

Rice Value Chain Analysis in the Philippines

Alice Briones-Mataia



PhilRice Text Center
0917-111-7423



www.philrice.gov.ph
www.pinoyrice.com



prri.mail@philrice.gov.ph



Rice VCA project team



Alice B. Mataia



Jesusa C. Beltran, PhD



Rowena G. Manalili



Dr. Flordeliza A. Lantican
(technical consultant)



Bethzaida M. Catudan



Nefriend M. Francisco



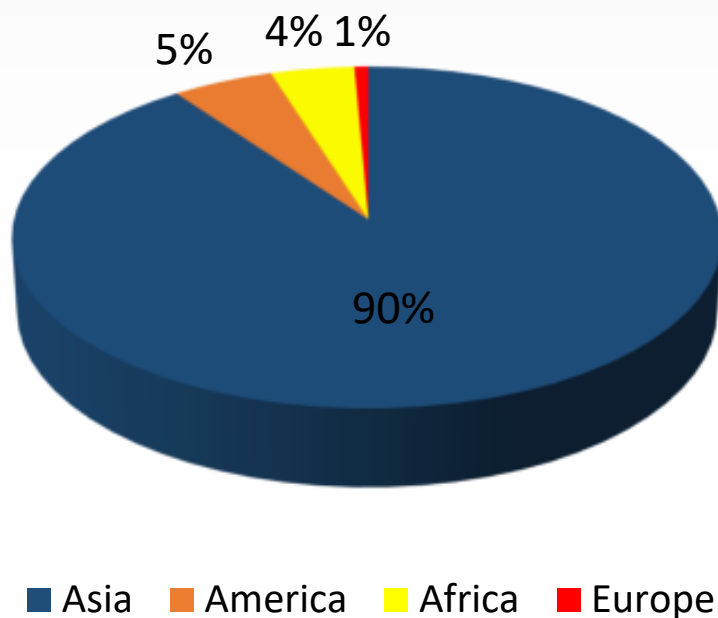
Adrielle C. Flores



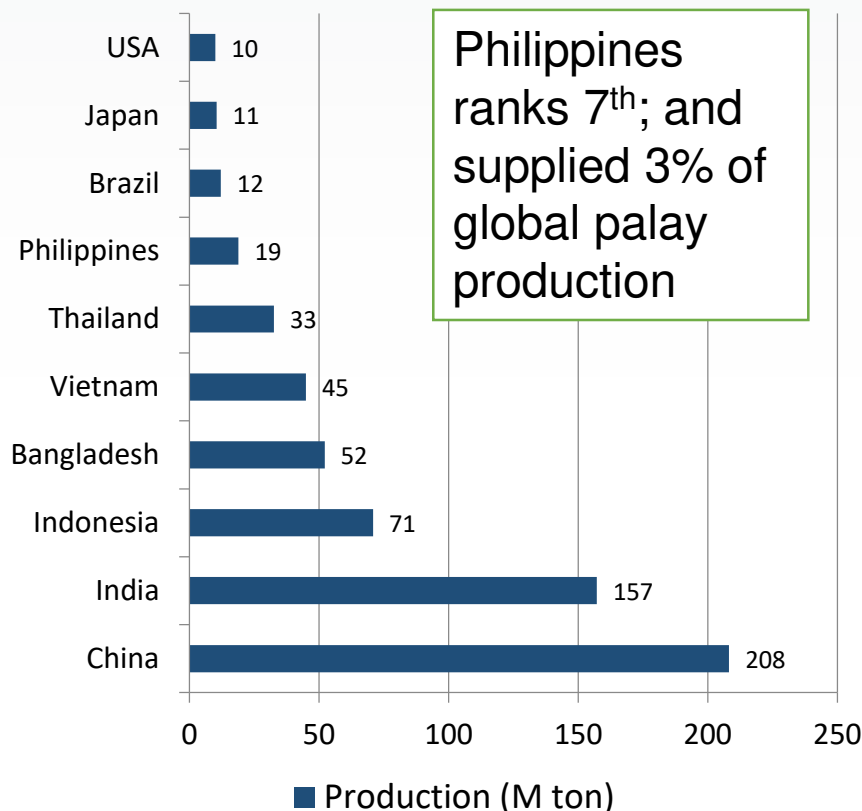
Dr. Edmund J. Sana

Philippines position in global palay production

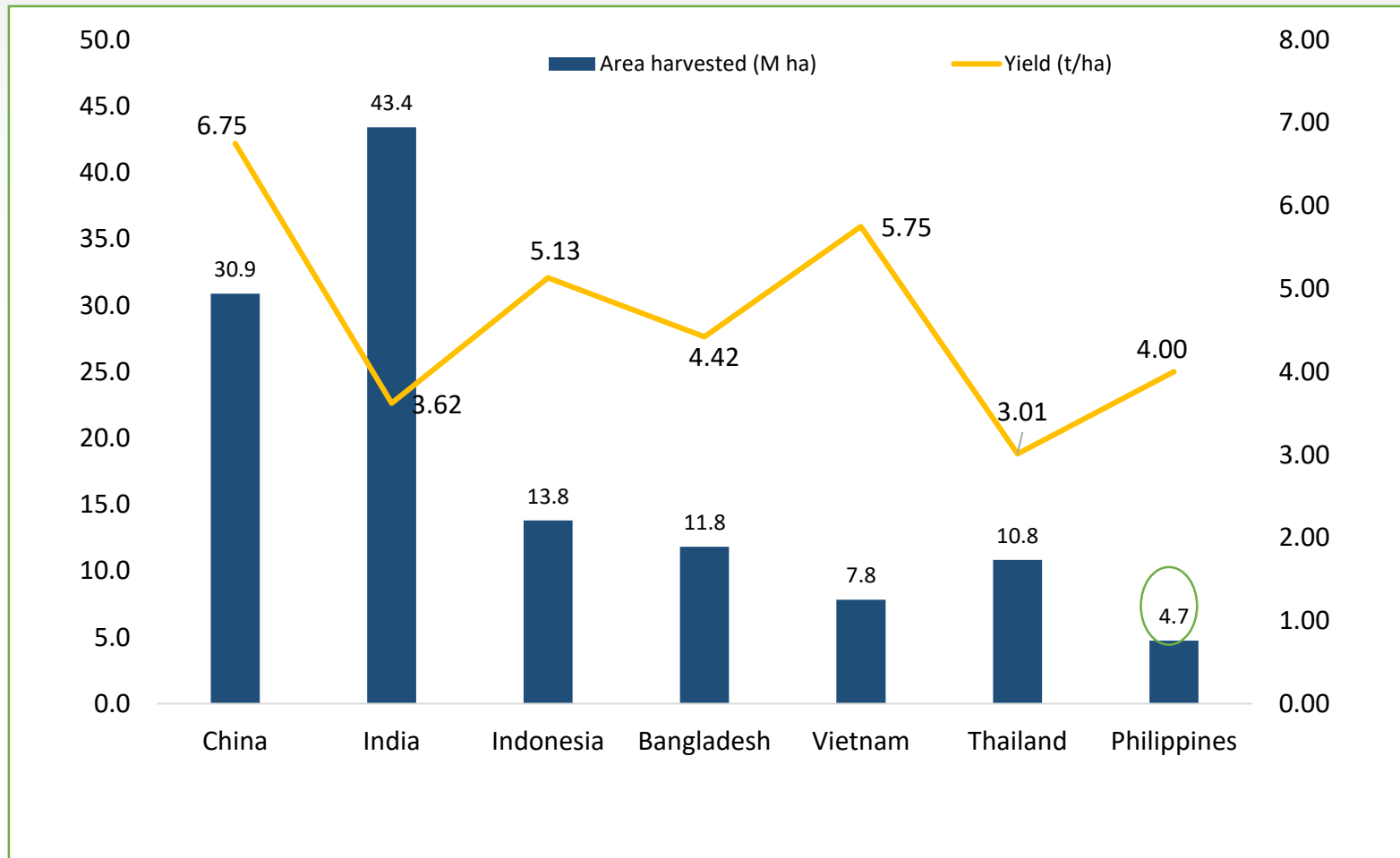
- Global Production, 2014: 741 M tons
- Asia Production, 2014: 667 M tons



