khmertimeskh.com/50535265/push-for-canteens-at-all-garment-factories/> (3) [World Food Program](#).



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Transport and storage



Access to finance



Collaboration



Awareness and price sensitivity



Access to data

THERE ARE OPPORTUNITIES TO HELP DRIVE DEMAND THROUGH B2C AND B2B AWARENESS, LABELING, AND POLICY

	Opportunity	Description
B2C	Labeling mechanisms to help consumers identify local produce	<ul style="list-style-type: none"> Developing mechanisms to trace and label produce grown locally The premium necessitated by this is not likely to be as high as that required for developing organic/safe production lines There are risks of counterfeit labelling, that will need to be addressed
	Developing dedicated markets for local produce	<ul style="list-style-type: none"> Organizations like Agrisud International organize farmer markets showcasing locally grown produce
B2B	Developing a business case for factories to provide 'safe' meals to workers	<ul style="list-style-type: none"> Studies by the ILO have identified that factories with a canteen providing meat and vegetables have significantly lower sick leaves from workers than those without – leading to a potential business case for businesses to provide 'safe meals'
	Develop and enforce policies focused on B2B procurement	<ul style="list-style-type: none"> Develop and enforce policies around safe food procurement at Govt. canteens, factory canteens, schools, hospitals and other institutions Improve enforcement of restaurant health and safety standards, increase restaurant registrations



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Source: Stakeholder interviews, Dalberg Analysis



Transport and storage



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Collaboration



Awareness and price sensitivity



Access to data

A NUMBER OF GAPS CURRENTLY INHIBIT DATA DRIVEN DECISION MAKING BY ECOSYSTEM ACTORS

	Farmers	Other value chain actors & service providers	Funders (donors, investors, fin institutions)	Government bodies, researchers
Type of decisions/ uses	<ul style="list-style-type: none"> • Crop mix and quantities • Types of inputs to purchase • Timing of sowing, harvest, and sale • Pricing of produce 	<ul style="list-style-type: none"> • Trading decisions: who to sell to / buy from • For input suppliers and service providers, what to make/ deliver 	<ul style="list-style-type: none"> • Donors: Program design, scale-up • Investment decisions: where to invest, when, and how much • Lending decisions: Who to lend to, how much, and under what conditions 	<ul style="list-style-type: none"> • Policy development • Program design, scale-up • Risk mitigation/ management • Reporting • Fundraising
Potential gaps	<ul style="list-style-type: none"> • Demand/supply trends to help decision making on crop mix & qty. • Access to user-friendly data on market prices • Soil mapping 	<ul style="list-style-type: none"> • Soil data to identify fertilizer needs • Data on pesticide needs 	<ul style="list-style-type: none"> • Credible, macro data on the sector • Credit data of potential borrowers (given informal/ cash biz) • Data to feed risks for insurance models • Farmer group financial models 	<ul style="list-style-type: none"> • Flow of data between govt. bodies • Real time production data • Predictive climate change models • Land use data to feed deforestation prevention • Land ownership data • ...



THERE ARE EXISTING AND EMERGING EFFORTS TO DEVELOP ACCURATE, REAL TIME DATA COLLECTION

	Objectives & description	Target	Scale
Government	Agricultural Market Information Services	Farmers	<ul style="list-style-type: none"> Nationwide coverage 22 markets studied daily for prices
	Agricultural Census	Donors Govt.	<ul style="list-style-type: none"> Nationwide coverage 2.6 million house holds, cost of ~\$5M
Donors/ NGOs	Surveys	Donors Govt.	<ul style="list-style-type: none"> 800 village sample, cost of \$1.3 M
	Start-ups	All stakeholders	<ul style="list-style-type: none"> Agribuddy: ~24K farmers; nationwide coverage Angkor SALAD: development stage SM Waypoint: NA

THERE ARE OPPORTUNITIES TO SCALE-UP AND ENHANCE USABILITY OF EXISTING EFFORTS

Opportunity

Scale up existing private sector initiatives

Set reporting standards for agricultural businesses and farmer organizations

Developing transparent, user friendly platforms for data

Description

- A number of private sector initiatives have a large transformational potential within the country. There are opportunities to scale up these initiatives through funding, or by building partnerships.
- Developing reporting requirements/standards for market aggregators, such as agricultural businesses, farmer organizations, etc. can help provide a source of near real-time, standardized farmer data
- There may be potential to better understand user friendly features of existing data sources for farmers (e.g. AMIS) using key design principles
- These principles can be expanded to develop data dashboards to help with decision making as well



