Strengthening Agricultural Supply Chains in CLMV

Supporting ASEAN Equitable Economic Development
Research Workshop
"Enhancing Agricultural Productivity in CLMV Countries: Opportunities and Challenges"

Asian Development Bank, Manila, Republic of the Philippines
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Overview :

1. Development of Supply Chains together with Development of Seed Industry and Agriculture Sector Reform/Restructuring constitutes integral components of the Enhancing Agriculture Productivity strategic thrust of the Pilot Phase of the Supporting ASEAN Equitable Economic Development (CLMV) Project

2. PURPOSE: Draw from work done as well as drafts of country level Discussion Papers and Regional Discussion Paper and Policy Brief on the Development of Supply Chains in CLMV, focusing on rice, and present the work in progress towards a chapter on ' Strengthening Agriculture Supply Chains' in the proposed book by ADB.

KEY MESSAGES:

1. All CLMV countries currently net rice exporters - except for Myanmar, CLV were rice importers before – turn-around largely policy driven

2. All target to export more rice in future – but on-going policy debate at national level is how much more? – in view of extensive nature, water requirement and low comparative profitability of rice. Crop/enterprise choice or mix – rice-based farming system and underscore importance of supply chains and trading networks

3. Except for Viet Nam (exports around 60 - 70% of total rice production), CLM export < 10% of production (much less that what they consume domestically). Cautionary note: disproportionate emphasis on rice exports – domestic spatial and temporal arbitrage equally important especially for food security and inclusive growth

4. Dynamics of Global and regional rice markets – shifting and two-tiered – policy changes in India, China and Thailand – China hike in imports result from raising price subsidy over last few years (likely major importer in future) – coupled with ASEAN and GMS connectivity increasing importance of Border Trade. Also EU and Russia (CIS countries) – new markets with preferential treatment

KEY MESSAGES (Cont'd):

5. Productivity and competitiveness - along entire supply chain – beyond efficiency and cost of production, but also cost of milling/processing, transportation, export processing, also – financing, electricity. A comparison across CLMV rice supply chains would be instructive as well as pin-point areas of collaboration/cooperation in the run up to 2015 and 2030

6. With the exception of Vinafood I and II in Viet Nam, CLM have rolled back the involvement of SOEs, - Myanma Agriculture Produce Trading (Myanmar) and State Enterprise for Food and Crop Promotion (Lao PDR) – now playing minor role – future of SOEs and G to G trade? G to G facilitated but B to B executed

7. Significant FDI in mills and processing [Viet Nam > Cambodia > Lao PDR > Myanmar (MITSUI with MAPCO, more to come) – pivotal role for transforming upstream and downstream segments – development of comprehensive supply chains and sub-chains – investments in input supply, modern distributive trade, especially supermarkets – various forms of contract farming (trust vs legally binding contracts) and modalities of provision of agi-support services and foundation for enhancing productivity.

8. Need to get basics, balance and leveraging right in order to support ASEAN Equitable Economic Development - role of Government and role of private sector

‘Realizing a New Vision for Agriculture’ at National, CLMV and ASEAN Levels – (Enhancing Agriculture Productivity, etc)

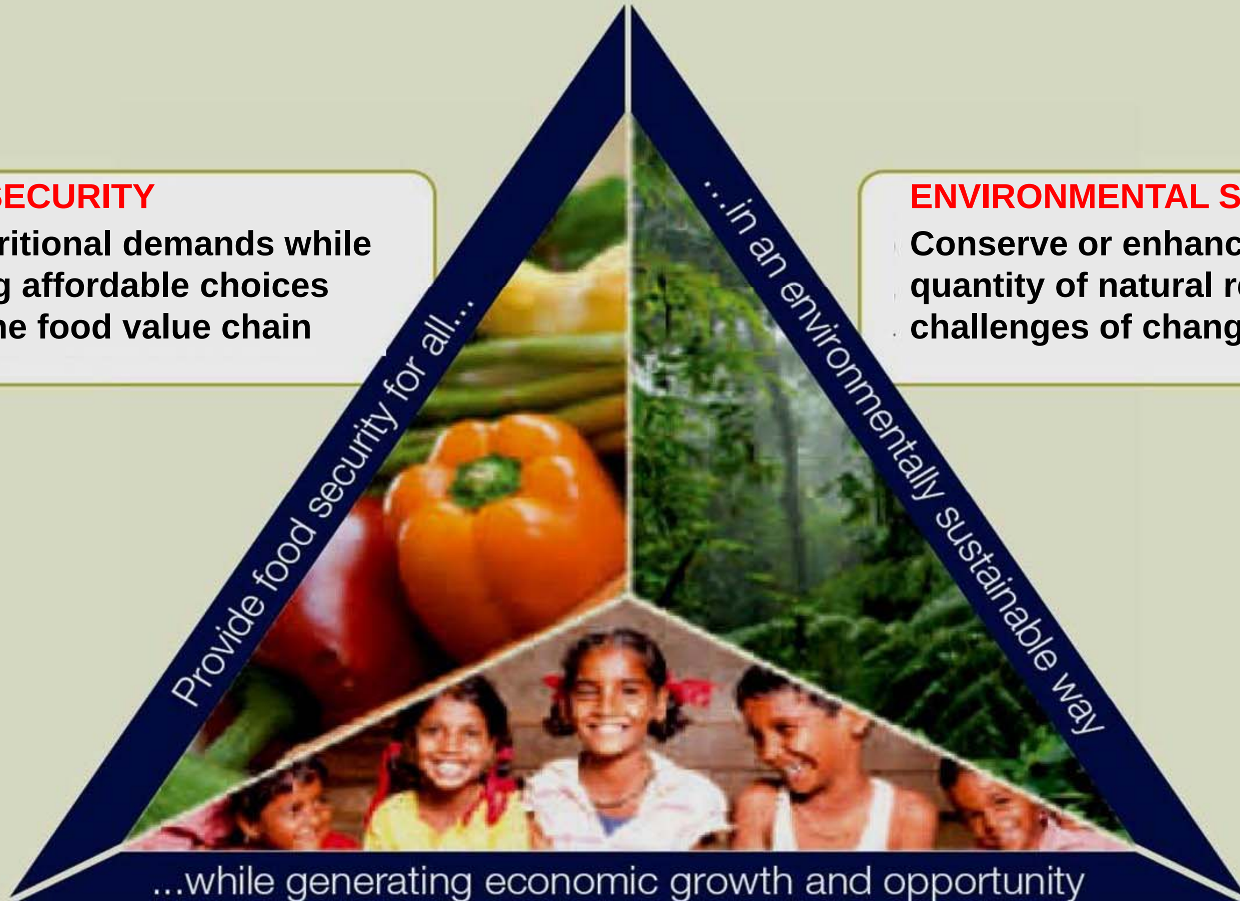
A global agriculture system that harnesses the power of markets and multi-stakeholder collaboration to feed the world, protect our planet and create prosperity

