

# **New Dimensions of Food Security and Changing Role of Rice: Options and Implications for the Philippines**

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## **OUTLINE:**

- 1. Backdrop – New Dimensions of food security and Changing role of rice**
- 2. ASEAN rice exporting and importing countries – resource endowments and other considerations (including regional rice integration)**
- 3. Rice Policy and strategies adopted by Malaysia (including BERNAS' Experience) and Indonesia**
- 4. Options and Implications for Philippines**

# NEW DIMENSIONS OF FOOD SECURITY – Post 2008

Beyond the 'Traditional' Dimensions of Availability; Accessibility; Stability; and Utilization – **new dimensions** have rendered Food Security **more complex, multi-scale, and interconnected.**

- Considered as part of Human Security – **Non Traditional Security**
- Cross-border or **Regional** dimension – **collaboration/solutions**
- **Food-Feed-Fuel-Finance** conundrum
- **Food-Water-Energy** nexus
- Traceability and food safety - **Safe Food**
- Demand Management – **Save Food**
- **Self-reliance** rather than self-sufficiency
- Increasing importance of more holistic **Supply Management** (and trading network) **Approach**
- Role of private sector – **Public-Private Partnership**
- **Changing Role of Rice**

BUT basic issues of '**Price Dilemma**', Domestic **Price Stabilization** and (mis)Trust of **Global Rice Market** remains – [CARE - **debate trapped in mindset of 1970s** despite realities of 2010s]

# THE CHANGING ROLE OF RICE

- Rice increasingly food of the **poor and rural segment** – impacted most by **volatility** as well as **‘high stable’ (incentive) prices** as mechanism to achieve **food security at macro level** and high level of **self-sufficiency**
- **Urbanization** lowers **per capita consumption** of rice – variety of substitutes – changing diets
- Better **food supply chains/systems** – rural h/h can afford to be **< self-sufficient** in food **production and consumption**, especially rice
- Relatedly, modern supply chains/supermarkets **have linked and changed interactions** between **farmers, processors, markets and consumers**
- **Share** of total **calories** from rice **declining**, **food budget share** of rice declining **even faster** **< 20%** (higher for poor); **> 80% on other food**, including processed & convenience food
- Consequently, **share** of rice in **agricultural output** and in **overall economy** also **declining rapidly**
- As rice cannot generate degree of **employment and incomes** required for **inclusive and sustainable growth**, **water** moving out of rice, **land moving out of rice** – horizontal and vertical **diversification**

Unfortunately, current **food security** debate **still mired in the mindsets** of the **1970s .. rice-centric, production-centric, public sector-centric, nation-centric** (self-sufficiency rather than **self-reliant**), etc... **can and should do better!**

# MYANMAR - AVERAGE MONTHLY HOUSEHOLD EXPENDITURE BY GROUP, 2006

(Value-Kyat)

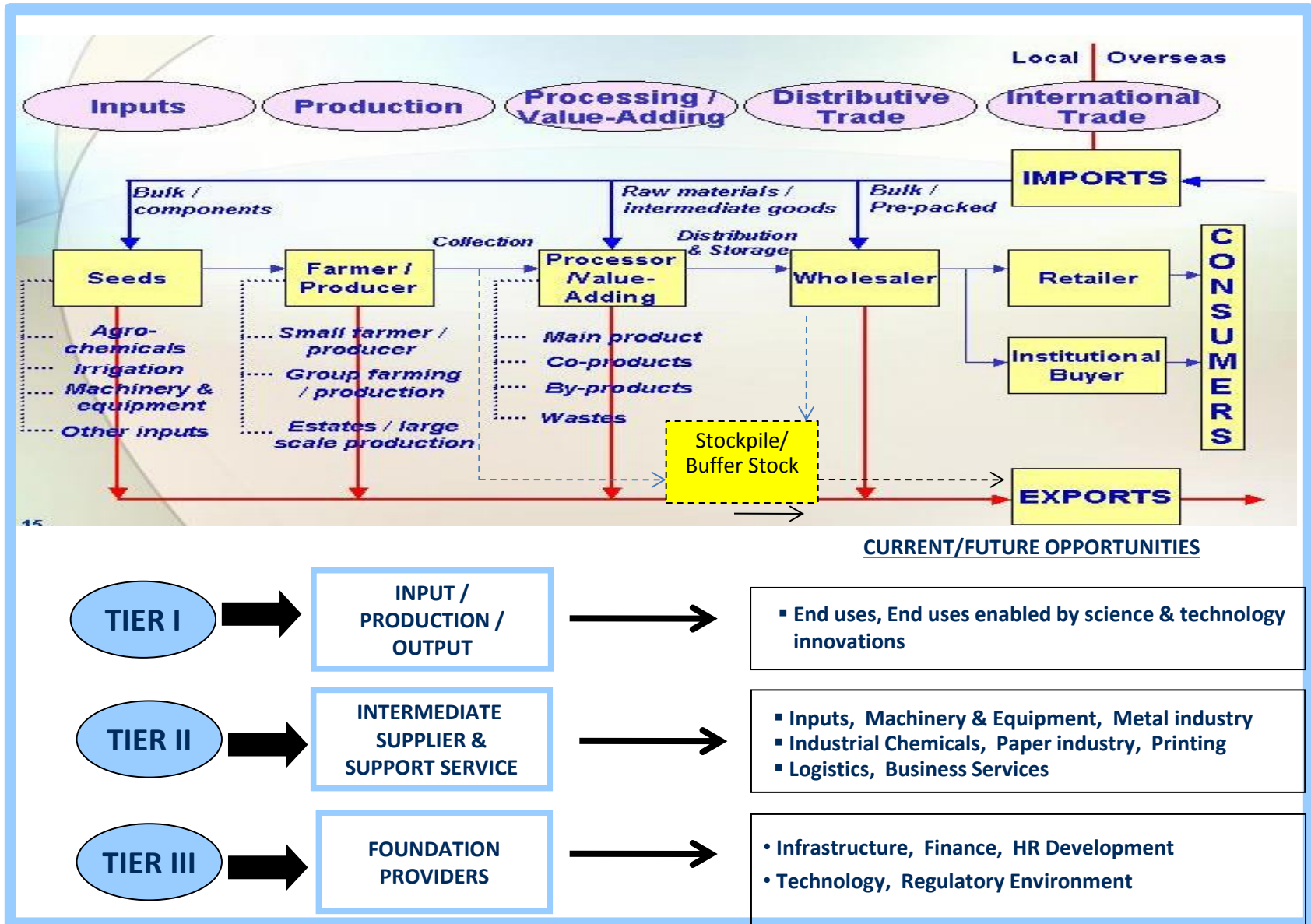
S.N.	Particulars	Union		Urban		Rural	
		Value	%	Value	%	Value	%
I.	SIZE OF HOUSEHOLD	4.72		4.87		4.67	
II.	HOUSEHOLD EXPENDITURE TOTAL	97699.87	100.00	113320.51	100.00	90631.85	100.00
	1.FOOD AND BEVERAGES TOTAL	69170.71	70.80	77345.92	68.25	65358.17	72.11
	Rice	17891.45	18.31	18186.16	16.05	17781.50	19.62
	Pulses	1842.16	1.89	2046.60	1.81	1814.61	2.00
	Meat	7824.56	8.01	9414.54	8.31	6923.67	7.64
	Eggs	2369.46	2.43	2837.48	2.50	2194.62	2.42
	Fish and crustacea (fresh)	5252.35	5.38	6260.64	5.52	4825.62	5.32
	Fish and crustacea (dried)	2926.79	3.00	3240.12	2.86	2821.10	3.11
	Ngapi and nganpyaye*	1687.13	1.73	1683.00	1.49	1688.67	1.86
	Cooking oil and fats	5536.11	5.67	5887.05	5.20	5309.74	5.86
	Fruits and vegetables	8826.45	9.04	9560.30	8.43	8480.76	9.35
	2.NON-FOOD TOTAL	28529.16	29.20	35974.59	31.75	25273.68	27.89

1/ Includes food taken outside home.