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Annex

List of interviewees in Cambodia

Competitive assessment: Cambodia, Vietnam and Thailand

Value chain: Evaluation

Challenges: Evaluation



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WE CONDUCTED 36 KEY INFORMANT INTERVIEWS

Donors and implementers

1. Asian Development Bank
2. UNDP
3. EU
4. JICA
5. SNV
6. Abt Associates
7. ICCO
8. Swiss Contact
9. IFC
10. FAO
11. GIZ

Associations

12. CFAP
13. COrAA
14. Fishery Action Coalition Team
15. Cambodia Livestock Raisers Association
16. Kampot Pepper Association
17. Melon growers association
18. Kampong Speu Mango Association

Government

19. Provincial Dept. of MAFF in Siem Reap
20. Dept. of Hort. and Subsidiary Crops
21. International Cooperation Department
22. Dept. of Agriculture Extension (MAFF)
23. Dept. of Agro Industry
24. Dept. of Planning and Statistics

Private sector

25. Natural Garden
26. Triple F
27. RingaCam
28. Vegetable trader in Siem Reap
29. Cam Agriculture Import Export Limited
30. Kingdom Fruits
31. Moo Moo Farms
32. Sela Pepper

Others

33. Dr. Sin Sovith
34. Center for Policy Studies
35. Grow Asia
36. READA



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CAMBODIA FARES POORLY ON VALUE ADDED PER HECTARE AND YIELDS COMPARED TO ITS NEIGHBORS

Metrics	Cambodia	Vietnam	Thailand
Ag value added	\$4.7 bn	\$30.6 bn	\$44.9 bn
Arable land (ha.)	3.7 mn	6.6 mn	14.1 mn
Ag value added per hectare	\$1,250	\$4,636 (3.7x)	3,184 (2.5x)
Cereal Yield (kg/ ha)	2,805	5,064 (1.8x)	3,014 (1.1x)
Irrigated land (% of crop land)	7%	34%	28%
Ag machinery (tractors per 100 ha)	7	248	156
Fertilizer consumption (100 gm per ha)	21	2,993	1,072
# farm workers / per hectare	5 mn / 1.35	29 mn / 4.4	19 mn / 1.35

Agriculture in Vietnam and Thailand is significantly more irrigated and mechanized than in Cambodia; fertilizer usage is also substantially higher





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VALUE CHAIN EVALUATION (1/4)

Value chain	Size of opportunity	Potential to capitalize	Impact on livelihoods	Additionality	Alignment with USAID	Alignment with Govt.
Cassava	\$5-10 M	<ul style="list-style-type: none"> • General issues with processing • SME's limited capacity to certify and brand premium products 	<ul style="list-style-type: none"> • Cassava is mostly produced by smallholder farmers • SME involvement in processing and marketing 	<ul style="list-style-type: none"> • Some donor involvement in cassava processing (ex. UNDP). However, it's focused on large scale investments 	<ul style="list-style-type: none"> • USAID's previous experience was not focused on supporting SME processing or on the cassava value chain 	<ul style="list-style-type: none"> • Cassava is a big priority for the government (ex. Vision 2030) and it's now considered the second most important crop
Cashew	>\$50 M	<ul style="list-style-type: none"> • Need for capacity building and payment for certifications for organic cashews • Limited potential for processing 	<ul style="list-style-type: none"> • Cashew is mostly grown by smallholder farmers. However, they need to be able to cover certification costs 	<ul style="list-style-type: none"> • EU/ IFC's support for 4000 farmers to grow organic cashew 	<ul style="list-style-type: none"> • Although it's not a focus, HARVEST II includes cashew 	<ul style="list-style-type: none"> • Cashew is one of the 8 priority crops in vision 2030 (MAFF) • MOU with Vietnam to increase production (MOC)
Mango	\$10-20 M	<ul style="list-style-type: none"> • Limited potential for profitability if mangoes are processed and exported formally 	<ul style="list-style-type: none"> • Mangoes are mostly grown by smallholder farmers. However, they tend to have larger plots of land 	<ul style="list-style-type: none"> • There is limited donor involvement in the mango value chain, other than GIZ's support for SPS agreements 	<ul style="list-style-type: none"> • Mango is included in previous USAID initiatives, although it is not one of the focus crops 	<ul style="list-style-type: none"> • Mango is one of the 8 priority crops in vision 2030 • Potential MOU with China



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VALUE CHAIN EVALUATION (2/4)