FOOD SECURITY

Meet nutritional demands while providing affordable choices across the food value chain

ENVIRONMENTAL SUSTAINABILITY

Conserve or enhance the quality and quantity of natural resources; meet the challenges of changing climate

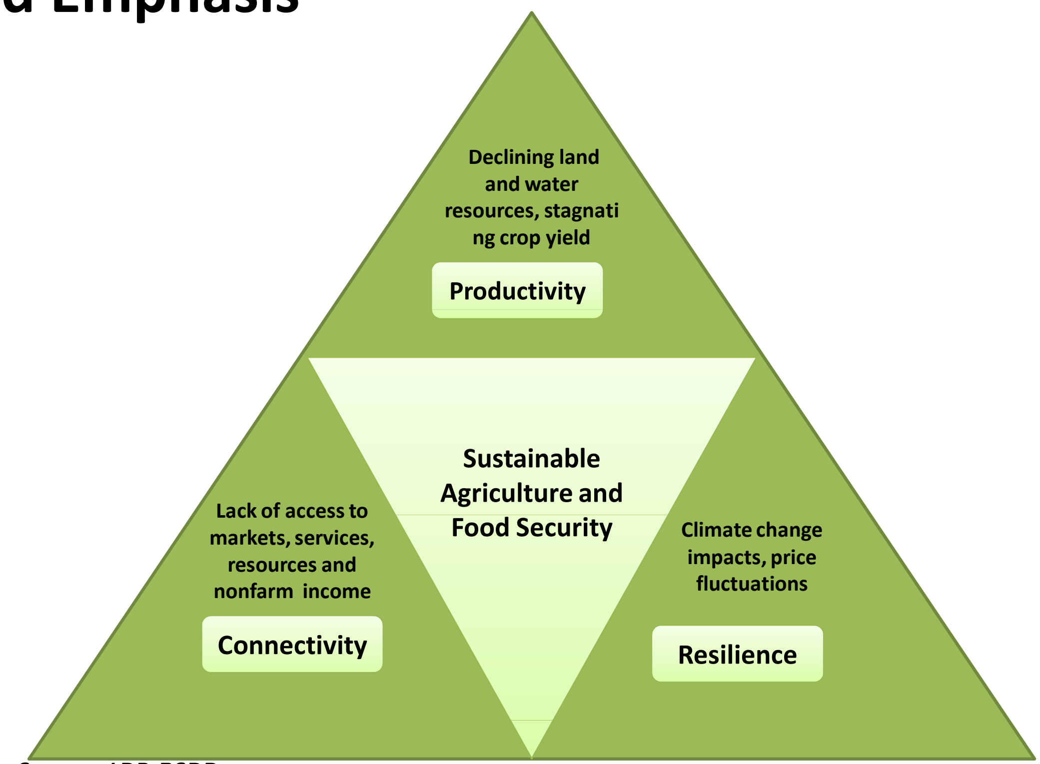


ECONOMIC OPPORTUNITY

Drive rural and national economic development around the globe with well-targeted investments

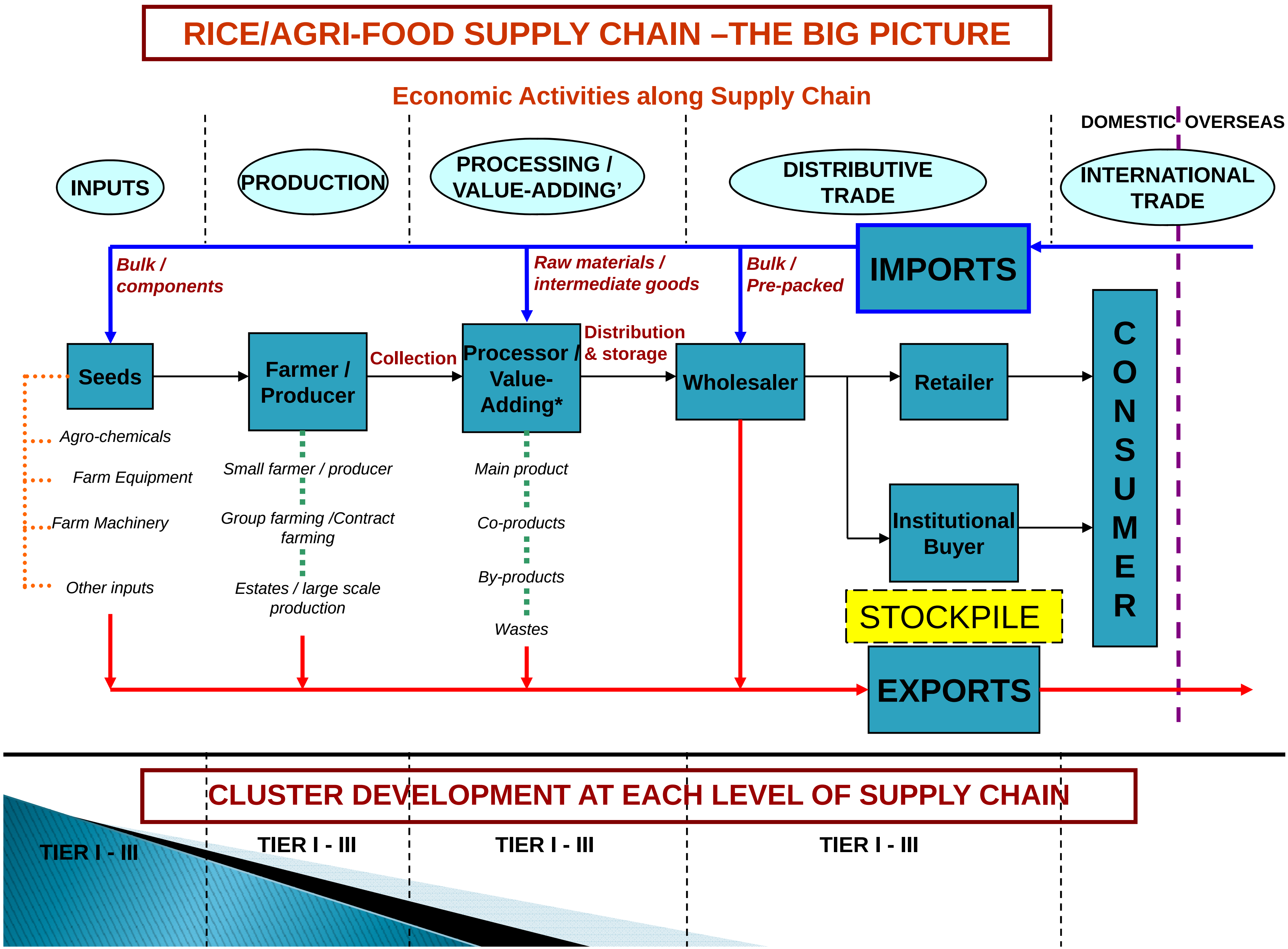
Source: WEF, 2010

ADB's Vision and Emphasis



Source: ADB-RSDD

Productivity - Increase production and productivity of food commodities in a sustainable way
Connectivity - Improve linkages between food producers and consumers; input and output markets
Resilience - Enhance the resilience of social and ecological systems against the effects of climate change