\* Fish/Shrimp paste and sauce

Source: Central Statistical Organization  
Statistical Year Book 2011

# HOLISTIC SUPPLY CHAIN MANAGEMENT CUM CLUSTER DEVELOPMENT APPROACH – Economic Activities Along Supply Chain: basis for Agriculture as ‘Engine of Growth’



# FOOD LOSSES & RESOURCE UTILIZATION ALONG SUPPLY CHAIN

	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	Land Labour	Water	Transport infrastructure	Urban Land	Power
Direct Emitted Carbon	Nitrogen and livestock methane		Transport		Landfill
Product Wasted or Lost	5%	5%	2%	10%	33%



○ 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](http://www.wrap.org.uk/wrap_corporate/news/food_waste_set_to.html) (15.10.08).

# Major Global Rice Producers and Consumers

## Major rice producing countries

Country	2012/13 (mi. ton)	%
China	143	30.3
India	105.2	22.3
Indonesia	36.6	7.8
Bangladesh	33.8	7.2
Vietnam	27.7	5.9
Thailand	20.2	4.3
Myanmar	11.7	2.5
Philippines	11.4	2.4
Japan	9.8	2.1
Brazil	8.0	1.7
USA	6.3	1.3
Cambodia	4.6	0.9
Others	53.2	11.3
<b>Total</b>	<b>471.5</b>	<b>100</b>

## Major rice consuming countries

Country	2012/13 (mil.ton)	%
China	144	30.8
India	94	20.1
Indonesia	38	8.1
Bangladesh	34.5	7.4
Vietnam	20.5	4.4
Philippines	12.9	2.8
Thailand	10.6	2.3
Myanmar	10.4	2.2
Japan	8.3	1.8
Brazil	7.9	1.7
Nigeria	5.4	1.2
Korea	4.6	1.0
USA	3.8	0.8
Egypt	3.9	0.8
Cambodia	3.6	0.7
Others	64.8	13.9
<b>Total</b>	<b>467.2</b>	<b>100.00</b>

Source: Grain: World Market and Trade, USDA, March 2014



# Major Rice Exporting and Importing Countries

## Major Rice exporting countries in 2013

Country	Amount (mil. ton)	%
India	10.50	27.16
Vietnam	6.80	17.59
Thailand	6.70	17.33
Pakistan	3.50	9.05
USA	3.27	8.46
Myanmar	1.16	3.01
Cambodia	0.98	2.53
China	0.45	1.16
Brazil	0.83	2.15
Uruguay	0.90	2.33
Argentina	0.53	1.37
Egypt	0.85	2.20
Australia	0.46	1.19
Guyana	0.35	0.91
Others	1.38	3.56
Total	38.66	100.0

## Major Rice importing countries in 2013

Countries	2013	%
China	3.20	8.28
Nigeria	2.60	6.73
Iran	2.15	5.56
Iraq	1.30	3.36
Cote d Ivoire	1.30	3.36
EU	1.30	3.36
Saudi Arabia	1.23	3.18
Senegal	1.25	3.23
Philippines	1.10	2.85
South Africa	0.95	2.46
Malaysia	0.90	2.33
Indonesia	0.65	1.68
Brazil	0.75	1.94
Japan	0.69	1.78
Mexico	0.73	1.89
Others	17.91	46.33
Total	38.66	100.0

Source: Grain: World Market and Trade, USDA, March 2014

# Rice Production and Consumption in ASEAN and ASEAN+3

Country	population (million)	2013 (million ton)			
		Export	Import	Domestic production	Domestic consumption
Singapore	5.2	-	0.17	-	na
Malaysia	29.0	na	0.90	1.69	2.82
Philippines	95.0	-	1.10	11.43	12.86
Indonesia	242.0	-	0.65	36.55	38.13
Brunei	0.4	-	0.02	na	na
Vietnam	88.0	6.8	-	27.70	20.50
Thailand	70.0	6.7	-	20.20	10.60
Laos	6.3	-	Na	1.48	1.131/
Cambodia	14.3	0.98	-	4.60	3.62
Myanmar	48.3	1.16	-	11.72	10.40
<b>ASEAN</b>	<b>598.5</b>	<b>15.64</b>	<b>2.84</b>	<b>115.37</b>	<b>100.06</b>
China	1354	0.45	3.20	143.00	144.00
Japan	127	na	0.69	7.76	8.25
S. Korea	50	na	0.55	4.01	4.61
<b>ASEAN + 3</b>	<b>2119</b>	<b>16.09</b>	<b>7.09</b>	<b>270.34</b>	<b>256.92</b>

Note: 1/ Calculate from per capita consumption.

Source : Population from World Bank, Rice Production and Consumption data from Grain : World Market and Trade, USDA ; January 2013

# Domestic Food Security Issue and Market Integration

- Self-sufficiency policy still dominant in some countries.

ASEAN rice importing countries still place rice in high sensitive list with step-wise tax reduction :

- ✓ Malaysia reduced from 40% to 20% in 2010;
- ✓ Indonesia will reduce from 30% to 25% in 2015;
- ✓ Philippine will reduce from 40% to 35% in 2015

## Towards Market Reliability and Integration

- Regional integration on commodity market will facilitate managing food security in the region.

# 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
<b>Basmati</b>	<b>.89</b>	<b>2.00</b>	<b>3.64</b>
<b>Jasmine</b>	<b>1.20</b>	<b>1.90</b>	<b>2.52</b>
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
<b>Parboiled</b>	<b>2.15</b>	<b>6.93</b>	<b>6.07</b>
<b>High</b>	<b>3.20</b>	<b>5.10</b>	<b>8.14</b>
Medium	2.50	3.07	2.97
<b>Low</b>	<b>3.86</b>	<b>5.27</b>	<b>4.63</b>
Broken	.83	1.82	2.01
<b>Total</b>	<b>17.50</b>	<b>32.85</b>	<b>36.60</b>