World top 10 rice-producing countries



Philippines position in the global palay production

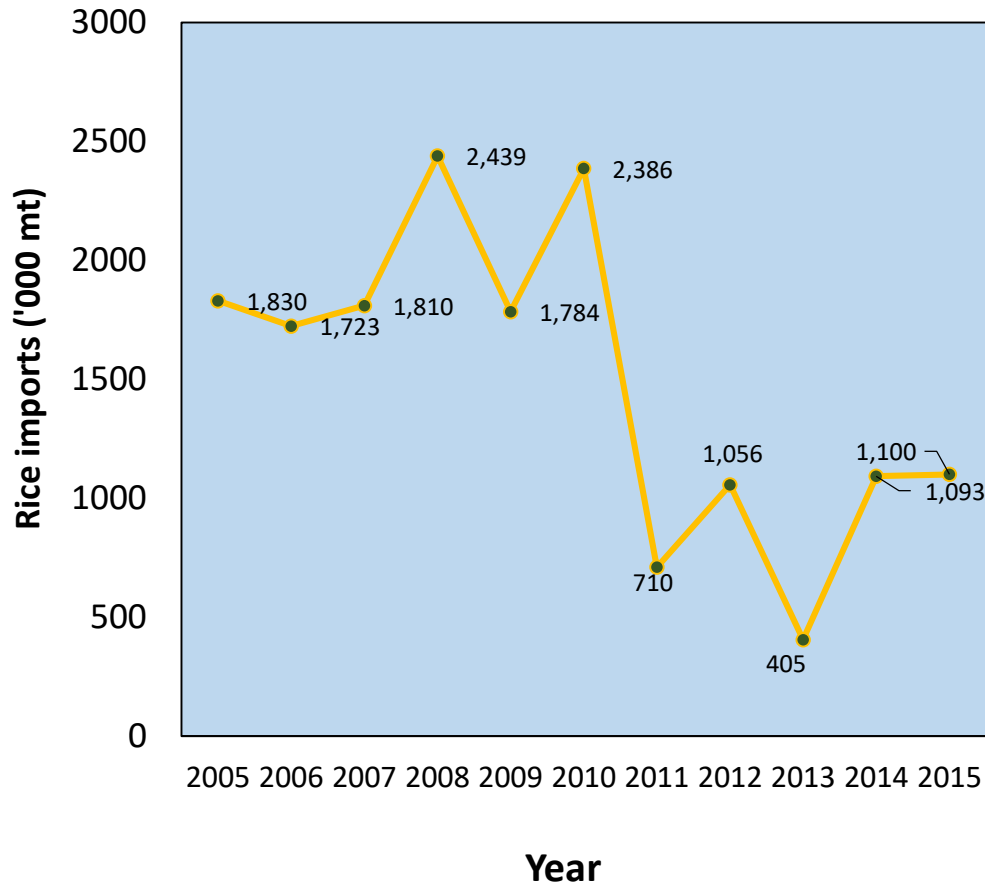


Source: FAO, 2015

Philippines growth performance, 2005-2014

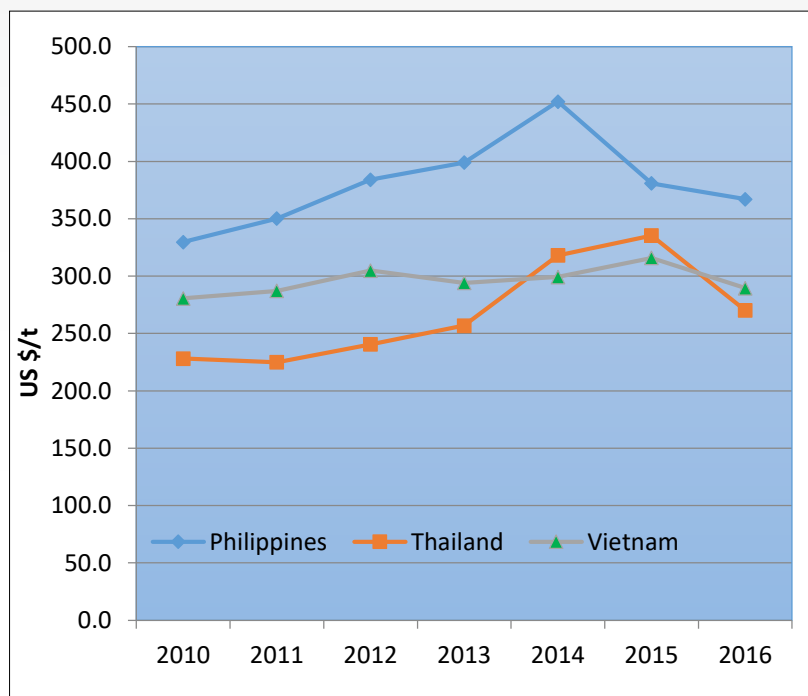
Country	Average . production growth (%/yr)	Average area growth (%/yr)	Average yield growth (%/yr)
China	1.44	0.60	0.79
India	1.42	-0.06	1.49
Indonesia	3.08	1.66	1.23
Bangladesh	3.12	1.24	1.69
Vietnam	2.55	0.67	1.77
Thailand	0.77	0.60	0.16
Philippines	2.99	1.65	1.15
Brazil	-0.77	-4.03	5.44
Japan	-0.70	-0.76	0.07
USA	-0.08	-1.32	1.43

Traditional rice importer

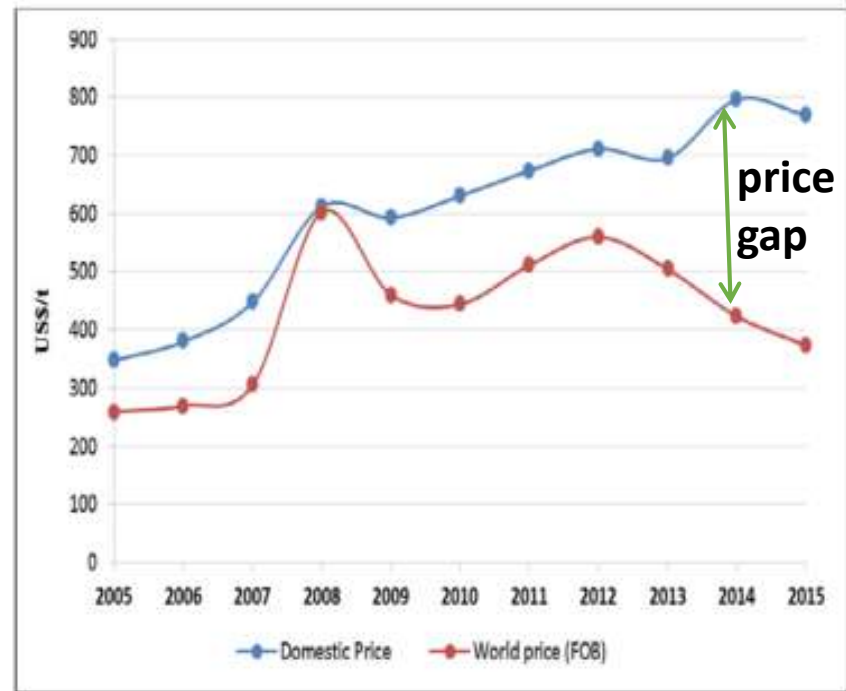


Domestic rice supply is less sufficient thus the Philippines traditionally imports rice mostly from Thailand and Vietnam

Philippines farmgate and wholesale prices are higher than exporting countries & world prices



Trends in farmgate prices (US\$/t) of rice in Asia, by country, 2000-2012



Trends in world and domestic prices (US\$/t) of milled rice, 2005-2015

Wide price margin between farm and retail prices

Production and marketing inefficiencies?

Several market players involved?

Numerous activities from production to consumption?

Multi-layers marketing channels?



Palay Price: P16.31/kg

Retail Price: P40.75/kg

Value chain and value chain analysis

VALUE CHAIN

- ❑ covers the full range (interconnected) of activities required to bring a raw material through a chain to the sale of the final product.
- ❑ the increase of economic value as a product journey through the chain.

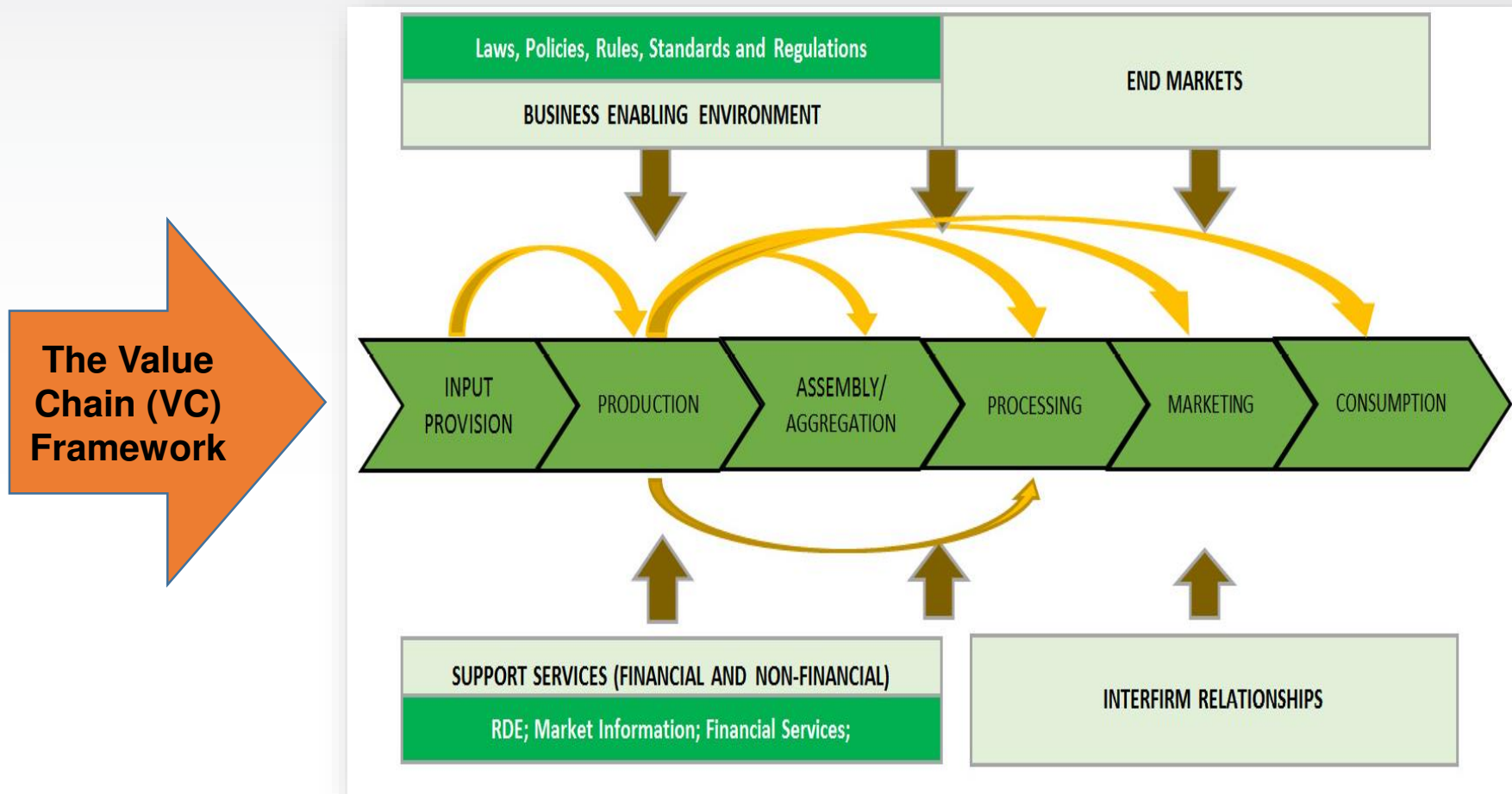
VALUE CHAIN ANALYSIS

- ❑ a tool used to identify and evaluate specific segments of the chain that unnecessarily add to inefficiency, and ascertain where improvements can be made from a production or marketing cost perspective to enhance competitiveness.