RICE/AGRI-FOOD SUPPLY CHAIN –THE BIG PICTURE
Economic Activities along Supply Chain
DOMESTIC
OVERSEAS
INPUTS
PRODUCTION
PROCESSING / VALUE-ADDING'
DISTRIBUTIVE TRADE
INTERNATIONAL TRADE
IMPORTS
Bulk / components
Raw materials / intermediate goods
Bulk / Pre-packed
Seeds
Farmer / Producer
Collection
Processor / Value-Adding*
Distribution & storage
Wholesaler
Retailer
CONSUMER
Institutional Buyer
STOCKPILE
EXPORTS
Agro-chemicals
Farm Equipment
Farm Machinery
Other inputs
Small farmer / producer
Group farming /Contract farming
Estates / large scale production
Main product
Co-products
By-products
Wastes
CLUSTER DEVELOPMENT AT EACH LEVEL OF SUPPLY CHAIN
TIER I - III
TIER I - III
TIER I - III
TIER I - III

CLUSTER DEVELOPMENT

TIER I → **INPUT / PRODUCTION / OUTPUT**

CURRENT OPPORTUNITIES

- End uses

FUTURE OPPORTUNITIES

- End uses enabled by science & technology innovations

TIER II → **INTERMEDIATE SUPPLIER & SUPPORT SERVICE**

CURRENT OPPORTUNITIES

- Inputs
- Machinery & Equipment
- Metal industry
- Glass Industry
- Industrial Chemicals
- Paper industry
- Printing
- Logistics
- Business Services

FUTURE OPPORTUNITIES

TIER III → **FOUNDATION PROVIDERS**

CURRENT OPPORTUNITIES / REQUIREMENTS

- Infrastructure
- Financing
- Human Resource Development
- Technology
- Regulatory Environment

FUTURE OPPORTUNITIES/ REQUIREMENTS

FOOD SUPPLY SYSTEM - UK

	Inputs/Agriculture	Primary Processing	Secondary Processing and Distribution	Retail	Consumption
Relationship Power	Small/medium-sized organizations	Private organizations	Own label / Brand owners	Four dominant organizations	Marketing-led product development
Energy	Fertilizer production	Refrigeration	Transport and cooking	Refrigeration	Transport and cooking
Resource Usage	Labour / Land	Water	Transport infrastructure	Urban Land	Power
Direct Emitted Carbon	Nitrogen and livestock methane		Transport		Landfill
Product Wasted or Lost	5%	5%	2%	10%	33%

High

Medium

Low

- This is an indicative interpretation of the UK supply network. Waste figures based on work undertaken by the Food Process innovation Unit at Cardiff University on behalf of the Food Chain Centre. WRAP estimates have been used for consumer waste figures. Available online at:
  - http://www.wrap.org.uk/wrap_corporate/news/food_waste_set_to.html (15.10.08).

National Level :

- Focus on rice supply chain's underlying importance for overall growth and sustainable development . Focus on three major aspects of supply chains (a) structure, (b) dynamics and (c) future prospects of rice supply chain development and related policy issues

- **1. Overview**

- cropped acreage, yields, production and level of self-sufficiency
- summary of Rice Policy changes and key milestones which impacts on structure and development of rice supply chain
- surplus and deficit areas - spatial considerations
- extent of double cropping – temporal considerations
- compare domestic prices with international rice prices of similar grades

National Level : (cont'd)

2. Structure

- A general mapping of supply chain – inputs to consumers/export
- Differentiated supply chains - domestic flows from surplus to deficit regions; export through ports; exports through border; others
- Facilities along the supply chains - mills - small, medium to large mills. with dryers, wet polishers, colour sorter and packing machine – Rice Specialization Companies – provision of mechanization services tractors, threshers, combine harvesters as well as good quality/certified seeds
- Cost and returns
- Financing, transportation, vulnerable groups (landless farmers)
- Identify weak links (at interfaces) along rice supply chain - Strength of chain is in the weakest links

3. Dynamics

- Transformation of supply chains - growing importance of mills as a fulcrum or pivot & P-P-P arrangements, FDI
- Which of the differentiated supply chains (domestic surplus to deficit areas, exports through ports; via Border Trade; others – growing fastest and why?

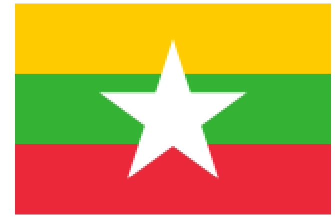
National Level : (cont'd)

3. Dynamics (cont'd)

- Temporal (single or double cropping areas - rice-based farming system, crop rotation) and spatial (which areas more likely to have productivity increases - irrigated areas with multipurpose dams generating electricity to run mills and processing centres). Advantage of market access – cost effectiveness

4. Future prospects

- Policy issues – strengthening identified weak links in rice supply chain; proper development of seed industry and coordinated reform and transformation of rice industry
- Coordinated initiatives/emphasis on green food (low chemicals, traceable, certified safe, food scare, heavy metals) rice
- More organized border trade – especially to China
- Replicability of innovative approaches



(4) Major Rivers (of which 3 originates within own border) and many rivers and creeks flow into or join the major rivers

Sagaing Region

Rakhine State

East & West Bago Region

Ayeyarwaddy Delta Region (40% total prodn)

Four Major Rice Granaries in Myanmar

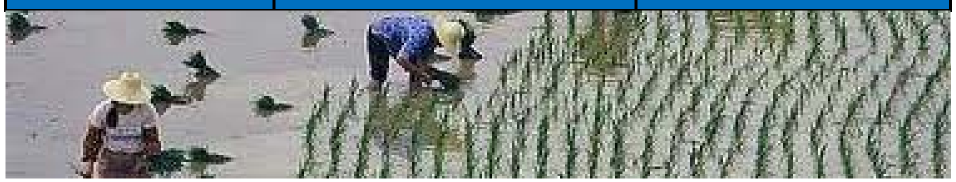
Cultivated area: 8 million ha
Total Production: 23.6 million MT (paddy)

Myanmar- potential to be water-energy-food secure, in short term, if not already so