# THE ROLE OF THE PRIVATE SECTOR – Towards Promoting Food Market & Trade and Food Security

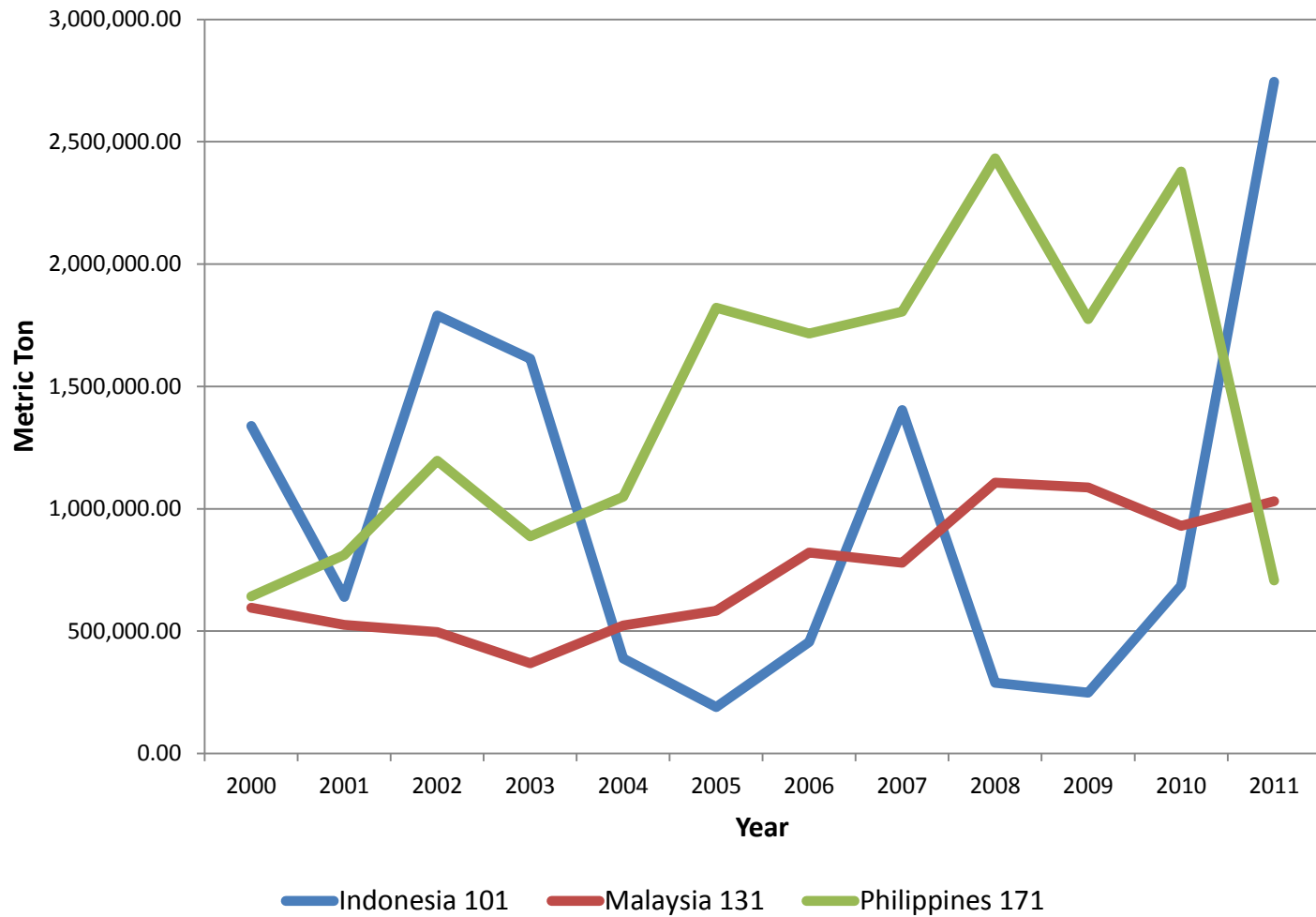
- ❖ Bello (2005) - Ensuring Food Security via ASEAN Integration (focused on trade in rice and maize)
- ❖ 2<sup>nd</sup> ASEAN Rice Trade Forum: Rice Trade and Self Sufficiency in ASEAN (2013) – still focus on what Governments can and should do.

However:

*‘International Cooperation is far too important to be left to Governments alone’* ~ Willy Brandt

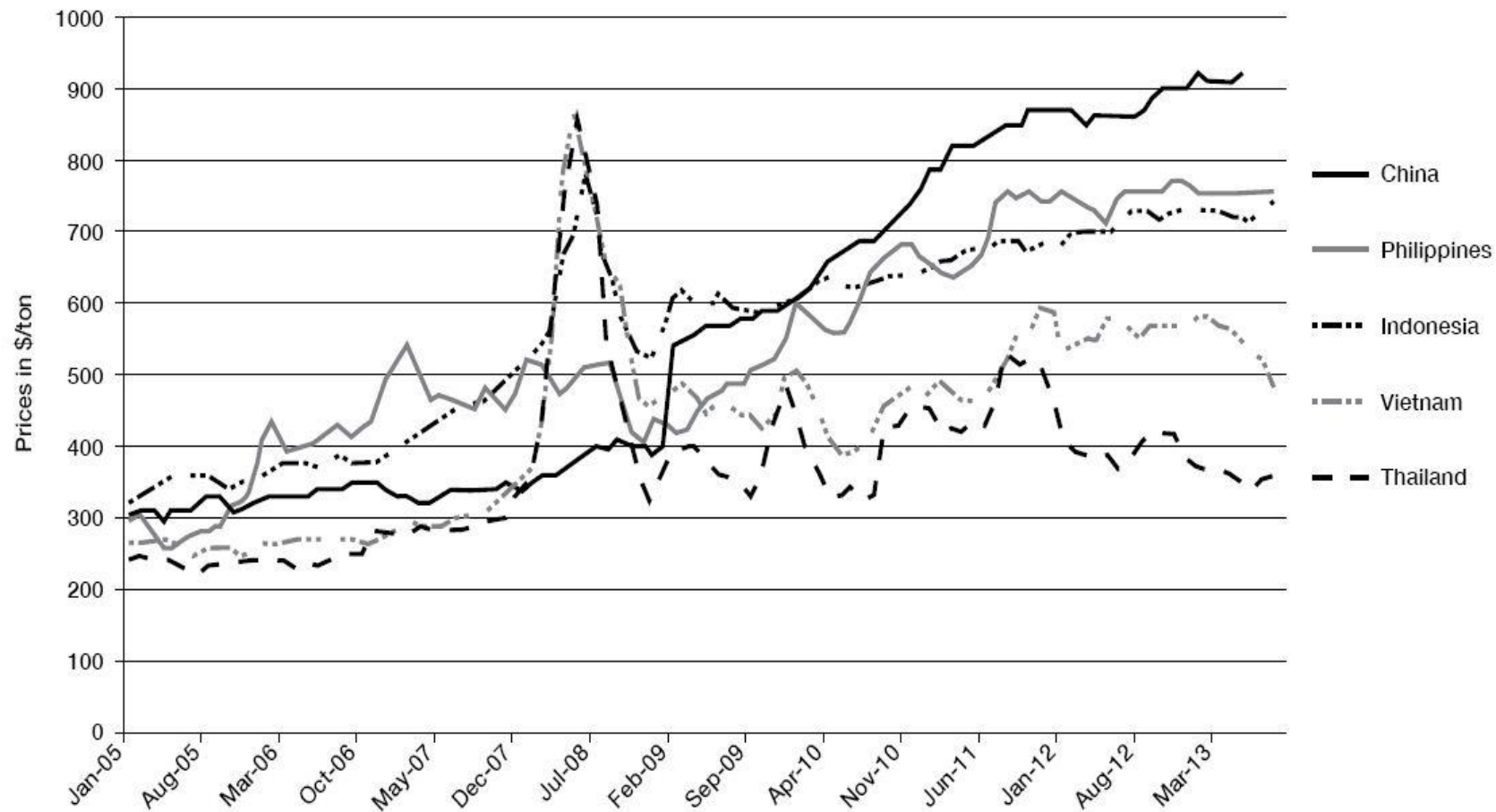
- ❖ One of the **key role** of private sector (on it’s own or through Public-Private Partnership) is to **develop, manage and orchestrate agri-food supply chains & regional trading networks** towards promoting Food Market and Trade and ultimately national and **ASEAN Food Security**

## Rice Imports by Indonesia, Malaysia, and Philippines



Source: FAO STAT

## Average wholesale prices of rice in selected countries, \$/ton



Source: FAO GIEWS.