General objective

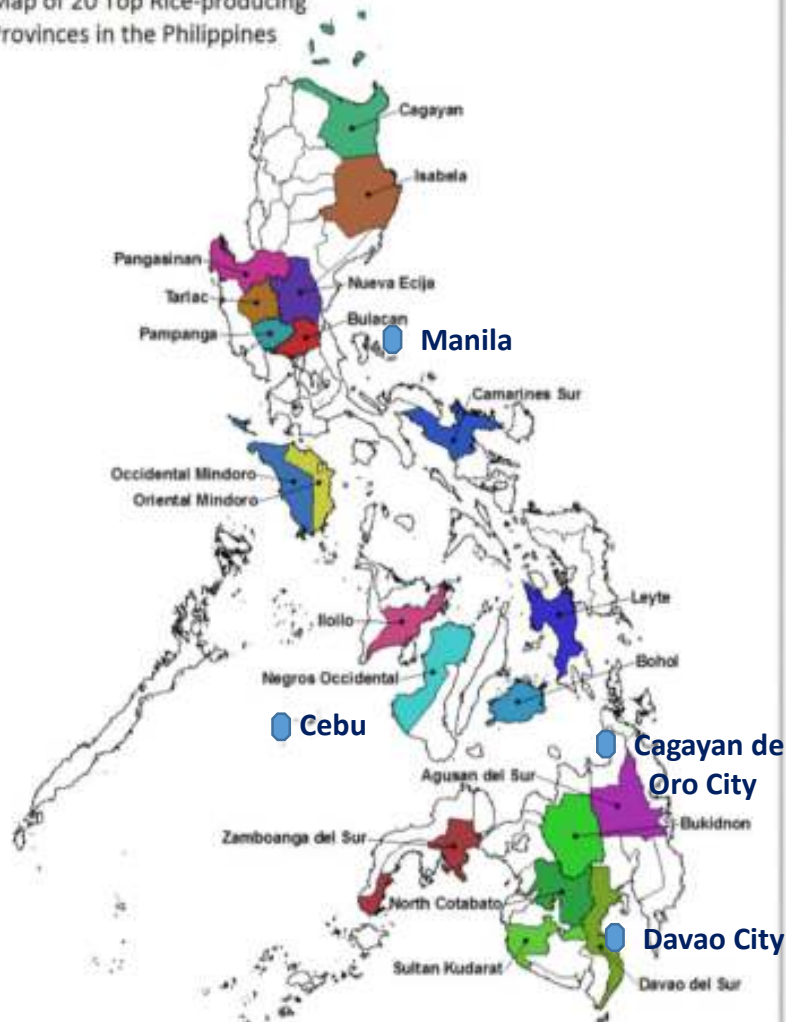
Analyze the rice value chain in the Philippines and to identify constraints and recommend specific strategies and interventions for the improvement of the rice industry in general and the upgrading of specific segments in the rice value chain in particular.

Value chain analysis (VCA) framework



The study areas and sample respondents

Map of 20 Top Rice-producing Provinces in the Philippines



Sample respondents	Sample size	Sample respondents	Sample size
Farmers	600	Palay-rice traders	40
Palay traders	(83)	Rice traders	(179)
Cooperative	4	Wholesalers	36
Private/Individual	79	Wholesaler-retailers	77
Rice processors	(107)	Retailers	66
Cooperative miller-traders	6		
Custom millers	11		
Rice miller-traders	90		

Tracing approach

– used in the selection of market players



**Total sample size
1,009**

Quality Rice. Quality Life.



Data sources and analysis

Sources of data

SECONDARY DATA

- ☐ Desk review
- ☐ Web-based links
- ☐ Data request

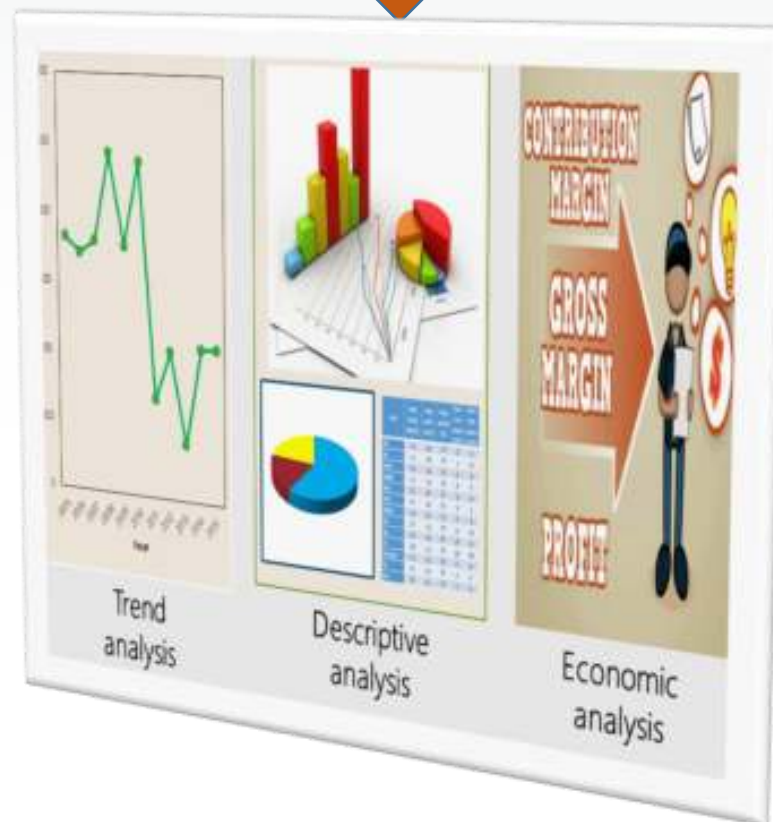
PRIMARY DATA

- ☐ Field surveys
- ☐ Key informant interviews
- ☐ Stakeholders' workshops

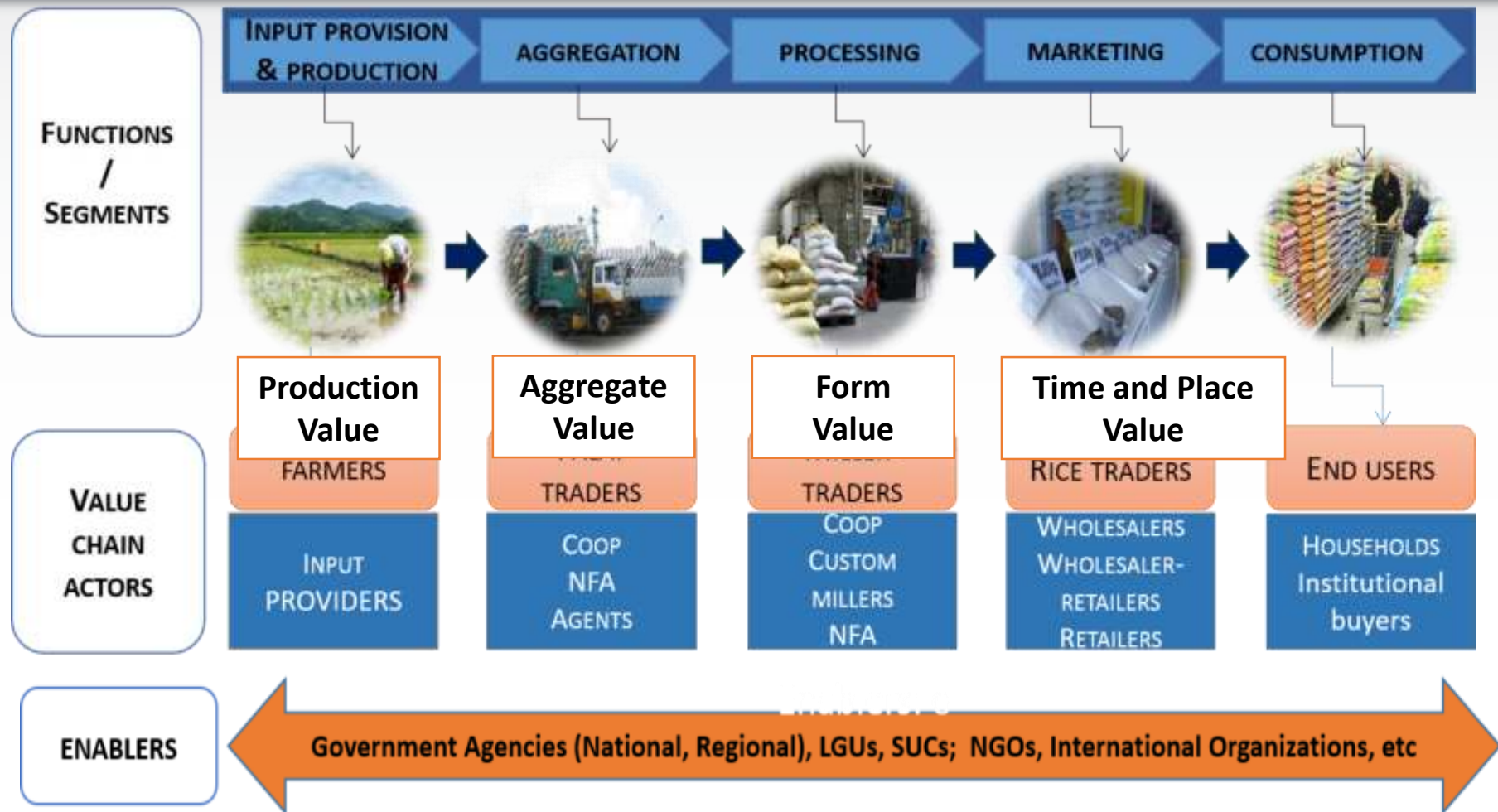
Data collected:

2014-2015 production and marketing practices and costs

Data analysis

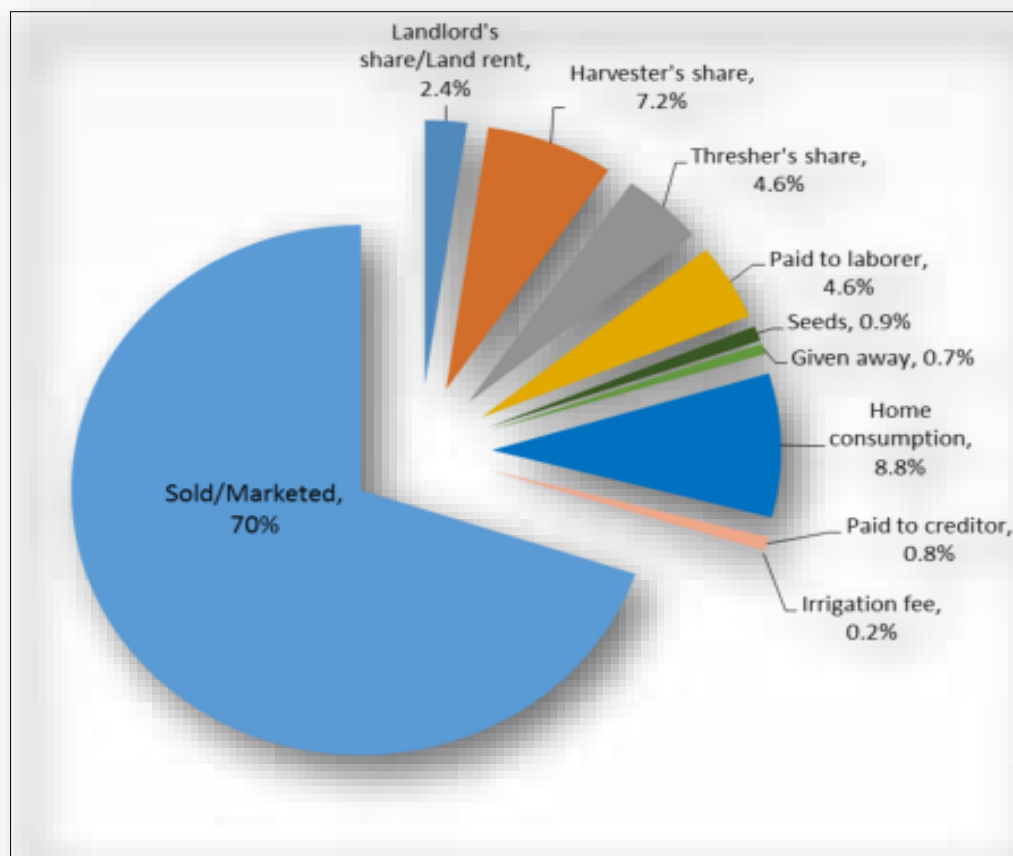
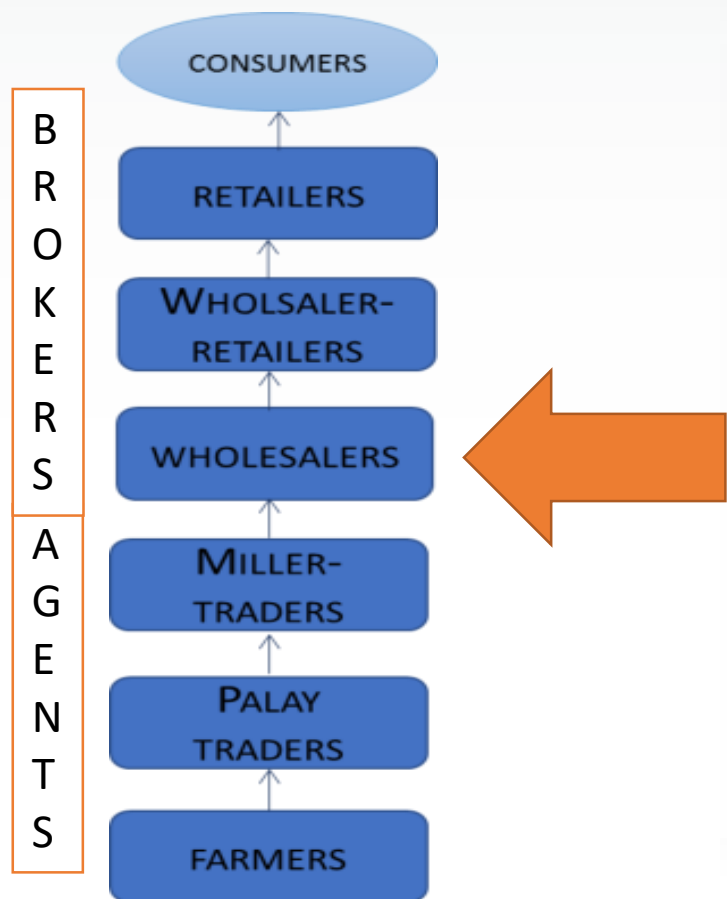


The rice value chain



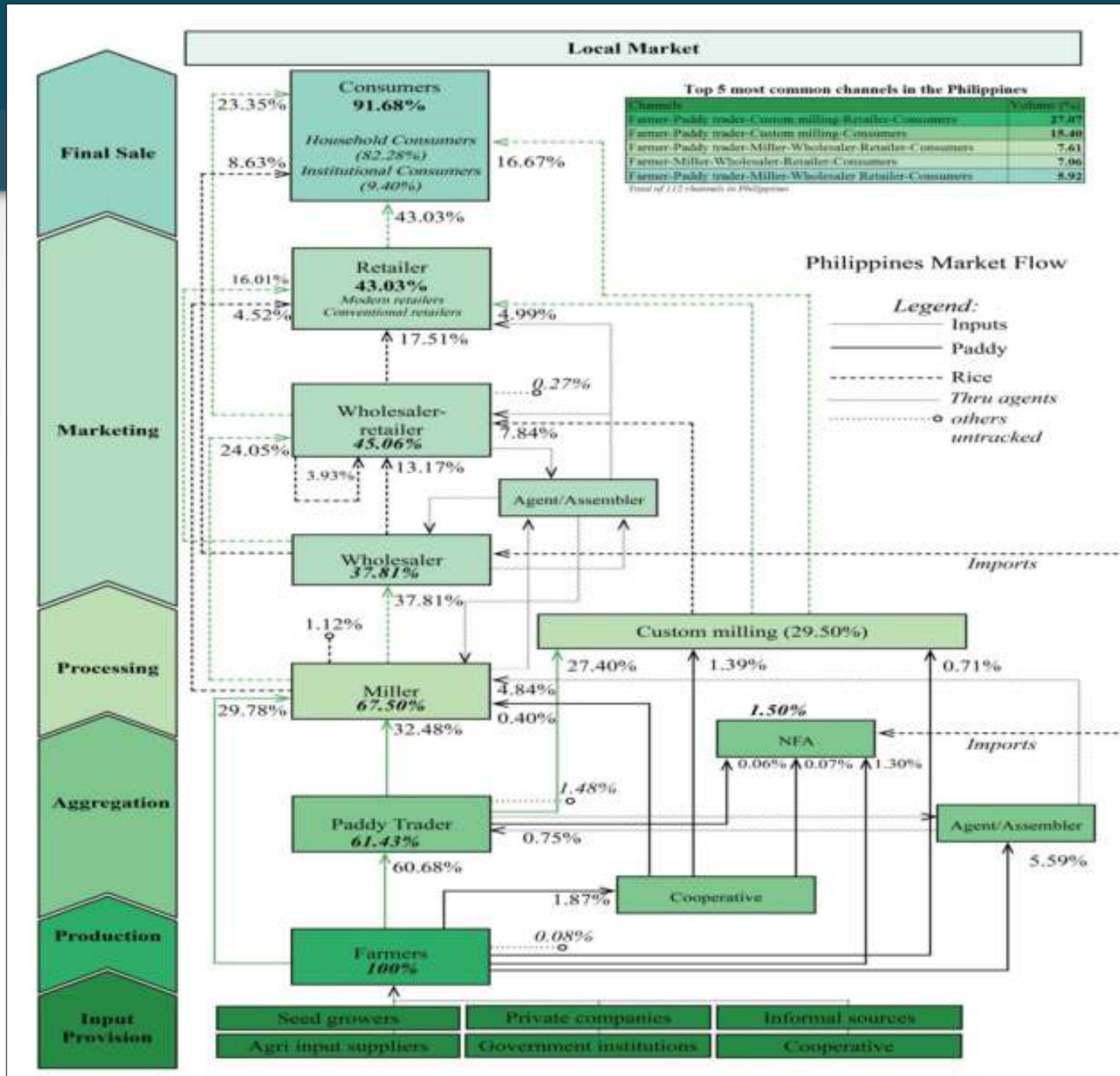
Marketed surplus of palay

- 112 marketing channels were identified in the surveyed provinces

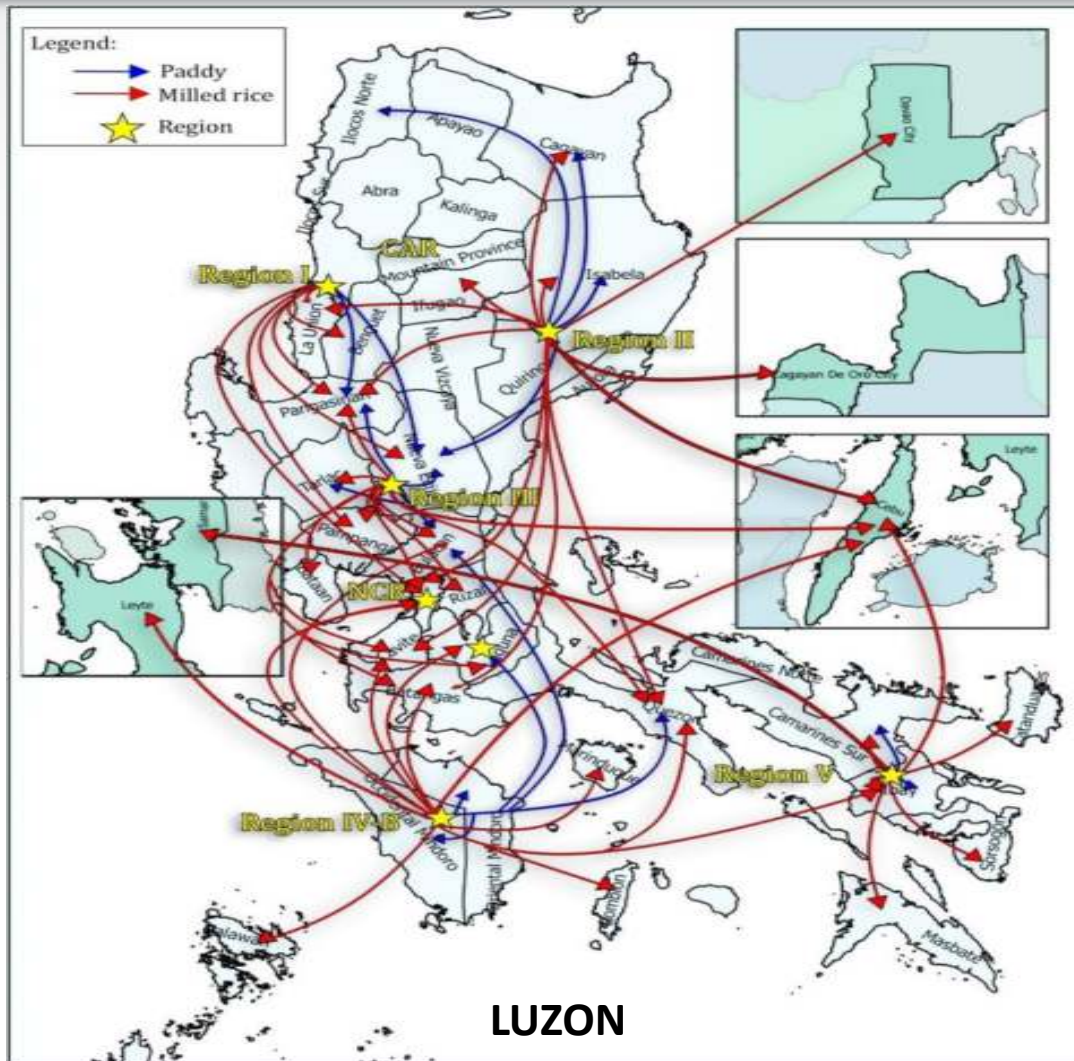


Marketing channels of paddy and milled rice in the Philippines

Diminishing role of miller-traders, and an increasing popularity of custom milling service providers in the marketing channels of palay and milled rice