Value chain	Size of opportunity	Potential to capitalize	Impact on livelihoods	Additionality	Alignment with USAID	Alignment with Govt.
Aromatic rice	\$51 M	<ul style="list-style-type: none"> • Need for investment support in infrastructure • Need for investment in R&D for improved seed varieties 	<ul style="list-style-type: none"> • Improving yields is estimated to impact ~40,000 farmers initially • Mostly produced by smallholder farmers 	<ul style="list-style-type: none"> • Large donor focus area given proportion of production and exports • High level of private sector involvement 	<ul style="list-style-type: none"> • RUA work on developing seed varieties • Substantial past work with rice farmers 	<ul style="list-style-type: none"> • High priority of government in Vision 2030, considered the most important crop
Vegetable	\$50 M	<ul style="list-style-type: none"> • Some vegetables have shown the ability to grow well • 30% higher cost than imported vegetables 	<ul style="list-style-type: none"> • Can earn farmers \$1,600/ha, estimated to impact ~30K farmers • Mostly produced by smallholder farmers 	<ul style="list-style-type: none"> • Ongoing programs from USAID, ADB, JICA, SNV, GIZ, IFAD and NZ 	<ul style="list-style-type: none"> • Heavy focus of past and current USAID projects 	<ul style="list-style-type: none"> • High priority of government in Vision 2030 • Boosting Food Production program aimed at curbing imports
Longan	\$1.4M	<ul style="list-style-type: none"> • Unclear farmer capacity to meet SPS standards 	<ul style="list-style-type: none"> • Largely grown by larger landholding farmers due to costs and time taken to harvest 	<ul style="list-style-type: none"> • Currently has limited donor focus apart from GIZ assistance in SPS standards 	<ul style="list-style-type: none"> • Limited past experience with Longan 	<ul style="list-style-type: none"> • Apart from efforts to set up SPS standards for exports, low indications of direct interest



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VALUE CHAIN EVALUATION (3/4)

Value chain	Size of opportunity	Potential to capitalize	Impact on livelihoods	Additionality	Alignment with USAID	Alignment with Govt.
Livestock	\$17 M	<ul style="list-style-type: none"> • Need for government intervention in limiting unregulated exports 	<ul style="list-style-type: none"> • Estimated to benefit ~8,000 smallholder farmers • Need for support price to increase earnings 	<ul style="list-style-type: none"> • Some donor interest, e.g. completed EU programs. • Livestock is freq. touched upon in donor programs • Private sector duopoly 	<ul style="list-style-type: none"> • Past programs have frequently touched upon livestock best practices, but low focus on import substitution 	<ul style="list-style-type: none"> • Government suggested setting import barriers, but has not yet done so • Livestock 10 year plan, and part of the agricultural strategic development plan
Moringa	\$3.6 M	<ul style="list-style-type: none"> • Relative ease to train farmers to grow, can grow in any province with ltd. need for water 	<ul style="list-style-type: none"> • 20 trees can increase farmer income by 10% PA 	<ul style="list-style-type: none"> • Limited indication of donor activity, private sector interest in the sector 	<ul style="list-style-type: none"> • Past projects have briefly touched upon moringa as 'living fences' 	<ul style="list-style-type: none"> • No indication of government support
Aqua-culture	\$25 M	<ul style="list-style-type: none"> • Need for government intervention in limiting unregulated exports, investments to reduce feed price 	<ul style="list-style-type: none"> • Potential to impact ~15K smallholder farmers 	<ul style="list-style-type: none"> • Saturated by EU 	<ul style="list-style-type: none"> • Programs have focused on aquaculture • USDA financing for aquaculture 	<ul style="list-style-type: none"> • Strategic planning framework for fisheries, and part of the agricultural strategic development plan



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VALUE CHAIN EVALUATION (4/4)

Value chain	Size of opportunity	Potential to capitalize	Impact on livelihoods	Additionality	Alignment with USAID	Alignment with Govt.
Banana	\$10-20 M	<ul style="list-style-type: none"> • Need for relatively large investments for commercial plantations 	<ul style="list-style-type: none"> • Minimal involvement of smallholder farmers • Land issues 	<ul style="list-style-type: none"> • Private sector investments solving for most problems for the Chinese market 	<ul style="list-style-type: none"> • No previous projects in export bananas 	<ul style="list-style-type: none"> • SPS agreements and investment approvals by the government
Pepper	\$20-50 M	<ul style="list-style-type: none"> • Existing brand recognition • Uncomplicated processing • Recognized quality premium 	<ul style="list-style-type: none"> • Pepper is predominantly produced by smallholder farmers, but it requires relatively high investments 	<ul style="list-style-type: none"> • Absence of donor programs that target pepper • Previous donor programs that have had a lasting impact (ex. GI) 	<ul style="list-style-type: none"> • Limited focus on pepper in previous engagements 	<ul style="list-style-type: none"> • One of the 8 priority crops in Vision 2030
Milk	<\$5 M	<ul style="list-style-type: none"> • Many issues across the entire value chain (unavailability of high quality feed, infrastructure, etc.) 	<ul style="list-style-type: none"> • Limited potential for smallholder involvement at this stage 	<ul style="list-style-type: none"> • Absence of donor programs in the value chain 	<ul style="list-style-type: none"> • Limited focus on dairy products in previous engagements 	<ul style="list-style-type: none"> • Milk is not mentioned in government strategies or initiatives