## MALAYSIAN RICE SECTOR AND POLICY

- Area under rice – 415,000 ha (>50% double cropped) Vs >4.5 million ha under oil palm, 1.2 million ha under rubber - **Comparative advantage in tree crops** (no deltas or wide alluvial plains)
- Contribution **to GDP** <1% (0.7% in 1988, 0.2% in 2010)
- Annual **imports** 900K – 1.2 million MT (**<3% of globally traded rice**)
- Always elected to be **net importer of rice** (65 to 90% SSL)
- Disproportionate intervention/support – ‘**political crop**’- more **interventionist** after 2008 food crisis
- **Production-centric, Peninsular Malaysia-centric, & overt reliance on subsidies**
- Need **more flexible approach** to **Sabah** (30% self-sufficient) and **Sarawak** (50% self-sufficient) because of their **significantly different natural endowment** and **Institutional Framework** – lower cropping intensity.

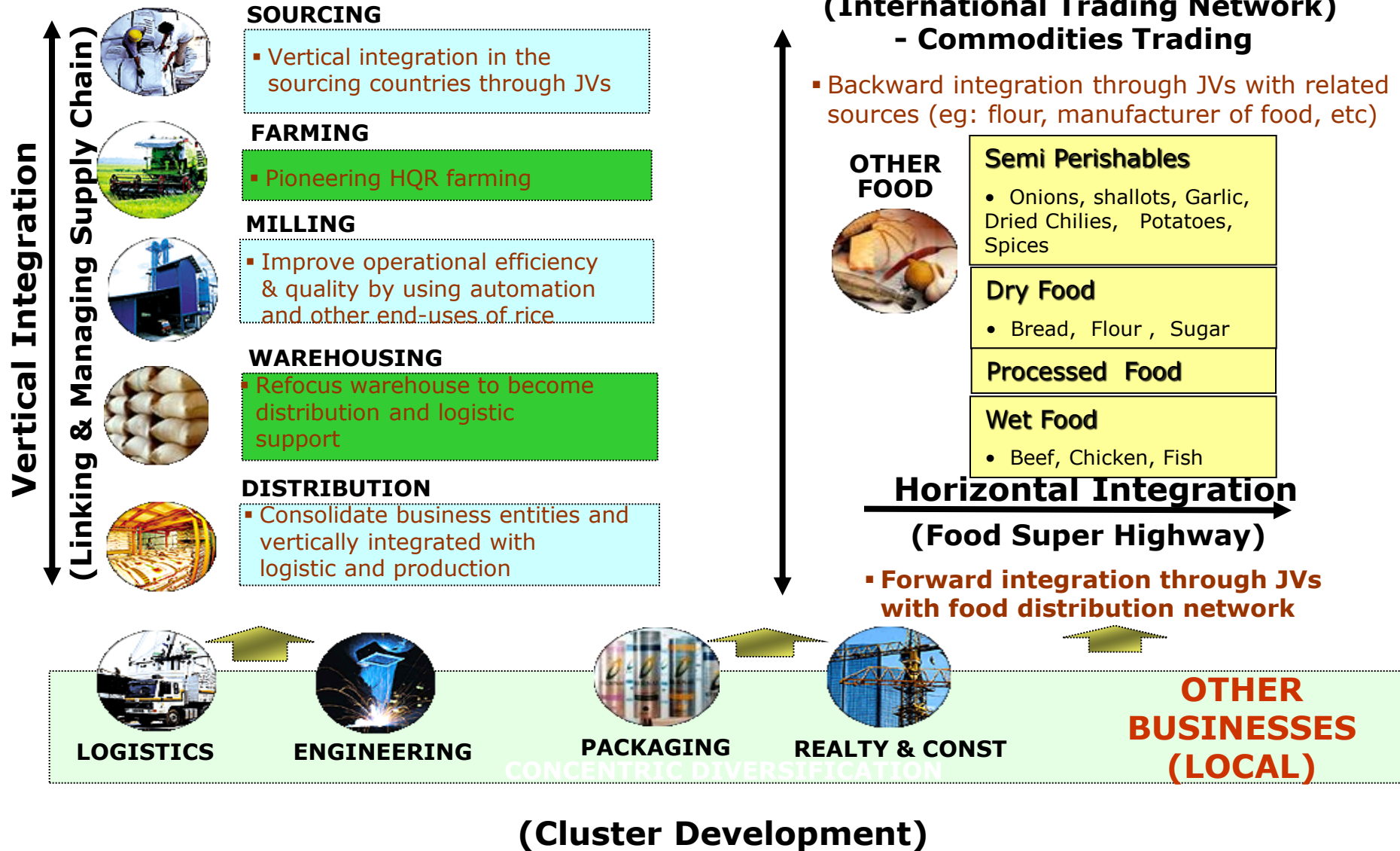


# MALAYSIAN RICE POLICY

## Rice Policy – Historical Perspective:

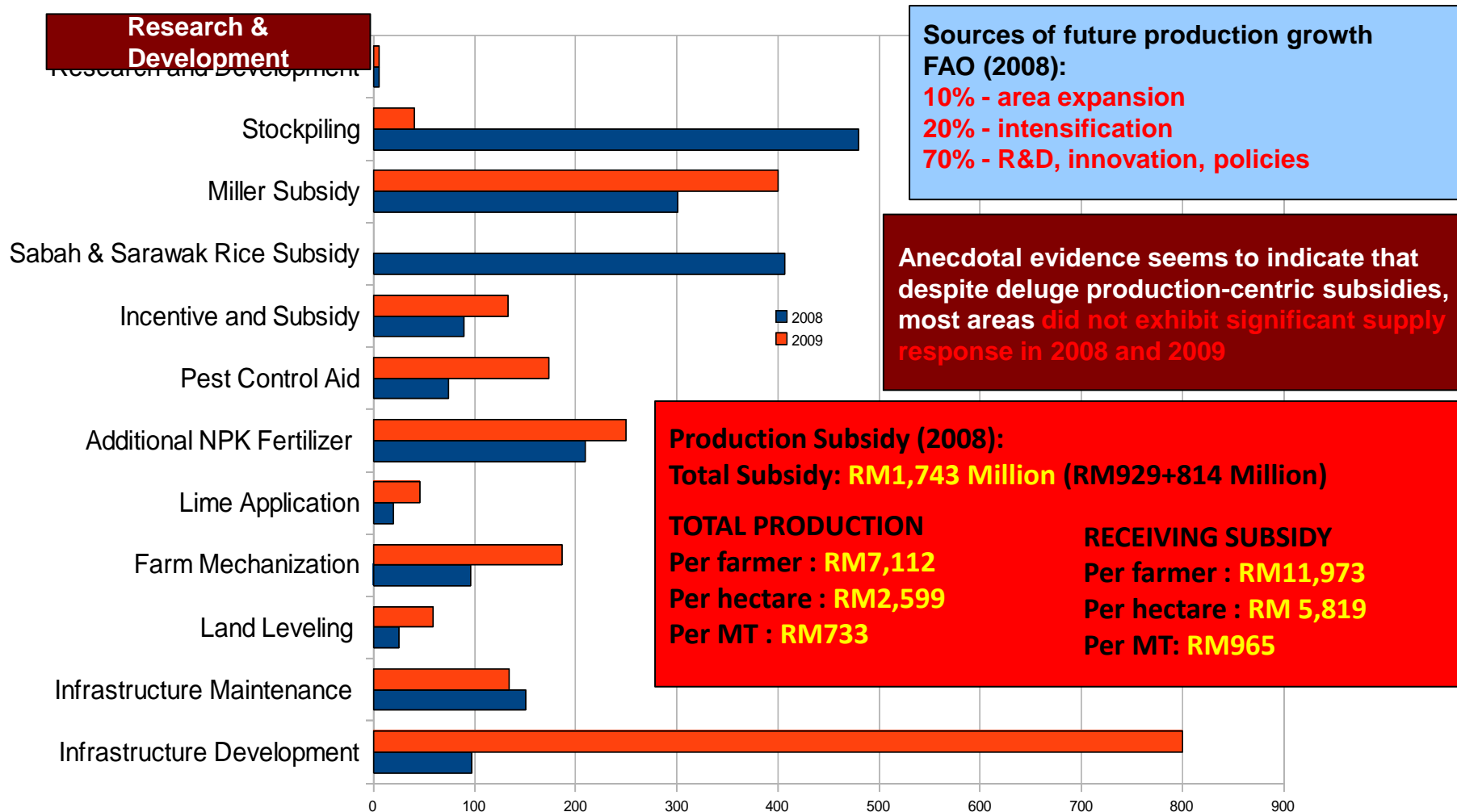
- 3 main objectives – ensuring food security; raising farm income & productivity; ensuring rice supply at fair & stable prices
- LPN established 1972, sole importer in 1973, corporatised as Bernas in 1994, privatised BERNAS in 1996 (market liberalisation), listed KLSE in 1997 – sole-importer status retained until January 2011, in return for performing set of ‘duties’ & ‘social obligations’ as per Privatisation Agreement
- Production-centric & balancing producers’ and consumers’ interests

# BERNAS' Experience



# MALAYSIA – National Food Security 2008 & 2009 at what cost?

(budget – in RM million)



**Total budget : 2008 – 1,954.95    2009 - 2,280.00**

# INDONESIAN RICE POLICY – NOTABLE DEVELOPMENTS

- New Food Law 2012 – emphasized **local food availability and food sovereignty** – but now policy of **self-sufficiency** defined as ‘at least 90% self sufficiency allowing for imports of up to 10%