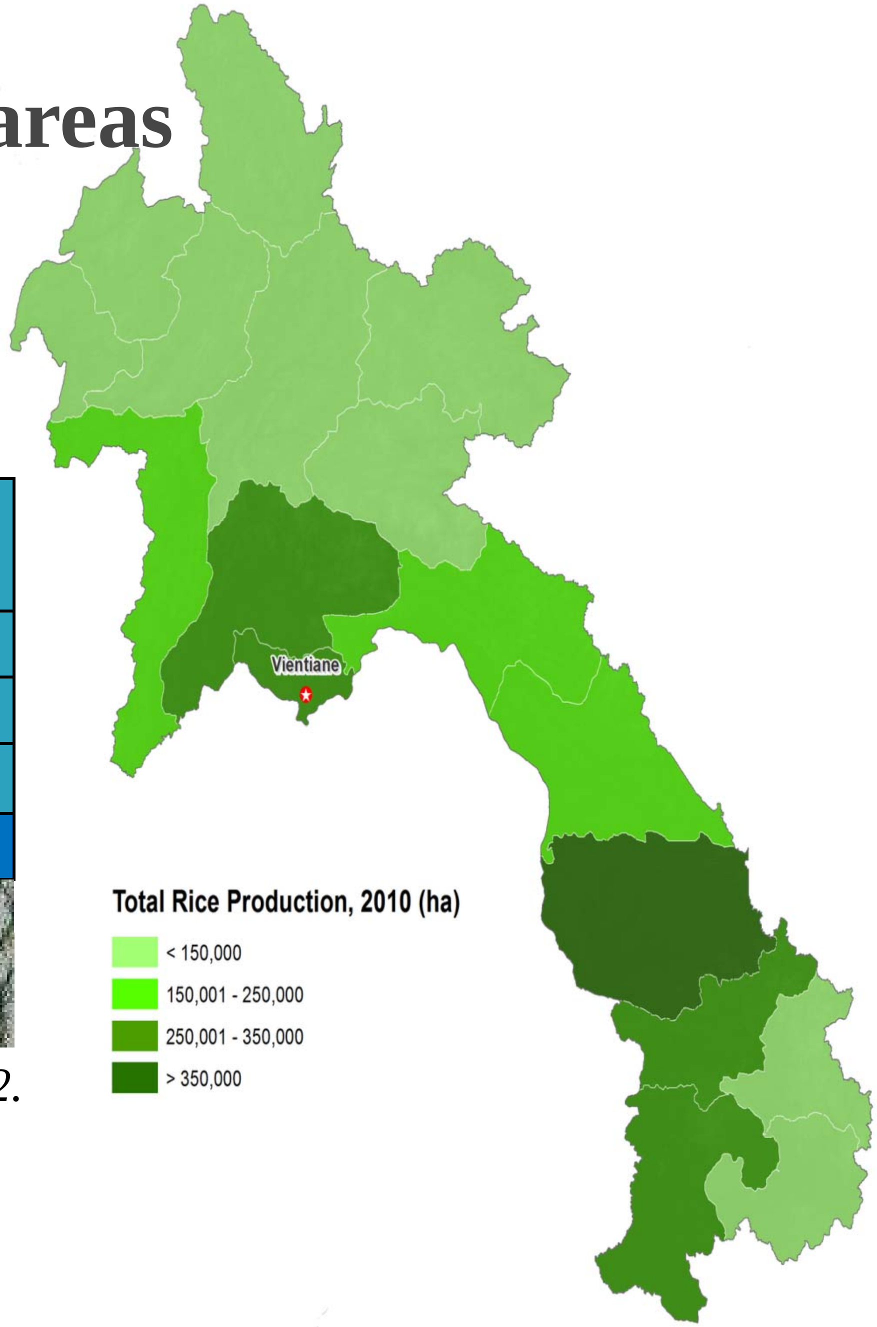
Production and harvest areas

Table. Rice production in Lao PDR (2010/11)

Particular	Harvest area (ha)	Production (Million tons)
Wet season	604.235	2.214.391
Dry season	101.611	477.110
Upland	69.117	141.597
Total	**774.963**	**2.822.098**

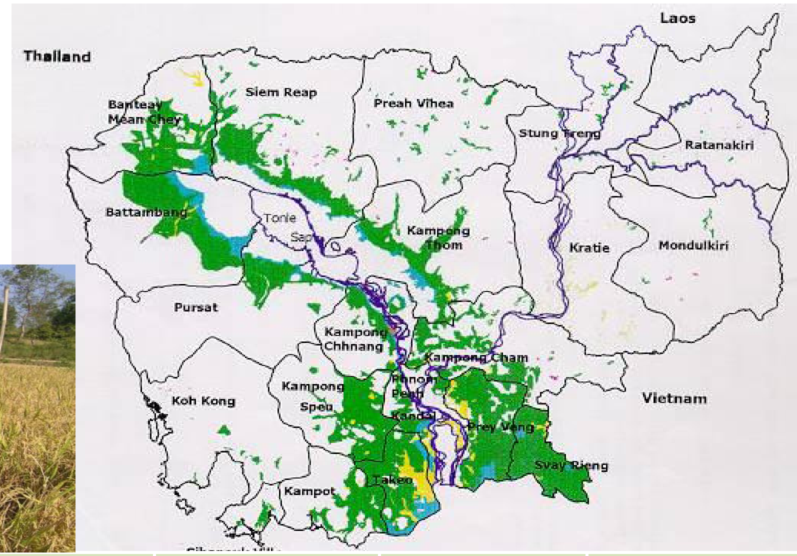


Source: Agriculture Census, MAF, May 2012.



Food Production in Agricultural Markets

Rice Production



Descriptions	2007	2008	2009	2010	2011
Cultivated Areas(Ha)	2,585,905	2,615,741	2,719,080	2,795,892	2,968,529
Harvested Areas (Ha)	2,566,952	2,613,363	2,674,603	2,777,323	2,766,617
Yield (T/Ha)	2.621	2.746	2.836	2.970	3.173
Production (MT)	6,727,127	7,175,473	7,585,870	8,249,452	8,779,365
Rice Surplus (MT)	1,649,640	2,025,033	2,244,598	2,516,752	2,780,328
Paddy Surplus (MT)	2,577,562	3,164,114	3,507,185	3,932,425	4,344,263

Lowland Rice (80.4%)

Deep Water Rice (3.5%)

Dry Paddy Rice (14.2%)

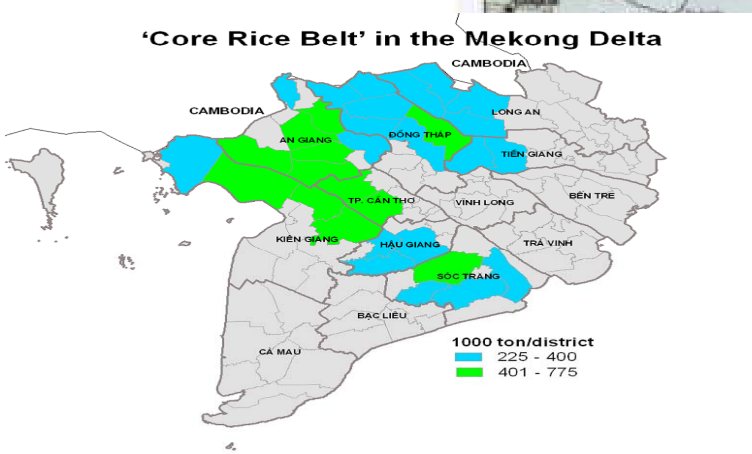
Upland Rice (1.9%)