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DONORS ARE GENERALLY FOCUSED ON RICE, VEGETABLES, CASSAVA AND FISHERIES

	USAID	EU	ADB	JICA	UNDP	GIZ	AFD	New Zealand	IFAD
Aromatic rice	Ongoing	Ongoing	Ongoing	Ongoing		Ongoing	Ongoing		Ongoing
Cassava				Ongoing	Ongoing	Ongoing			Ongoing
Vegetables	Ongoing		Ongoing	Complete		Ongoing		Ongoing	Ongoing
Cashew	*								
Mango	*					*			
Longan						*			
Banana						*			
Pepper	*						Complete		
Livestock	*	Complete	*						
Milk									
Moringa									
Aquaculture	Ongoing	Ongoing		Ongoing					

Non-exhaustive

Limited attention



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Annex

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Challenges: Evaluation



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VALUE CHAINS IMPACTED BY COMMON CHALLENGES

	Challenge	Net	Veg.	Banana	Aqua-culture	Live-stock	Milk	Pepper	Mango	Cashew	Ar. Rice	Cassava	Longan	Moringa
Inputs	Research & production	H												
	Informal imports	M												
Production	Farmer capacity	M												
	Coordination	H												
	Infrastructure	M												
St. & Proc.	Post harvest challenges	H												
	Uncompetitive costs	H												
Marketing	Customer awareness and price sensitivity	M												
	Unregulated imports	L												
General	SPS environment	M												
	Access to finance	M												
	Governance	M												
	Access to data	M												



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SOLVABILITY

	Challenge	Rating	Rationale
Inputs	Research & production	Low	Need to coordinate with Govt. labs & institutions for research, red tape for setting up production
	Informal imports	Low	Need for government enforcement and policy control, limited room for donor involvement
Production	Farmer capacity	High	Limited requirement for government support
	Coordination	High	Minimal requirement apart from ensuring continuity and limiting red tape
	Infrastructure	Low	Large need for government approvals, coordination and funding
St. & Proc.	Post harvest challenges	Medium	Need for government support in transport infrastructure, some funding and approvals
	Uncompetitive costs	Low	Highly dependent on government infrastructure, policy, and approvals
Marketing &	Customer awareness and price sensitivity	High	Limited requirement for government involvement
	Unregulated imports	Low	Need for government enforcement and policy control, limited room for donor involvement
General	SPS environment	Low	Reliance on government for setting protocols and approvals
	Access to finance	Medium	Need for regulatory support for new instruments, room for involvement in existing instruments
	Governance	Low	
	Access to data	High	Need for involvement in national level database, room for donors to develop statistical models and information sharing tools



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ADDITIONALITY: MAPPING OF DONOR PROGRAMS

		USAID	EU	ADB	JICA	UNDP	GIZ	AFD	New Zealand	IFAD	AusAID	WB/ IFC
Inputs	R&D		Ongoing		Ongoing							
	Informal inputs	*		*			*	*	*	Ongoing	Ongoing	
Production	Farmer capacity	Compl.		Ongoing		Ongoing	Ongoing	*	Ongoing	Ongoing	Ongoing	
	Infrastructure	*		Ongoing				Ongoing		Ongoing	Ongoing	Ongoing
	Coordination	*	Ongoing	*	Ongoing	Ongoing					*	
St. & P	St. & transport	*	*	Ongoing			*				*	
	Processing		Compl.	*		Ongoing					Ongoing	Ongoing
Marketing	C. awareness	*		*	Compl.							
	Informal imports		Ongoing									
General	SPS			Compl.	*							
	A2F			Ongoing						*		Ongoing
	Access to data		Ongoing	*								
	Governance	*	*	Ongoing			*			Ongoing		Ongoing



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