- Continuation of subsidies – especially **input subsidies** - seeds, fertilizer; also **credit**
- Food subsidy for the poor (**Raskin**)
- Piloting **crop insurance** – subsidy of 80% of premium
- **Price Stabilization** using Government Purchase Price (GPP) for Government procurement coupled with operation of **national rice stockpile/reserve** (which varied between 1.5 and 3.3 million MT over last 10 years).

# OPTIONS AND IMPLICATIONS FOR PHILIPPINES

## Considerations:

- In many important ways, **mired in the food security mindset of the 1970s** despite the unfolding realities (and opportunities) of the 2010s – **rice-centric, production-centric, public-sector-centric, and nation-centric** - dubious distinction of continuing to pursue **100% self sufficiency** relentlessly
- Consider the options and implications (especially benefits) of moving away from:
  - a) Rice-centricity;
  - b) Production-centricity;
  - c) Public sector-centricity; and
  - d) Nation-centricity (self-sufficiency instead of self-reliance) in the wake of AEC 2015 and other regional trade arrangements

## **RICE-CENTRIC despite:**

### Domestic Resource Cost and Net Social Profitability of Selected Agricultural Production Activities in the Philippines

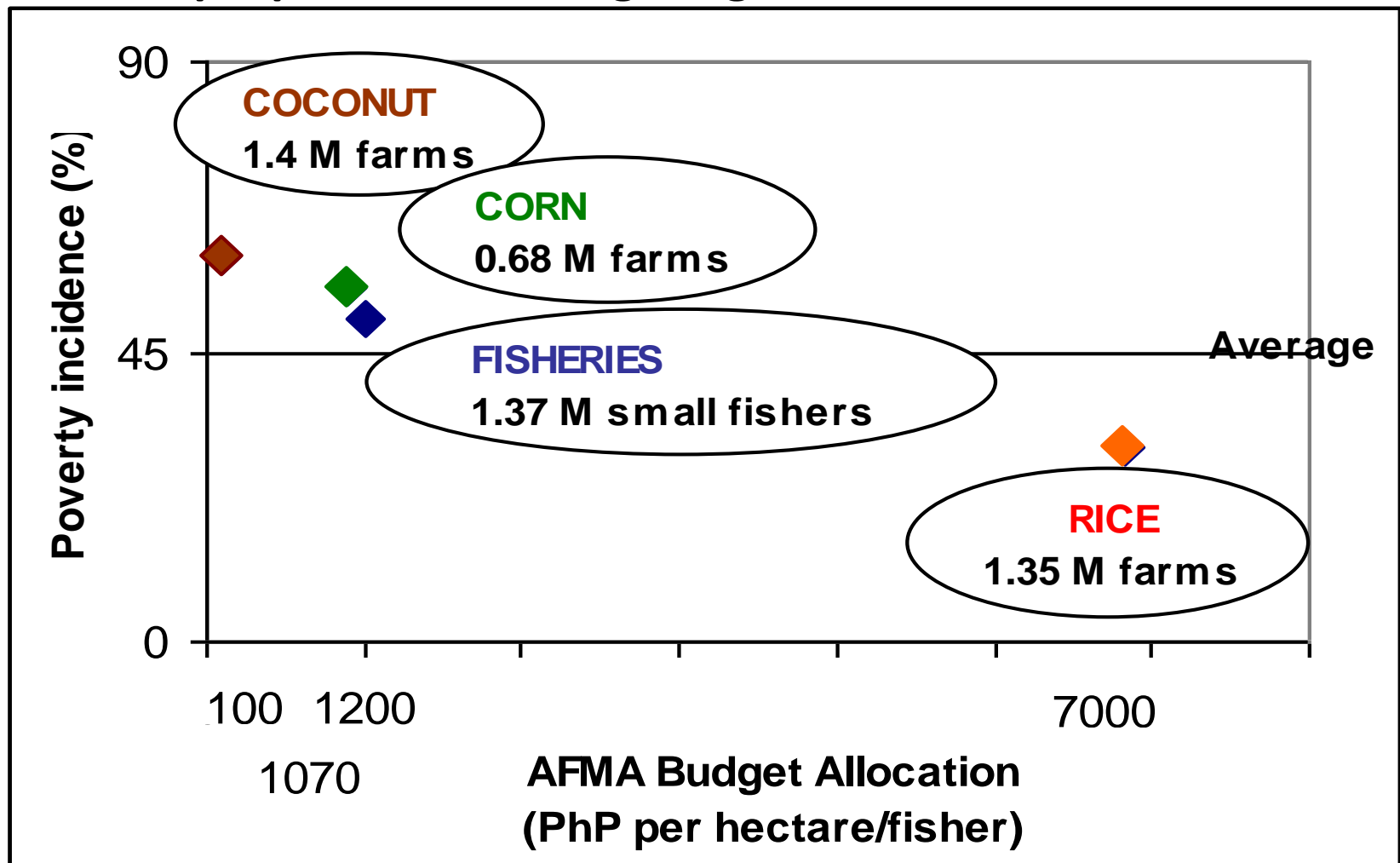
<b>Commodity</b>	<b>DRC</b>	<b>NSP**</b>
<b>Banana (cavendish)</b>	0.86	0.14
<b>Broilers</b>	0.51	0.49
<b>Coconut</b>	0.70	0.30
<b>Hogs</b>	1.08	-0.08
<b>Mango*</b>	0.41	0.59
<b>Milkfish</b>	0.32	0.68
<b>Pineapple*</b>	0.19	0.81
<b>Rice</b>	2.60	-1.60
<b>Sugarcane</b>	0.78	0.22
<b>White corn</b>	1.33	-0.33
<b>Yellow Corn</b>	0.92	0.08