Viet Nam Rice Production

Rice land: 3.9 mil. ha
Cultivated area: 7.4 mil. ha
Yield: 5.32 ton/ha
Production: 40 mil. tons (paddy)
Export: 7 mill tons (rice)

Red River Delta
Rice land: 0.6 mil. ha
17% of total production

Mekong River Delta
Rice land: 1.87 mil. ha
55% total of production
95% of total export



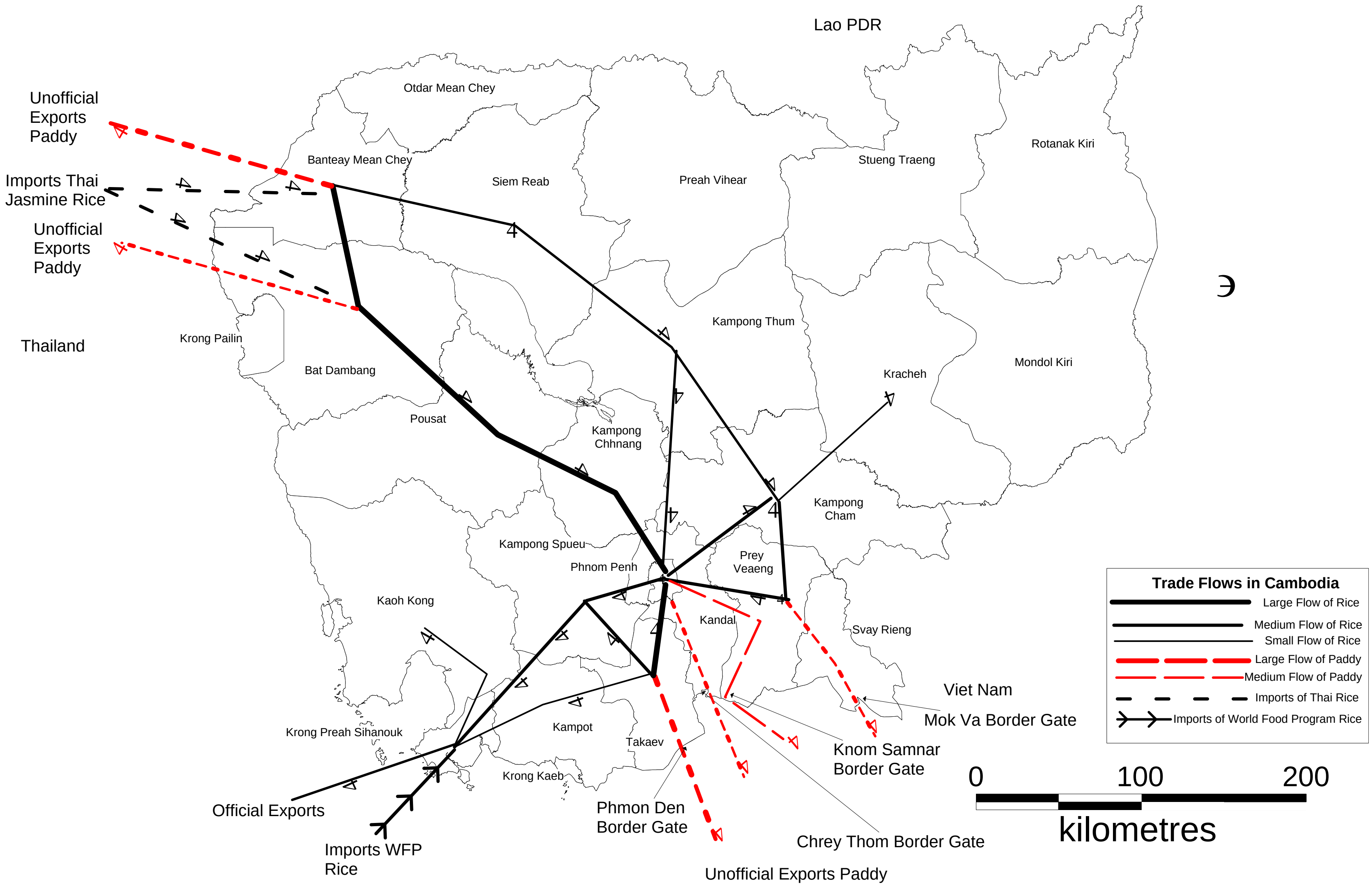
GMS Connectivity

Road Transport Network

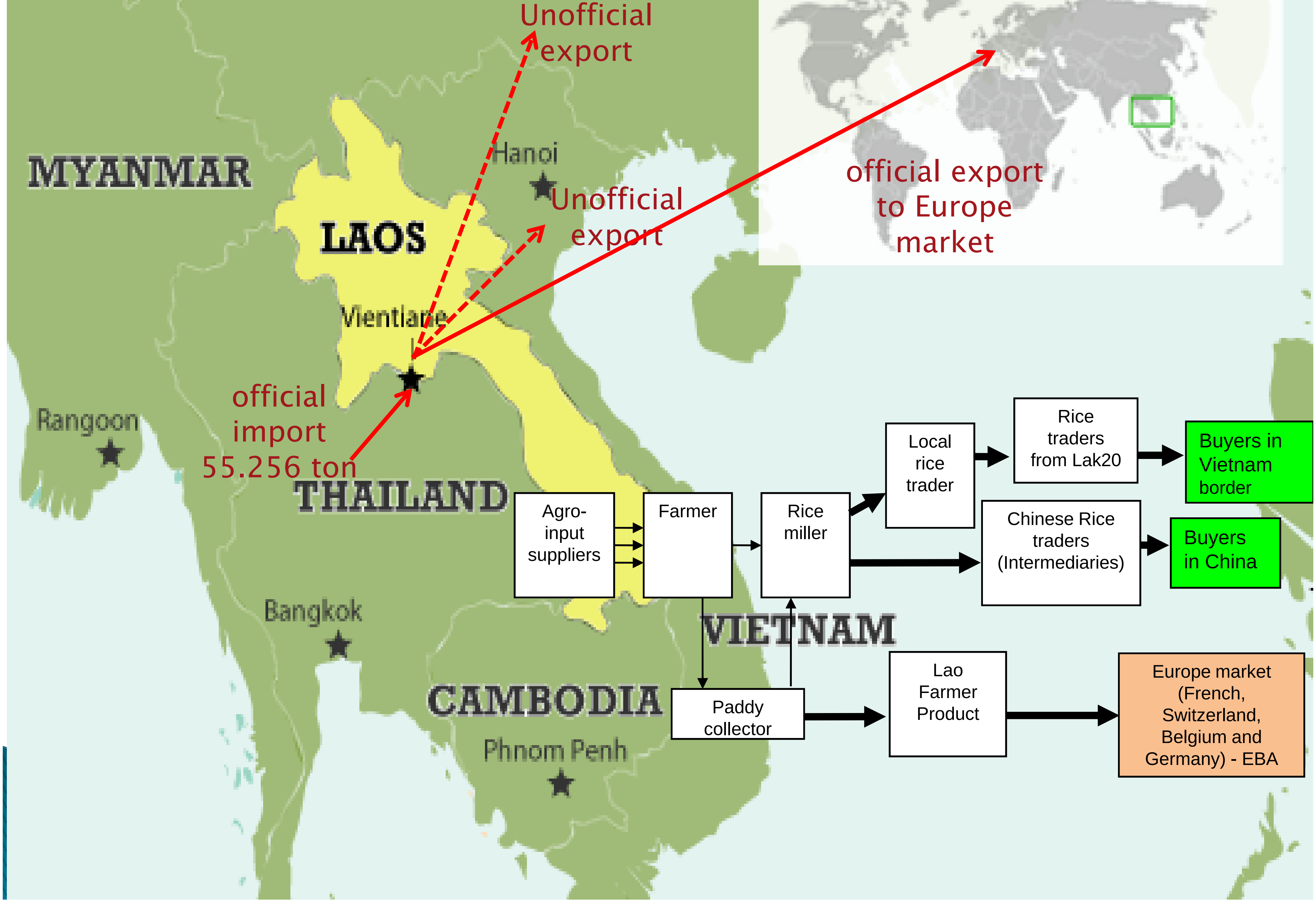
2015 (Committed)