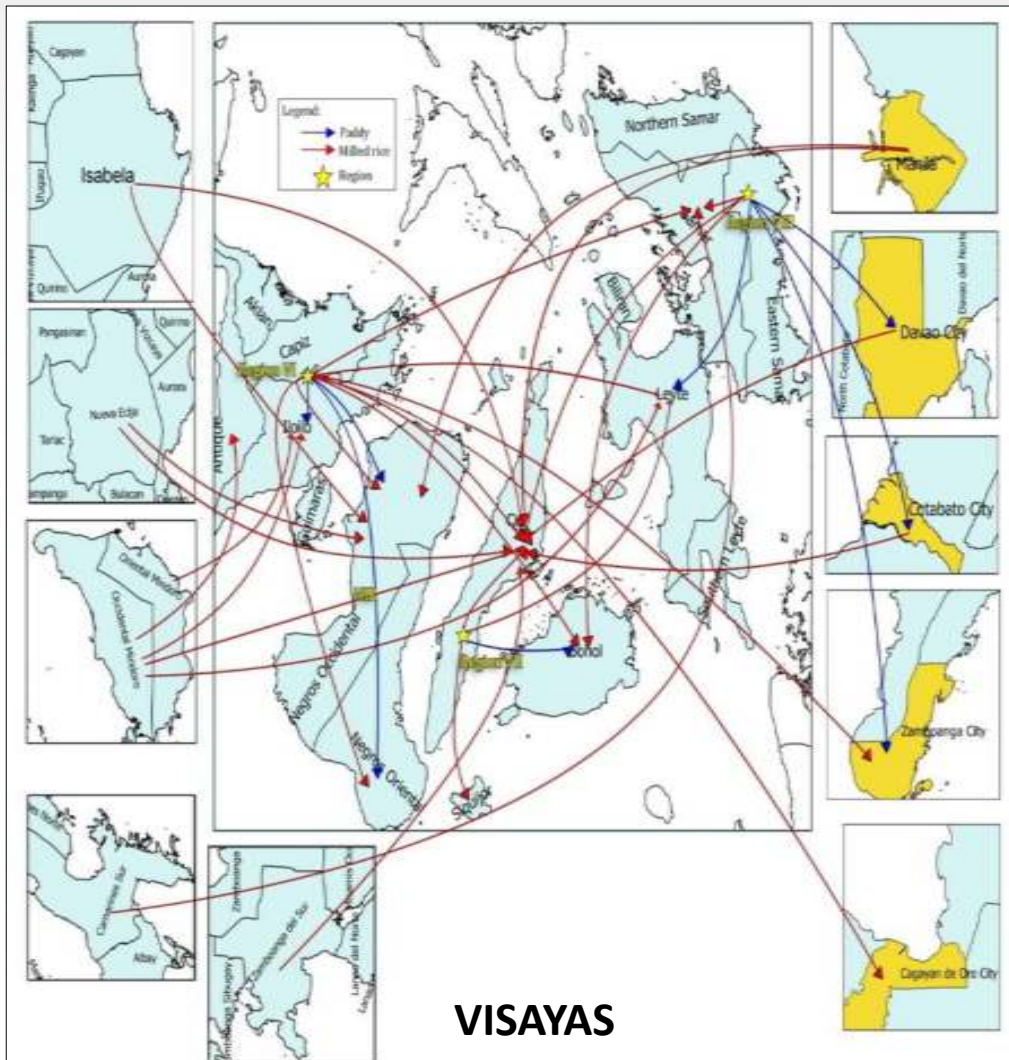


Geographical flows of palay and milled rice



Cebu
Leyte
Samar
Cagayan de Oro City
Davao City

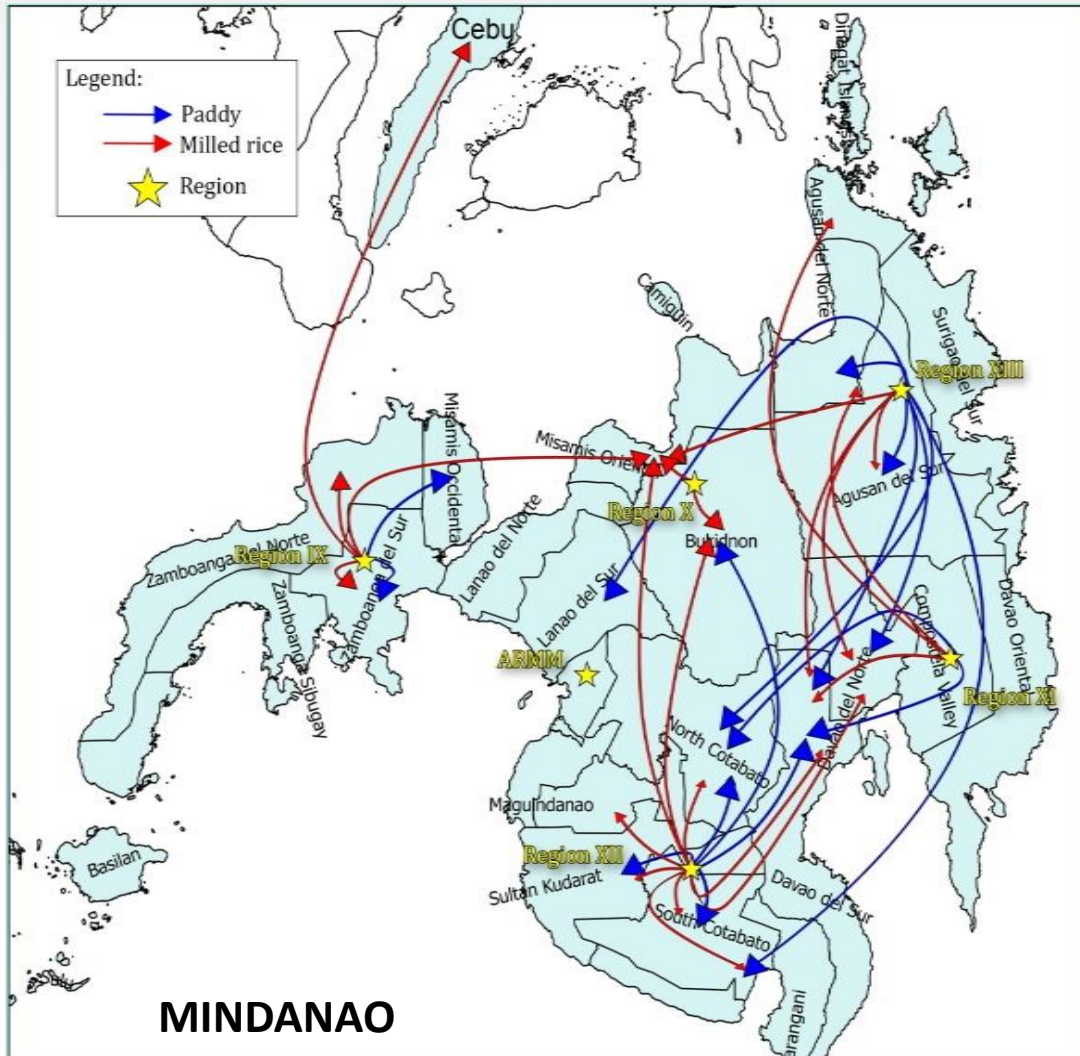
Geographical flows of palay and milled rice



Davao City
Cotabato City
Zamboanga City
Cagayan de Oro
City

Isabela
Nueva Ecija
Manila
Oriental Mindoro
Camarines Sur
Davao City
Cotabato City