\* At farm gate; otherwise at wholesale

\*\* In proportion to net foreign exchange earned or saved

Source: Gergely (2010) for the DRC; author's (Habito et al) computation for NSP

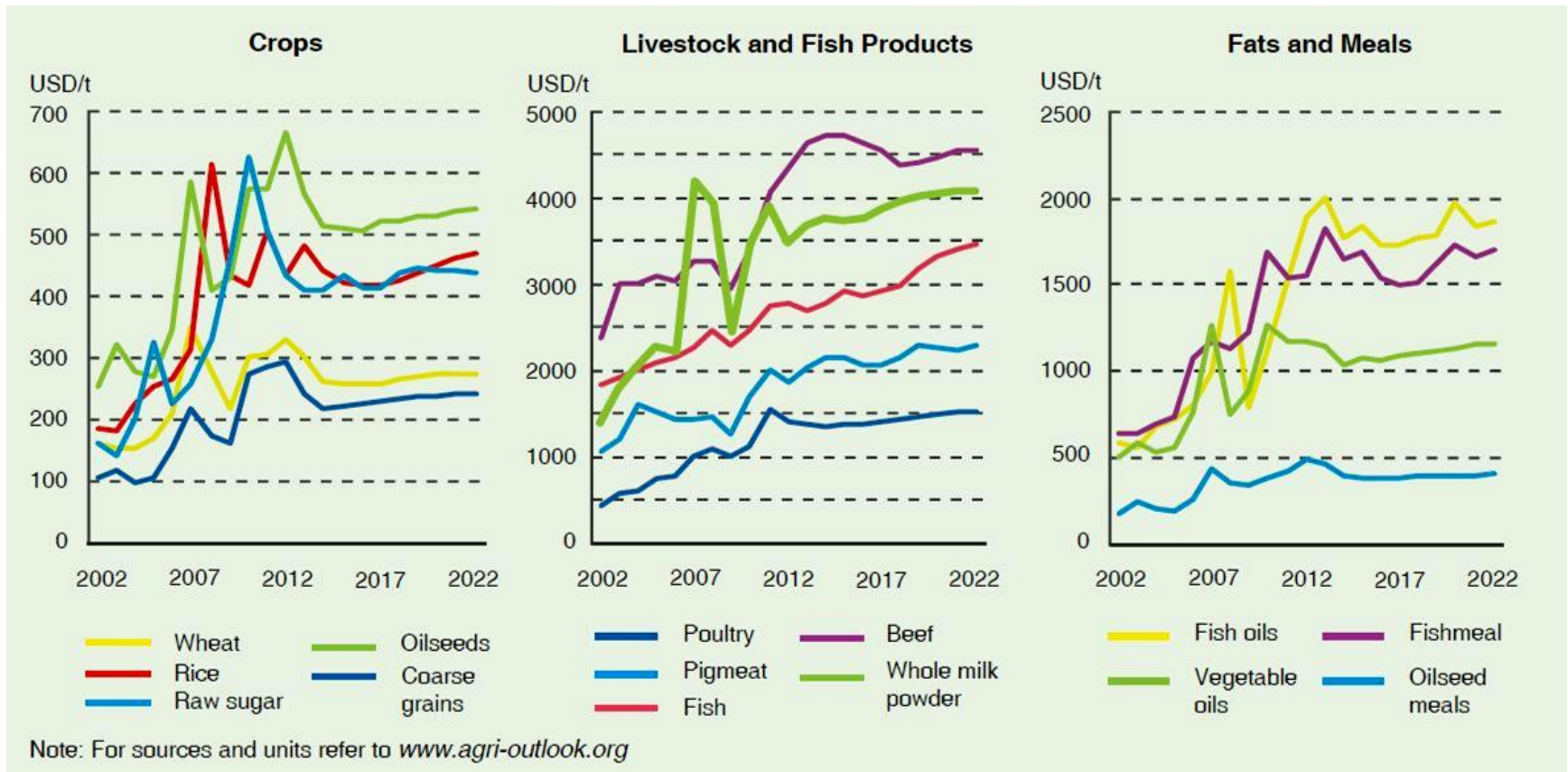
## Disproportionate budgeting



Source: World Bank (2007) – Philippines: Agriculture Public Expenditure Review,

2002 Ag Census – coconut pltd area – 3.3 mil ha (34%) cf rice's 2.5 mil ha (25%)  
- 70% allocation went to rice which only accounted for 16% value of total agric output)

## Price trends for agriculture and fish commodities to 2022 (nominal)



Source: OECD-FAO Agriculture Outlook 2013-2022

Wailes (2013) – prices 80% probability range USD360 to USD500/MT to 2022

Price trends serve as guide for **investments** and putting in **hard and soft infrastructure** for the different subsectors. Need to build in **flexibility** – flexible specialization. **Oilseeds, meat and fish more favourable** than for rice. So for rice need to target markets and move to higher quality rice. Recall '**moving up the value ladder**'.



- Continuing **over-emphasis** on increasing the productivity of **rice at farm level** – ‘**necessary but insufficient**’ . Many regional successes in dynamic rural development stems from **rural households ‘climbing the value ladder’** – from **low quality rice to high quality rice, to fish, vegetables, fruits and livestock** – all of which are more **employment creating** and pay up to **10 times more income per hectare and per labour day** than common quality rice.
- Given the **dominance of rice**, however, such efforts should be coupled with **vertical diversification** along rice and supply chain - focusing on **higher value end-uses** and well as **intercropping** (Rice++ strategy). This horizontal and vertical diversification should be a **market driven desired outcome**, with **Government as enabler** rather than past practice of **Governments ‘picking winners’** and subsidizing its development.