Source: West Indochina

Trade Flows Of Rice And Paddy In Cambodia – Conventional and Border Trade



Trade flow of rice in Lao PDR



EXAMPLE: TRADE FLOWS OF RICE IN MYANMAR – 2010/11

Flow of rice

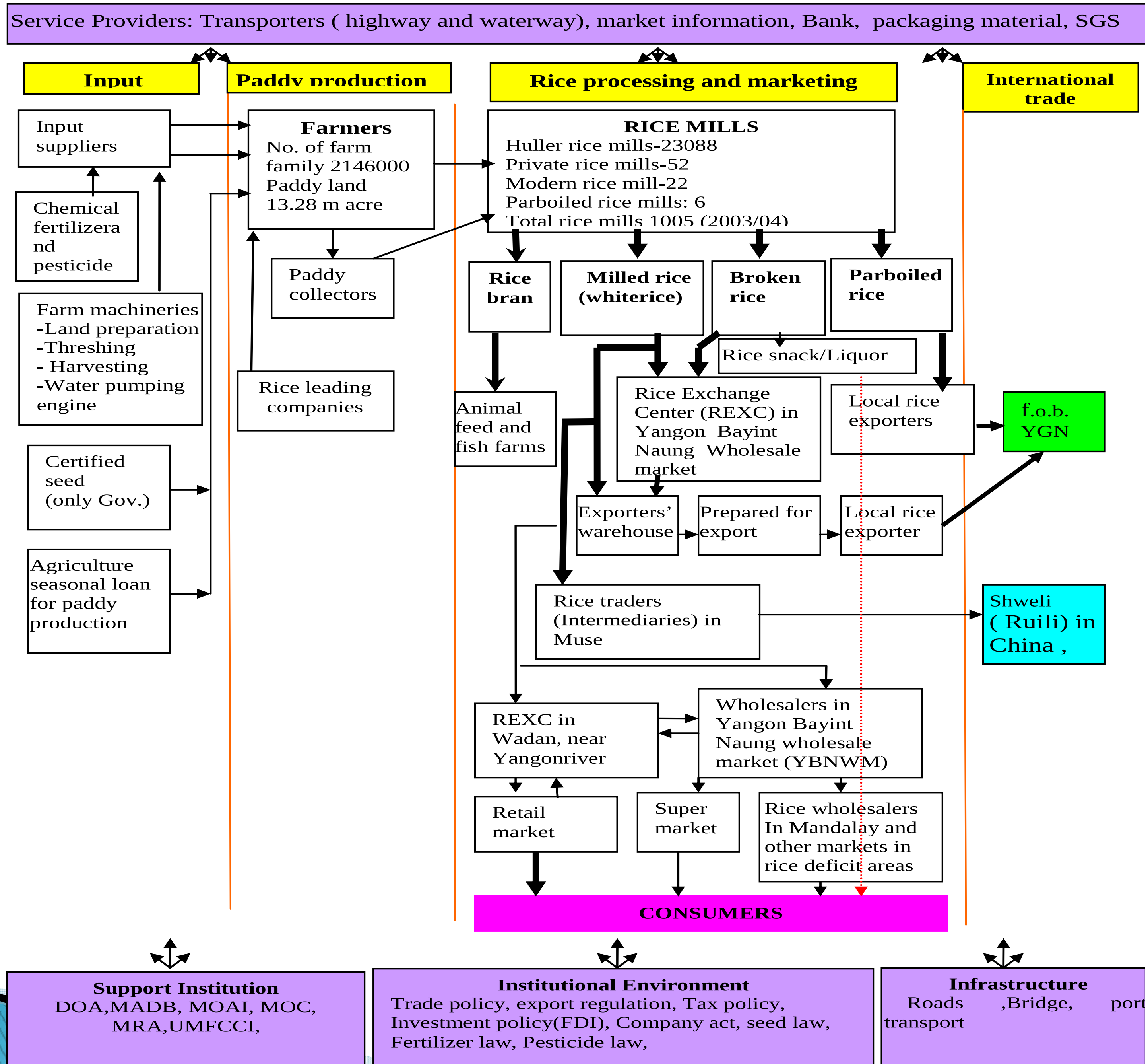
Border Trade

Rice Exports

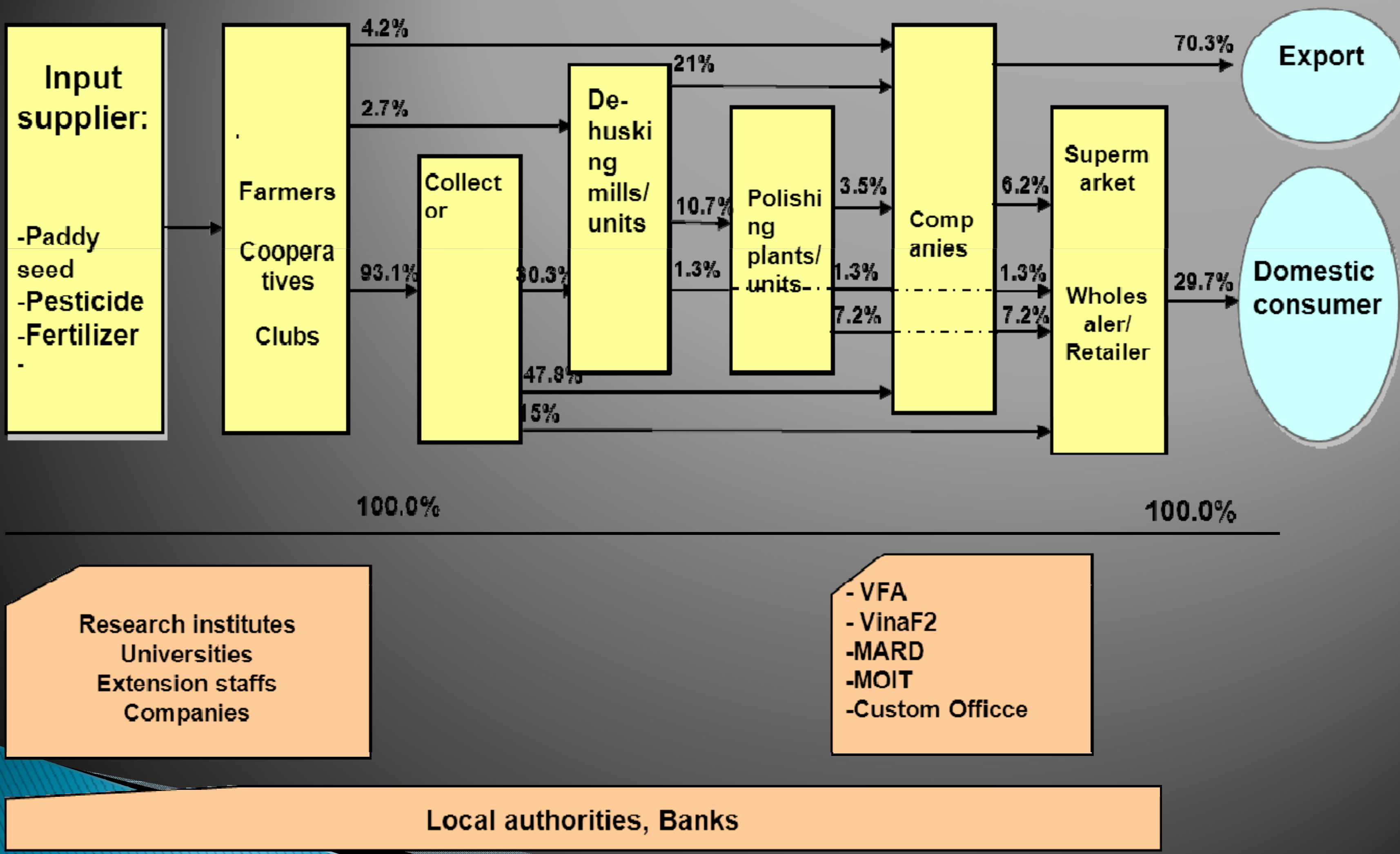
Hubs

Border Trade Office / Crossing

Figure 9. RICE SUPPLY CHAIN IN MYANMAR

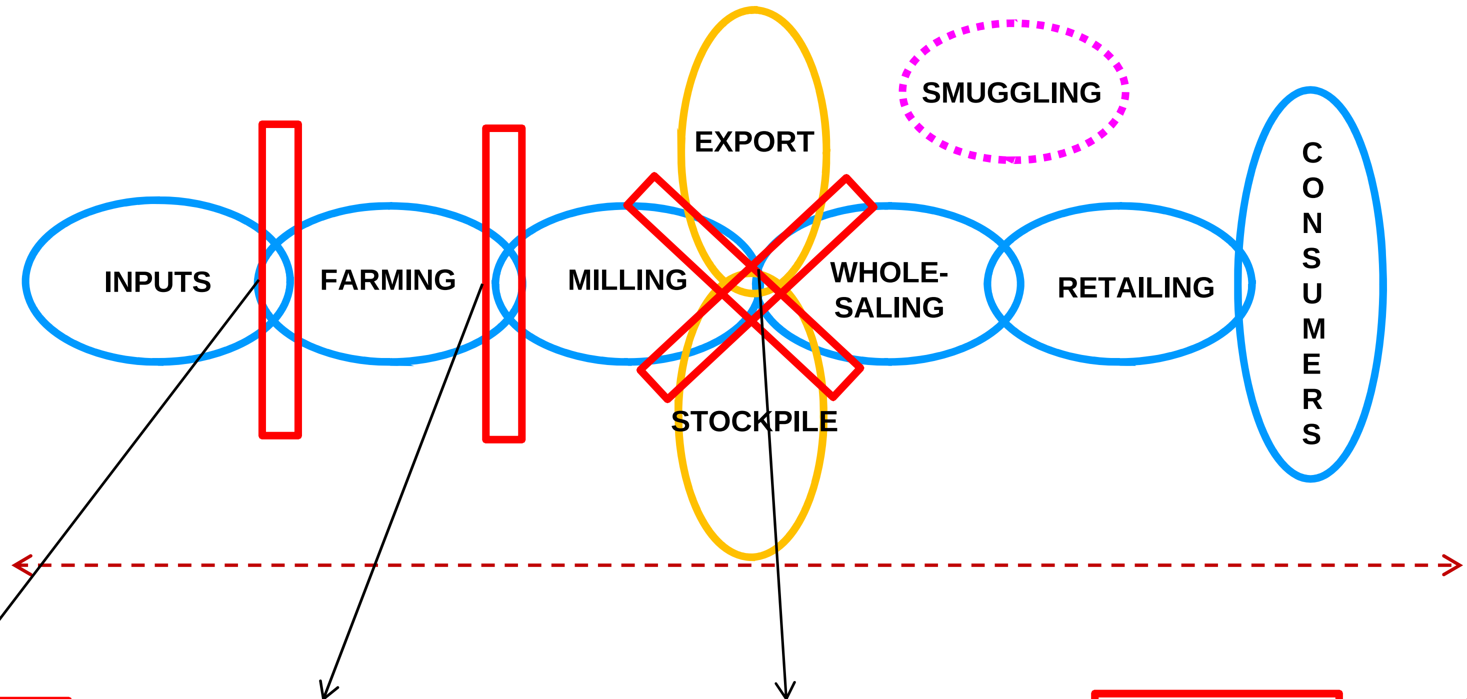


Rice supply chain in the Mekong River Delta



Source: Vo Thi Thanh Loc, 2010

Myanmar Rice Value Chain : Strength is determined by weakest links



WEAK LINK 1

● purity and quality of seeds
● quality & appropriateness of fertilizers, pesticides
● R&D and extension
● Rural financing

WEAK LINK 2

● Cultural practice leads to 'sun-cracking' – high brokens
● Lack of proper drying & storage facilities at mills, especially for summer crop
● Lack of development of other end-uses of rice and rice by-products
●Financing issue - most mills operating under capacity – coping mechanism
●Low productivity growth

WEAK LINK 3

● Exports – consistency of quality and supply not assured - supply-driven, reactive
● Buffer stocking/Stockpiling – rationale, strategic approach, social obligation
● Parallel market – illegal border trade – price gap/differential – rice to China, paddy to Thailand

WEAK LINK 4

● Little or no sharing of data/ information along supply chain - collected and disseminated by different interest groups
❿ Data quality & consistency problem - from production to per capita consumption
❿ High transportation/logistics cost
❿Financing issue
❿ Not fully utilizing agriculture as 'engine of growth'