Geographical flows of palay and milled rice

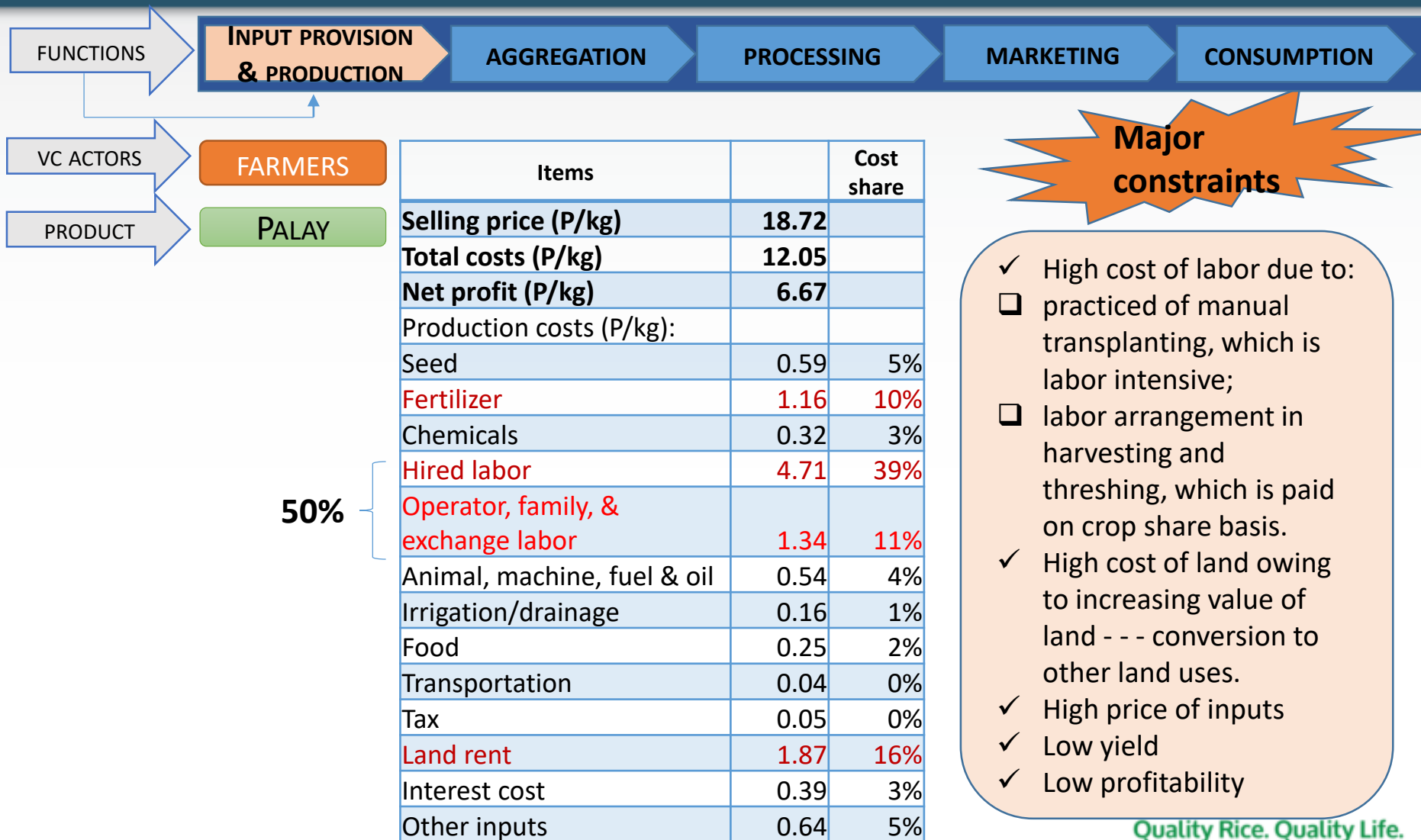


Cebu

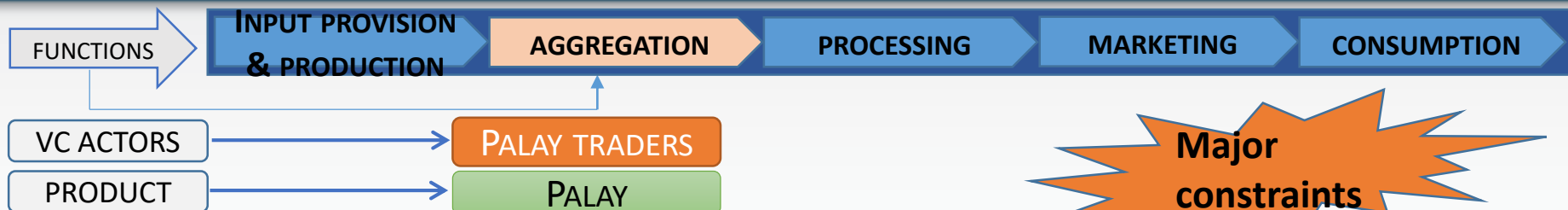


Nueva Ecija
Cagayan
Manila
Iloilo

Value addition and constraints in rice VC



Value addition and constraints in rice VC

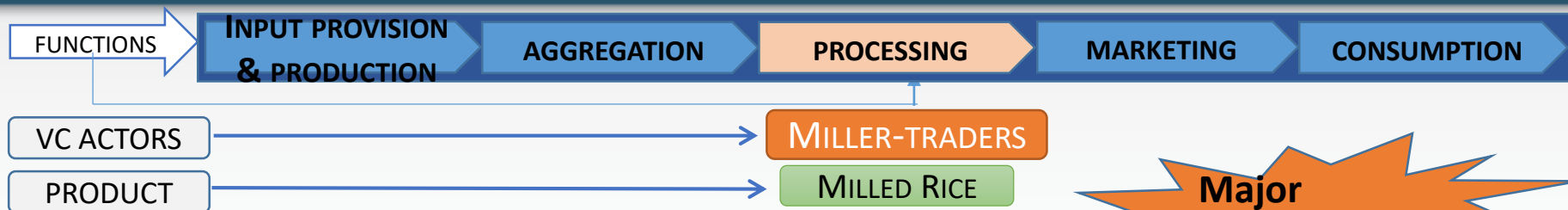


ITEM		Cost share
Gross Returns (PhP/kg)		
Selling price of dry palay	19.37	
Costs (PhP/kg)		
Procurement price of fresh palay	16.31	
Dry equivalent procurement price of palay	17.99	95%
Marketing costs:	0.88	5%
Drying	0.16	(18%)
Storage	0.03	(3%)
Packaging	0.10	(11%)
Transportation	0.27	(31%)
Handling	0.15	(17%)
Administrative	0.11	(12%)
Cost of working capital	0.06	(7%)
Total Costs (PhP/kg)	18.87	
Net Profit (PhP/kg)	0.50	

Major constraints

- ✓ High cost of goods (palay).
- ✓ Marketing cost constraints:
 - ❑ High transportation cost due to high price of diesel, and small capacity of truck used.
 - ❑ Limited mechanical dryers; sun drying is commonly practiced, which is labor intensive (2-3 md); 3-5% losses in quality (reduced aroma) and quantity;
 - ❑ Many moves from procurement to selling, handling is manually done, where payment is per move; presence of agents

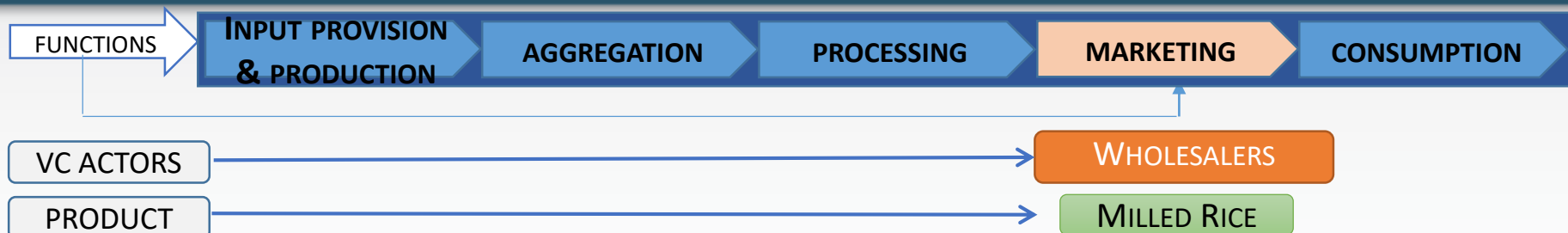
Value addition and constraints in rice VC



ITEM		Cost share
Gross Returns (PhP/kg)		
Selling price of milled rice	35.86	
Selling price of palay by-products	0.46	
Total returns	36.32	
Costs (PhP/kg):		
Procurement price of dry palay	19.37	
Rice equivalent procurement price of dry palay	30.46	90%
Marketing costs:	3.57	10%
Drying		
Milling	1.18	(33%)
Packaging	0.32	(9%)
Storage	0.04	(1%)
Transportation	0.62	(17%)
Handling	0.28	(8%)
Administrative	0.74	(21%)
Cost of working capital	0.40	(11%)
Total Costs (PhP/kg)	34.03	
Net Profit (PhP/kg)	2.29	

- ✓ High cost of goods (palay)
- ✓ High milling costs due to:
 - ❑ high price of electricity
 - ❑ underutilization of mills as a result of **low supply of palay**
 - ❑ high cost of labor
- ✓ Improper milling accounted for 5.52% losses (resulting in low MR and low head rice output)
- ✓ High transportation cost (high price of diesel, driver & maintenance cost)
- ✓ High administrative cost (business permit, NFA licenses, registration and insurance cost, tax and overhead cost)

Value addition and constraints in rice VC

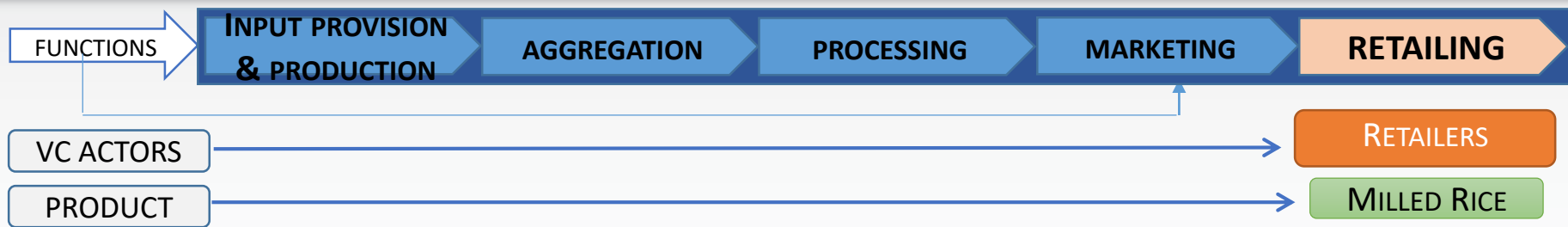


ITEM		Cost share
Gross Returns (PhP/kg)		
Selling price of milled rice	38.51	
Costs (PhP/kg)		
Procurement price of milled rice	36.52	96%
Marketing costs	1.40	4%
Packaging		
Storage	0.02	1%
Transportation/shipping	0.38	27%
Handling	0.10	7%
Administrative	0.68	48%
Cost of working capital	0.20	14%
Other costs	0.03	2%
Total Costs (PhP/kg)	37.92	
Net Profit (PhP/kg)	0.58	

Major constraints

- ✓ High cost of goods/high price of milled rice
- ✓ High administrative costs (licenses, permits, communication, overhead costs)
- ✓ High transportation and interisland vessel freight cost:
 - ❑ Geographical locations (interisland shipping)
 - ❑ High price of diesel and other shipping cost (arrastre, etc.)