Value Adding

## Agriculture (Rice)++

Broaden Economic  
Functions  
along the Value Chain

2<sup>nd</sup> Plus

Productivity  
Enhancement

1<sup>st</sup> Plus

- Seeds
- Irrigation
- Fertilizer
- Mechanization
- Credit, agro-support services

Production  
segment

Source: Wong, 2013

R&D, **Certified Seed**, Exotic/**High Value varieties**, green inputs, crop, livestock, fisheries-based farming system (including house lots)

Farming

Innovative **Post-harvest handling**, higher value end-use(s), **branding**, packaging, food safety, traceability, **targeted markets**

Functions  
(Value  
Chain)

n.b. Adapted from Malaysian Second Industrial Master Plan – Manufacturing ++

## PRODUCTION CENTRIC

### COMPONENTS OF RICE SELF-SUFFICIENCY PLAN

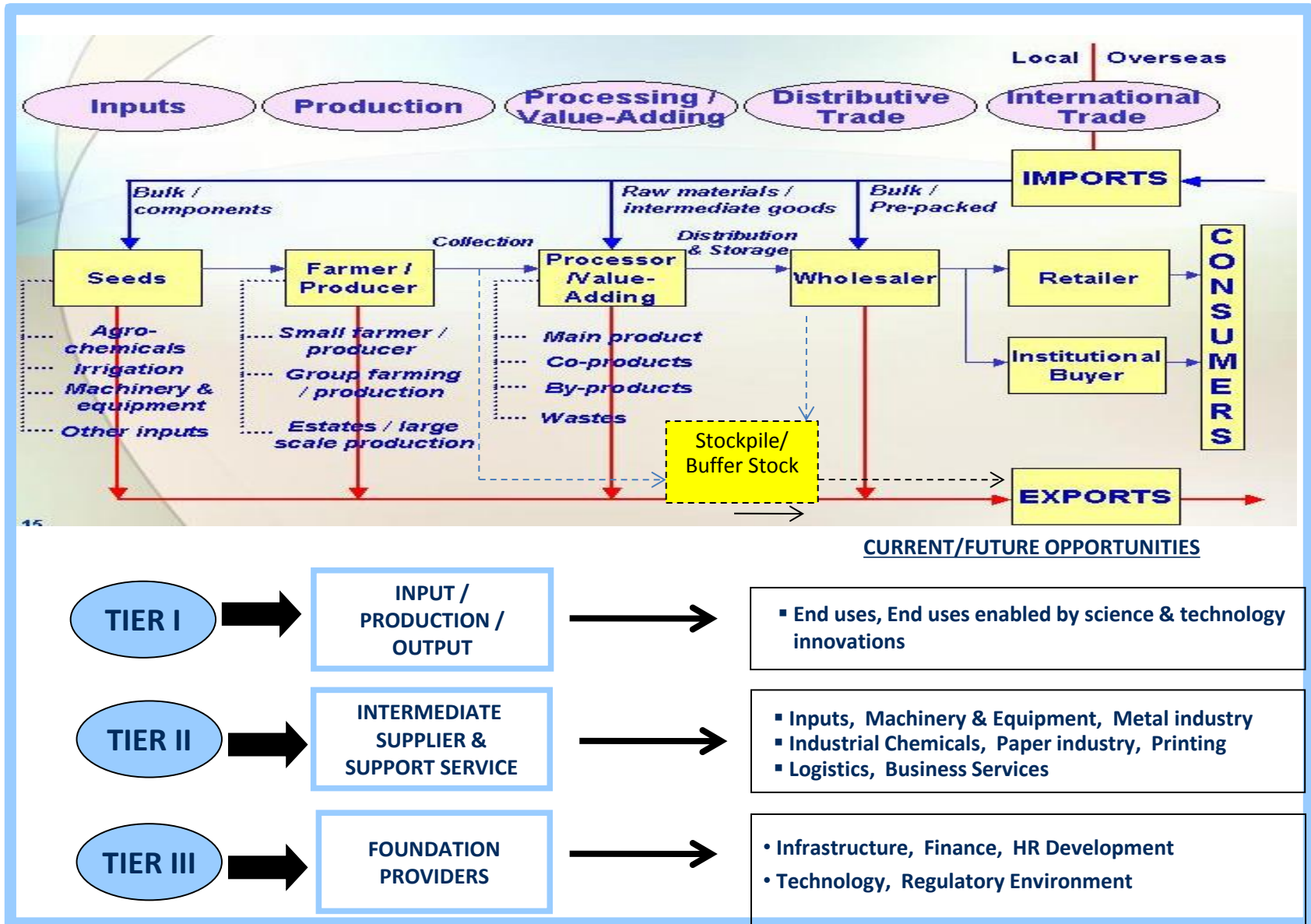
Program Component	Cost (in bln. pesos)	Percent
Irrigation	97.47	68.65
Research and Extension	17.71	12.47
Post harvest facilities	18.53	13.05
Others	8.27	5.82
Total	141.98	100.00

## Sources of Incremental Rice Production (in Metric Tons of Palay)

<b>Program Intervention</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
<b>1) Increase in Area Harvested</b>						
<b>a) NIA Investments</b>	385,349	244,439	296,775	301,117	326,690	318,142
<b>b) BSWM Investments</b>	18,640	11,931	14,012	11,751	12,435	13,755
<b>c) Upland Rice Devt Program</b>	7,667	7,667	7,667	7,667	7,667	7,667
<b>1) Improved Yield due to Dependable Water Source</b>	232,947	179,079	217,247	226,708	225,292	175,519
<b>3) RD &amp; E (Seed &amp; ICM)</b>	139,725	259,950	389,100	352,875	360,225	360,225
<b>4) Farm Mechanization</b>	19,200	36,798	37,115	30,735	31,657	32,606
<b>5) Postharvest Loss Reduction</b>	7,114	84,668	93,135	30,735	31,657	32,606
<b>6) Organic Fertilizer</b>	0	27,500	77,500	155,000	200,000	200,000
<b>Target Incremental Production</b>	1,217,967	1,746,059	1,919,934	633,725	652,630	672,384
<b>Alternative Incremental Production From Interventions</b>	810,641	852,032	1,132,551	1,116,587	1,195,622	1,140,519

Source: Department of Agriculture

# HOLISTIC SUPPLY CHAIN MANAGEMENT CUM CLUSTER DEVELOPMENT APPROACH – Economic Activities Along Supply Chain: basis for Agriculture as ‘Engine of Growth’



Balisacan et al (2011) , *‘The study shows, however, that not recognizing **agriculture’s crucial linkages** with the other sectors of the economy can **seriously understate the relative importance of agriculture in output, employment, and poverty reduction**. The full range of economic activities in the agri-supply chains – from primary agriculture to agri-processing and trading - account for about **a third of GDP and one-half of total employment**’*

[“The role of direct and indirect channels with a focus on the labor market”].