ASIDE: Shifting World Trade: Trade Volume Has Soared

Decades	Mil. Tons
1970s	8.8
1980s	11.9
1990s	18.2
2000s	27.9
2010	31.6
2011	36.2
2012	39.2
2013 1/	38.6
1/ Forecast	
USDA	

Drivers:

- Petro-dollar wealth
- Rural – urban migration
- Changing diets with premium on ease of cooking
- Increased exportable surpluses

Trade structure (quality segments) has changed

World Trade: Est. Changes in Quality since Mid 1990s			
(millions of tons, milled equiv.)			
Quality	mid 90s	2005-07	2010-12
Basmati	.89	2.00	3.64
Jasmine	1.20	1.90	2.52
Jasmine Bkns	NA	.69	0.73
Glutinous	.28	.34	.46
Japonica	1.50	2.58	2.42
Rough	.50	2.45	2.36
Brown	.60	0.70	.64
Parboiled	2.15	6.93	6.07
High	3.20	5.10	8.14
Medium	2.50	3.07	2.97
Low	3.86	5.27	4.63
Brokens	.83	1.82	2.01
Total	17.50	32.85	36.60

Source: Personal Communication Tom Slayton

Key Exporters changing – Two Tier

Exports by Key Markets (million tons)				
	2011	2012	2013	CHG
Upper Tier				
Mercosur	3.08	3.03	2.60	– .43
Thailand	10.65	6.95	8.00	1.06
U.S.	3.25	3.33	3.40	.07
Subtotal	16.97	13.30	14.00	.70
"The Market"				
Cambodia	.86	.80	.75	– .05
India	4.64	10.25	9.00	–1.25
Pakistan	3.41	3.40	3.20	– .20
Myanmar	.78	.69	.75	.06
Vietnam	7.00	7.72	7.40	– .32
Others	6.00	2.99	3.50	.51
Subtotal	22.69	25.85	24.60	–1.25
TOTAL	36.25	39.15	38.60	– .99

Source: Personal Communication Tom Slayton

Key Importers Changing - Opportunities

Imports by Key Markets (million tons)				
	2011	2012	2013	CHG
Bangladesh	1.49	.05	.30	.25
China	.58	2.90	3.00	.10
Indonesia	3.10	1.96	1.50	-.46
Iran	1.87	1.70	1.50	-.20
Iraq	1.04	1.48	1.40	-.08
Ivory Coast	.94	1.45	1.15	-.30
Nigeria	2.55	3.40	2.90	-.50
Philippines	1.20	1.50	1.50	0
Senegal	.81	1.20	1.00	-.20
Others	22.69	23.51	25.75	2.24
TOTAL	36.25	39.15	38.60	1.54

Increasing Paddy support prices: 2012 $381/MT; 2013 – 420/MT (~620/MT rice wholesale) – TRQ – 5.32 MMT (duty 1% cf outside TRQ 65%)

EU – 1.5MMT/annum; EBA – duty waiver – E175 or USD228/MT

Source: Personal Communication Tom Slayton

Other Considerations :

- Pilot phase's focus on agriculture productivity in CLMV - productivity increases from technological change, price supply response not only at production level BUT along the entire supply chain while emphasizing ecosystem services and sustainability

- Empirically innovative development and management of comprehensive supply chains in CLMV. Beyond traditional forms of PPP, we note a high incidence of FDI, foreign aid and NGOs/civil society activity – ensure such efforts are inclusive can be sustained & replicated

- Country level studies focused on rice supply chain (including seeds) and mention other crops in passing

- Increasing importance of border trade and cross-border investments, FDI

Evidence So Far :

- Underscores importance of supply chain to increasing agricultural productivity and natural resource management - initiatives required at different levels of supply chain (identified weaknesses at the interfaces need to be addressed more holistically - prioritising and sequencing) - too production-centric and piecemeal in past

- Importance of Public-Private-Partnership (in various forms) in developing comprehensive supply chains and trading networks - 'from seed to shelf" - link to local as well as foreign more lucrative markets

- Key pivot /fulcrum in 'balancing' and driving productivity - the mills/processing plants - contract farmers, provision of high quality/certified seeds, provision of mechanization services, produce other end uses (rice bran oil, rice wine, rice-based drinks, vermicelli, rice flour, animal feed, etc), perform stock-piling function for Government, including provision of rice to military; packed and branded rice into supermarket chains.

Evidence So Far : (Cont'd)

- All already or intend to export rice - besides from ports, increasing importance of border trade and related cross border investments - springboard to other countries

- Each has inherent advantage – Myanmar's strategic geo-political and geo-commercial location; Cambodia and Lao PDR's special market access to Europe (EU – Everything But Arms – duty exemption ~ USD200/MT); - potential for organic and/or green (product) branded rice into supermarket chains.

Enhancing Productivity, Catching Up by Strengthening Agriculture Supply Chains : Key Issues and Recommendations

At national level:

- Balanced, inclusive and sustainable growth – attention to marginalization of ‘smaller’, less connected stakeholders, especially farmers
- Export more rice? – crop/enterprise mix – Paddy ++ with increasing rural development orientation
- Understand, track shifts in Global and regional rice markets

At CLMV level:

- Leverage on ASEAN and Greater Mekong Subregion increasing connectivity – intermodal logistics -> transit corridors (Lao PDR, Cambodia): regional food supply chain and trading networks – exploit synergisms and leverage on relative strengths- cross border investments (FDI/JV) – joint exploitation of emerging markets – China, EU, Russia

Enhancing Productivity, Catching Up by Strengthening Agriculture Supply Chains : Key Issues and Recommendations (cont'd)

- Increasing P-P-P BUT Government role at National and CLMV levels crucial - Investments in infrastructure (reduce transportation, electricity and cost of doing business), provision of smart and well-targeted subsidies; investments in science & technology, R&D and innovation along supply chain (seed and other input industry development), agri-support services and foundations

- All CLMV undergoing economic, social (and political) transformation – execution need to be managed and coordinated - policy, legal and institutional framework, finance and HRD – liberalization with improved governance – rolling back of SOEs – Provision of Public goods (blurring of Public Vs Private goods)

- Implementation Coordination/Management Unit – change management

Enhancing Productivity, Catching Up by Strengthening Agriculture Supply Chains : Key Issues and Recommendations (cont'd)

Other Considerations:

- Seek out and realize potential in managing increasingly comprehensive supply chains – convergence of Biotechnology and ICT (with increasing digital penetration) – enables leap-frogging – for production, market information, training.
- Work on exploiting connectivity and convergence of agricultural supply chains – rice with other essential goods (edible oil, sugar, pulses and beans, etc) as well as other enterprises in rice-based farming systems (Rice ++)
- Aware special requirement of new markets (EU – EBA but need certification GMO free)
- Cross-pollination of ideas and innovations in different CLMV countries (and further afield) – Use of gasifiers in Cambodia, intermodal logistics, mid-stream loading (Thai experience) using barges to overcome draft and port constraints.

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THANK YOU !

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