Value addition and constraints in rice VC



ITEM	Cost share	
Gross Returns (P/kg)		
Selling price of milled rice	40.75	
Costs (P/kg):		
Procurement price of milled rice	38.51	97%
Marketing costs	1.17	3%
Packaging	0.11	10%
Storage	0.02	1%
Transportation	0.38	32%
Handling	0.13	11%
Administrative	0.68	58%
Cost of working capital	0.20	17%
Other costs	0.03	3%
Total Costs (PhP/kg)	39.68	
Net Profit (PhP/kg)	1.08	

Major constraints

- ✓ High price of milled rice
- ✓ High administrative costs (licenses, permits, communication, overhead costs, stall rental)
- ✓ High transportation cost
- ✓ High cost of money
- ✓ High price of packaging materials used in rice retailing

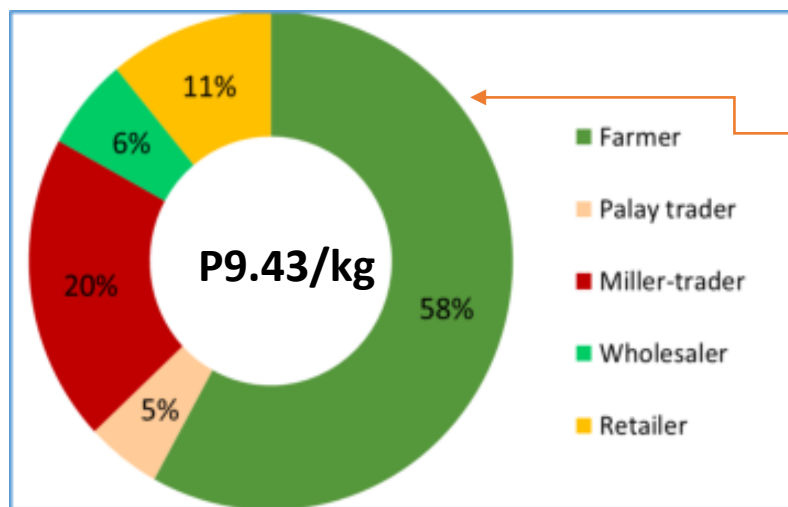
Components of the total marketing costs

VC Functions	Production	Aggregation	Processing	Marketing		All	%
VC Actors	Farmer	Palay trader	Miller-trader	Wholesaler	Retailer		
Drying		0.16	-	-	-	0.16	2
Storage		0.03	0.04	0.02	0.02	0.11	2
Packaging		0.10	0.32	-	0.11	0.53	8
Transportation		0.27	0.62	0.38	-	1.27	18
Handling		0.15	0.28	0.10	0.13	0.66	9
Milling		-	1.18	-	-	1.18	17
Cost of working capital		0.06	0.40	0.20	0.20	0.86	12
Administrative		0.11	0.74	0.68	0.68	2.21	31
Other costs		-	-	0.03	0.03	0.06	1
Total		0.88	3.58	1.41	1.17	7.04	100

Value distribution/financial position of VC actors (from fresh palay to retail of milled rice)

@ a palay price, P16.31/kg

VC functions	VC actors	Product	Total unit cost (P/kg)	Added unit cost (P/kg)	Selling price (P/kg)	Unit profit (P/kg)	Unit margin (P/kg)
Production	Farmer	Fresh palay	10.87	10.87	16.31	5.44	16.31
Aggregation	Paddy trader	Dry palay	18.87	2.56	19.37	0.50	3.05
Processing	Miller-trader	WM rice	34.03	14.67	35.86	1.83	16.49
Marketing	Wholesaler	WM rice	37.92	2.06	38.51	0.58	2.65
Marketing	Retailer	WM rice	39.68	1.17	40.75	1.08	2.24
Total				31.33		9.43	40.75



Farmers received the biggest share of the total chain profits

Value distribution/financial position of VC actors (from fresh palay to retail of milled rice)

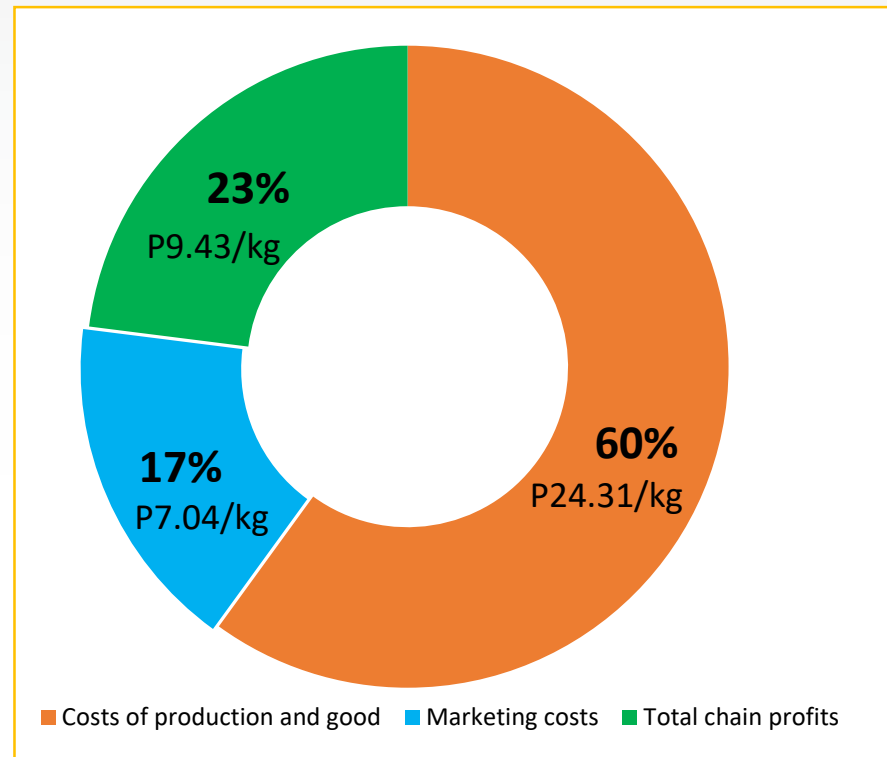
@ a palay price, P22.00/kg

VC functions	VC actors	Product	Total unit cost (P/kg)	Added unit cost (P/kg)	Selling price (P/kg)	Unit profit (P/kg)	Unit margin (P/kg)
Production	Farmer	Fresh palay	12.05	12.05	22.00	9.95	22.00
Aggregation	Palay trader	Dry palay	24.56	2.56	25.06	0.50	3.06
Processing	Miller-trader	WM rice	39.73	14.67	41.56	1.83	16.50
Marketing	Wholesaler	WM rice	43.62	2.06	44.20	0.58	2.64
Retailing	Retailer	WM rice	45.37	1.17	46.45	1.08	2.25
Total				32.51		13.94	46.45

The increased in palay price increased farmer's profit, equivalent to 71.37% shares of the total chain profits. However, it also increased the unit or retail price of rice by P5.70/kg

Decomposition of the value of unit price

Retail selling price
of milled rice
P40.75



Other constraints by function in rice VC

INPUT PROVISION AND PRODUCTION

- ❑ Mismatch of available high-quality variety seeds with farmers' preference;
- ❑ Too many varieties that lead to misclassification;
- ❑ Inadequate water supply;
- ❑ Limited access to low cost credit;
- ❑ Low access to crop insurance;
- ❑ Climate change – resulting in high production losses

AGGREGATION

- ❑ Limited knowledge on palay grades and standards;
- ❑ Limited advocacy for palay grading and standardization;
- ❑ Malpractices in selling – weigh deductions;
- ❑ Low farmgate price during peak harvests;
- ❑ Limited drying facilities;
- ❑ Limited procurement fund

PROCESSING AND MARKETING

- ❑ Insufficient modern postharvest and market facilities, which result in low-quality milled rice and high marketing cost;
- ❑ Untimely rice importation arrival that coincides with peak harvest months;
- ❑ Rice smuggling;
- ❑ Port congestion during peak season;
- ❑ Limited procurement funds for small & medium-scale traders, cooperatives
- ❑ Limited entrepreneurial skills of cooperatives engaged in milling and trading

Support services in rice VC

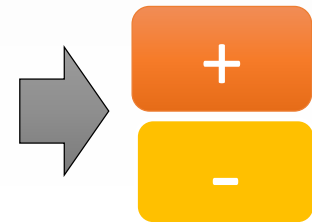
Financial Support	Non-Financial Support
<input type="checkbox"/> Credit	<input type="checkbox"/> R&D services
<input type="checkbox"/> Crop insurance	<input type="checkbox"/> Irrigation
	<input type="checkbox"/> Production support services
	<input type="checkbox"/> Farm mechanization & postharvest facilities
	<input type="checkbox"/> Farm to market roads
	<input type="checkbox"/> Extension support, education, and training services
	<input type="checkbox"/> Marketing and price support



- ☐ Appropriateness?
- ☐ Accessibility?
- ☐ Sufficiency?
- ☐ Sustainability?

Policies – business enabling environment

- ☐ Credit policy (Agri-Agra Reform Credit Act: RA 10000)
- ☐ Irrigation development policy
- ☐ Seed policy (Seed Act: RA 7308)
- ☐ Seed pricing policy
- ☐ Agriculture and Fisheries Mechanization (RA 1060)
- ☐ Rice conversion policy
- ☐ Rice consumption advocacy
- ☐ Transport infrastructure policy
- ☐ Marketing and price policies
- ☐ Trade policies
- ☐ Excise tax on fuel



Competitiveness directions

KEY INTERVENTIONS

1. **Improve the yield of high-quality varieties and reduce postharvest losses** in order to increase and sustain the volume of quality rice supply.
2. **Reduce cost of production by promoting labor-saving, cost-reducing, and climate-smart technologies and practices** to lower the per-unit cost of paddy and consequently the price of milled rice.
3. **Strengthen training and extension delivery services** to accelerate the delivery of the latest production, postharvest, and processing technologies to farmers and other value chain actors.
4. **Reduce marketing cost** or margin through better logistics, support of mechanization of processing and marketing facilities, improvement of rice quality, and increased competition.
5. **Provide economic incentives and ensure enabling environments** such as appropriate price support, right timing of NFA paddy procurement in major rice-producing and remote surplus provinces given adequate budget allocation, greater access to low-cost credit, and expansion of affordable crop insurance to farmers and other value chain actors.
6. **Enhance the share of farmers in the rice market** by providing them with regular market information and assistance in linking with potential markets or by integrating them into the rice value chain.
7. Proper **management of the supply and demand** situation to stabilize rice prices.
8. **Increase income opportunities of farmers and other value chain actors** by embarking on product development of rice and rice by-products for agribusiness opportunities.

OUTCOMES

✓ INCREASED
SUPPLY OF
QUALITY RICE

✓ LOW
PRODUCTION
COST

✓ COMPETITIVE
RICE PRICE

✓ INCREASED
INCOME OF
FARMERS



Improving rice yield

1. Increase and sustain the widespread adoption of preferred high-quality seed varieties



- Establishment of CSB to promote an informal seed exchange , esp. in areas with low access to HQS;
- Building of satellite seed testing facilities per major rice producing provinces to facilitate seed certification activities;
- Matching seed demand with supply by assessing seed demand of preferred variety;
- Developing and promoting an effective seed delivery system in remote areas where HQS is not accessible;
- Reactivating and strengthening the seed network;
- Providing farmers with real-time seed information;
- Adopting a selective seed subsidy scheme (particularly for poor farmers) in vulnerable rice producing provinces

2. Boost public investment in irrigation to increase cropping intensity in regions still with areas to be developed



- Prioritizing investment on small-scale irrigation projects such as SWIP, SDD, STW, SFR, and CIS, prioritizing large rainfed farms not serviced by the NIA system;
- Scaling up the construction of new large-scale irrigation systems and rehabilitating dysfunctional ones in major rice-producing provinces with large rainfed areas and near watershed expanses



Improving rice yield

3. Ensure the adoption of appropriate crop management practices for greater use efficiency



- Extensive promotion and showcasing of the latest technologies and practices by means of FFS using PalayCheck platform in every rice-producing area;
- Enhancing the capability of Rice Crop Manager (RCM) tool to provide farmers' with 'precise' field and farmer-specific recommendations on nutrient, pest, weed and water management;
- Ensuring nationwide adoption of RCM by improving farmers access to this decision tool

4. Promote the use of appropriate machinery to improve efficiency and labor productivity



- MP seeder for direct seeding method in rainfed areas;
- Mechanical transplanter for transplanting (in areas with labor shortage and high wage rate) with the provision of technology on how to raise seedlings;
- Combine harvester for nationwide adoption in harvesting and threshing to improve efficiency.

5. Investment and extensive promotion of yield-enhancing technologies and practices in provinces with yield less than the national mean yield of 4 t/ha

Reducing production and postharvest losses

1. Conduct research on new appropriate farm machinery to reduce rice production losses;
2. Promote climate-smart technologies and practices such as cultivation of varieties adapted to stress environments, controlled irrigation, and machinery that use renewable energy;
3. Provide farmers with timely, accurate, and site-specific weather and climate advisories to enable them to plan climate adaptation measures;
4. Promote proper and efficient use of postharvest facilities by conducting competency-based training on the proper operation and servicing of postharvest facilities prioritizing farmers' cooperatives and farmers' associations that are beneficiaries of DA postharvest facilities
5. Develop vocational training courses with certification for operating postharvest machinery

Reducing production and postharvest losses

6. Enhance access to and increase adoption of appropriate postharvest facilities

- Creating and improving existing machine service centers with custom service provisions (e.g., renting or servicing machinery) in areas with low access to postharvest facilities;
- Providing low-cost credit to farmers' associations or private individuals who have plans to engage in establishing machine service centers;
- Improving postharvest value chains by developing and pilot village business models for postharvest and processing activities to enhance access;
- Developing systems and tools for strengthening postharvest support services such as facility that has to be finances, distributed and maintained;
- Encouraging LGUs to invest on common service drying and storage facilities for small farmers particularly in areas with inadequate drying and storage facilities. CL, WV and all top 20 rice-producing provinces have limited drying and storage facilities;
- NFA to invest on drying facilities in strategic areas in major rice-producing provinces to accommodate the big volume of palay during peak harvest in WS;
- Establishing grain trading posts equipped with complete postharvest and market facilities under PPP, which will provide custom service to farmers and other VC actors, prioritizing major surplus regions or provinces;
- Encouraging farmers and traders to lessen dependence on customary solar drying method that result in high drying losses (both quantity and quality)

Lowering production cost

1. Cut labor costs in labor-intensive operations in rice production

- Promoting the widespread use of combine harvester in harvesting, threshing and hauling activities;
- Encouraging the practice and/or mechanization of direct seeding as a crop establishment method;
- Promoting the development of modern, appropriate, and cost-effective farm machinery in other farm operations

2. Promote the use of good farming practices (such as IPM, INM), and cost-reducing technologies (bio-control) through additional field demonstrations in major rice producing provinces;

3. PhilRice and other research institutions to prioritize research studies that stimulate productivity enhancement, develop cost-reducing technologies, and address the adverse impact of climate change;

4. Support the liberalization of fertilizer importation and/or subsidize the price of fertilizer in major rice producing areas that are damaged by calamities

Reducing marketing cost through better logistics, infrastructure, processing facilities and equipment, and marketing support

1. Increase investment in public goods that have long-term impacts such as infrastructure and modern processing and marketing facilities to improve efficiency;

- Engage in the construction and rehabilitation of FMRs in areas far from ports;
- Improve the density and quality of roads in major production areas and market centers to accommodate large trucks;
- Establish railways and train systems in the long-run to lessen travel time from major production to consumption areas through a comprehensive long-term national transport plan;
- Expand major port areas to increase accommodation of large cargo ships and to lessen port congestion particularly during peak season.
- Improve interisland water transport facilities such as Ro-Ro nautical highway and port facilities to foster interregional rice trade, which will improve access between islands and regions, improve efficiency and lower interisland transport cost;
- Promote the establishment of rice-husk-powered plants in major rice producing areas to cut down dependence on electricity and lower cost;
- Support modernization of rice processing by upgrading existing rice mills or establishing modern integrated rice mills or “state of the art” rice mills through long-term loans with favorable terms;
- Encourage farmers’ cooperatives and associations to practice collective transport to reduce transport cost

Reducing marketing cost through better logistics, infrastructure, processing facilities and equipment, and marketing support

2. Lower interisland freight cost by

- Supporting the full implementation of R.A.10688 or the Cabotage law to increase competition among shipping companies;
- Encouraging investment for the upgrading of port facilities to enable use of foreign vessels in grain transport

3. Improve access to rice processing center by proper positioning of milling and marketing facilities in major rice surplus provinces with insufficient number of mills.

4. Strengthen the implementation of grain grading and pricing standards to ensure quality by requiring all VCA actors to attend grain classification seminars as requirement for NFA licensing.

5. Intensify strict monitoring of traders' grain classification and weighing practices by

- Tapping LGUs to regularly conduct inspection of weighing scales for conformity to standard weights;
- Assigning NFA to require palay traders to have moisture meter machine upon approval of license for transparency on quality and pricing;
- Provision of one moisture meter machine to small and new entrant farmers cooperatives or associations

Improving logistics, infrastructure, processing facilities and equipment, and marketing support to reduce marketing cost

6. Improve the quality of palay to achieve high MR and quality rice output through;

- Encouraging farmers to plant fewer varieties to reduce processing cost and improve rice quality;
- Mechanizing the drying of palay to minimize percentage of broken rice and improve quality of milled rice;
- Breeding of fewer varieties with high MR

7. Explore the adoption of the warehouse receipt system as a mechanism to strengthen quality assurance and reduce transaction cost

8. Increase marketing competition by establishing wholesale grain trading center thus ensuring a competitive market place for all VCA actors and consumers. It will also eliminate duplication of functions among market players.

Improving economic incentives and enabling environments

1. Increase access to low cost credit by
 - Providing additional budget to expand the coverage of Sikat Saka program to cover more farmers;
 - Relaxing the requirements of formal banks to reduce transaction cost and enhance service delivery;
 - Encouraging other farmers to join farmers' cooperatives to avail of the credit support from government;
 - Validating the list of farmers in the RSBSA of PSA as many eligible farmers are not in the master list and cannot enjoy the benefits due them;
 - Intensifying information dissemination to increase awareness of farmers and making them credit-worthy;
 - Expand the ACPC credit program to include small VCA
2. Improve farmers' access to crop insurance through
 - Integration of crop insurance information with rice production training;
 - Improvement of service delivery by assigning PCIC staff per MLGU to increase accessibility to farmers
 - Increase budget appropriations of PCIC to expand coverage of insured crops of farmers
3. Provide other support services to farmers and other VC actors
 - Right timing of NFA palay procurement;
 - Strengthen palay support price by revisiting the NFA pricing scheme;
 - Develop a better market information system to deliver real time prices and market info;
 - Develop e-trading system among grain industry players to improve access to market info

Managing rice supply and demand to stabilize palay and rice prices

1. Improve the time of arrival of imports
 - Judicious planning on time arrival of imports – must be available during the lean months and not during peak harvest months;
 - Sensible issuance of import permits to private traders and farmers' cooperatives to have sufficient time for the necessary paper requirements
2. Determine carefully the volume of rice imports by assessing periodic rice supply and demand statistics per province.
3. Reduce NFA interventions in retail markets, especially during the time of palay harvest. Volume of rice injection must be carefully determined and strategically done in areas where poverty incidence is high.
4. Strict monitoring of undocumented or smuggled rice in major ports to avoid flooding the market of imported rice – which depressing the palay price

Accelerating delivery of latest production, postharvest, and processing technologies

1. Establish a strong linkage between rice R&D and extension agencies to accelerate dissemination and adoption of latest production and postharvest technologies by assigning DA-BAR as lead agency responsible for connecting R&D outputs and extension.
2. Conduct regular training of AEWs to enhance technical knowledge on latest rice technologies.
3. Increase exposure of farmers to model farms, cooperatives, farm businesses, and research institutions to increase awareness and stimulate their entrepreneurial acumen.
4. Enhance technology adaptation through establishment of demonstration sites in strategic locations in key production areas.
5. Promote the use of information portals such as PhilRice Text Center, Pinoy Rice Knowledge Bank, and Farmers' Contact Center.
6. Conduct competency-based training of VC actors on proper operation and maintenance of postharvest and processing technologies.
7. Carry out regular training on NFA and BAFPS grain quality grades and standards

Enhancing market shares of farmers in the rice value chain to increase income

1. Train farmers or farmers' cooperatives on entrepreneurship to develop their business and trading skills.
2. Strengthen market linkages of farmers by assisting them find potential and emerging markets.
3. Enhance farmers' access to drying, processing and storage facilities so that they can sell strategically their produce and capture part of the total chain profits.
4. Cluster rice farmers to encourage them to carry out additional value adding activities by practicing collective marketing and increase their bargaining power.
5. Provide RPC to eligible farmers' cooperatives or farmers' associations only, and they need to pass a competency-based training on entrepreneurship and machine operation before the RPC is awarded to them.

Embarking on product development of rice and rice by-products for agri-business opportunities

1. Provide farmers and other VC actors with assistance on product development for market opportunities through conduct of training programs.
2. Enhance the capacity of farmers in product packaging and labeling to improve quality.
3. Encourage other uses of rice (especially exotic colored glutinous rice wine with local herbs, rice bran oil, and nutraceuticals)

Thank you for
listening...