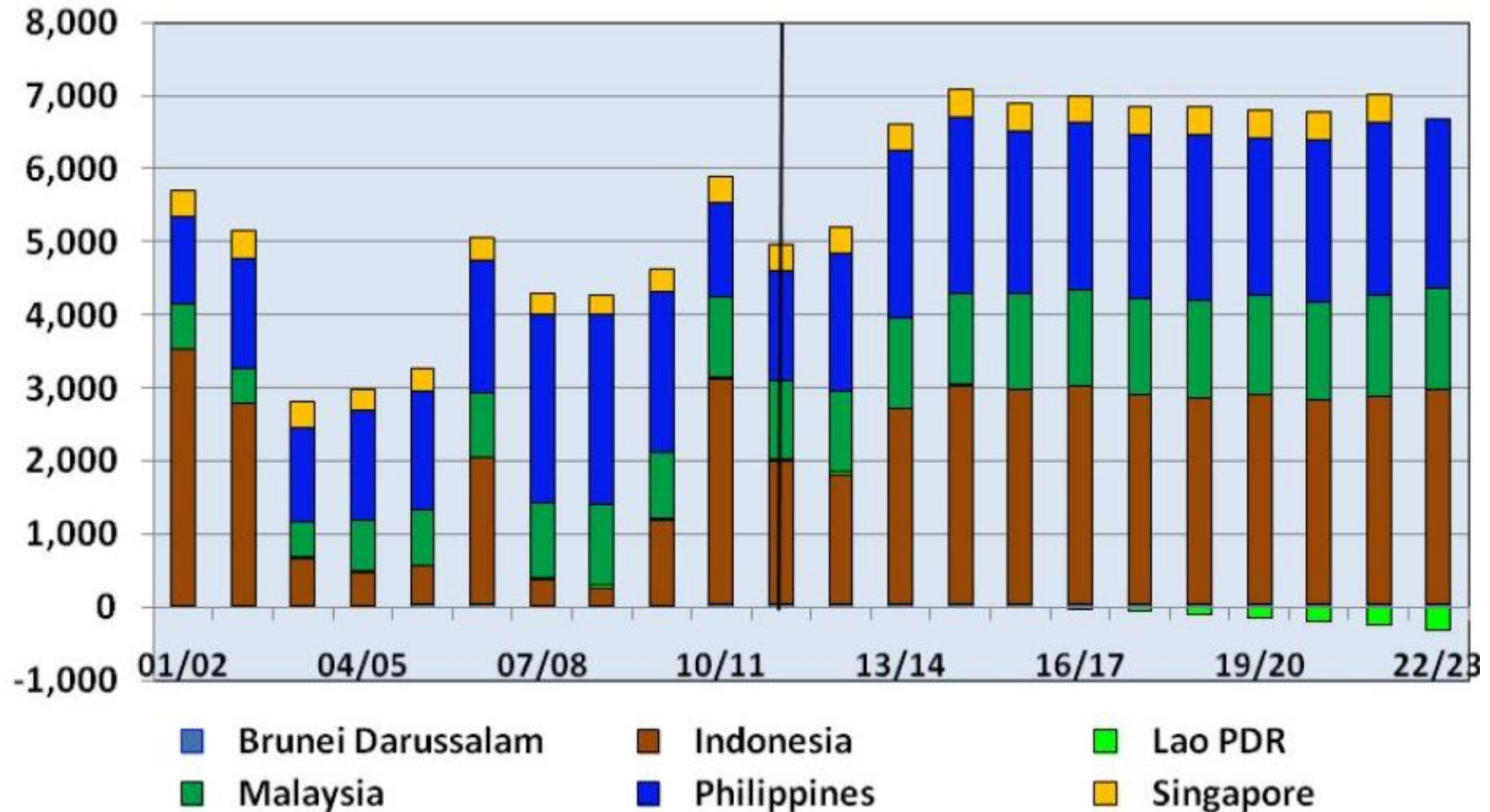
## PUBLIC SECTOR-CENTRIC:

### *Role of the Private Sector in Strengthening Supply Chains*

- Myanmar - **significant progress in improving its supply chains, particularly rice**. - new 'institutional' structure of **Public-Private–Partnership** recently, where private sector often in leading role with close cooperation of MOAI and MOC.
- Both **MAPCO and Rice Specialization Companies**, members of MRF, involved at all levels of the rice supply chain, from **certified seeds** of selected varieties for targetted markets, to **contract farming** - providing **seeds, fertilizers and mechanization services** - also invested in **modern mills** with value adding equipment – resulting in **branded packed rice** being sold by variety in supermarket chains and even traditional retail markets.
- Two notable JVs, one between a French company, **Siacom, with XY Trading** for parboiled rice and another jo between **MAPCO and Mitsui** of Japan in a large integrated rice complex producing both white and parboiled rice, rice-bran oil, and vermicelli as well as power generation using husk.
- To overcome the problem of **adulterated or fake fertilizers**, MRF, through MAPCO have been **importing fertilizers** for its own members as well as contract farmers.
- MRF is working closely with IRRI and ADB on the **misuse of pesticides** and its impact on the rice industry and farmers' livelihoods by the synchronized and repeated Brown Hopper outbreaks in countries like Thailand and Indonesia. They are also **promoting ecological engineering practices** in collaboration with IRRI and MOAI.
- This collaborative P-P-P modality is being applied at the **macro, meso and micro levels**

## NATION-CENTRIC:

ASEAN Rice Net Importers, 2001-2022



Source: Wailes (2013) using Arkansas Global Rice Model (AGRM) and RICEFLOW Model



# Rice Surplus in ASEAN and ASEAN+3

## Rice production and consumption in ASEAN

- ✓ Production 115 million ton
- ✓ Consumption 100 million ton
- ✓ Regional surplus 15 million ton
- ✓ Regional import 2.8 million ton

## Regional export 15 million ton

- Major exporters
  - ✓ Vietnam 6.8 million ton
  - ✓ Thailand 6.7 million ton
  - ✓ Cambodia and Myanmar 2.1 mil.ton

## ASEAN+3

- ✓ Production 270 million ton
- ✓ Consumption 257 million ton
- ✓ Regional surplus **13 million ton**
- ✓ Regional import 7 million ton

## Regional import 2.8 mil.ton

- **Major importers:**
  - ✓ Philippines 1.1 million ton
  - ✓ Malaysia 0.9 million ton
  - ✓ Indonesia 0.65 million ton
  - ✓ Singapore 0.16 million ton

## REGIONAL RICE INTEGRATION - HAPPENING

- **Dynamics** of Global and regional **rice markets** – coupled with **ASEAN and GMS connectivity** – increasing involvement of private sector in treating ASEAN as a production and market base ahead of 2015.
- Productivity enhancement - along entire supply chain – **beyond efficiency and cost of production**, but also cost of **milling/processing (electricity), transportation, export processing, financing**.
- Significant cross-investments **in mills** and processing - **pivotal role in transforming upstream and downstream segments** – development of comprehensive supply chains and trading networks - investments in **input supply, modern distributive trade** (especially supermarkets) – various forms of **contract farming** and modalities of **provision of agi-support services** and foundation for **enhancing productivity and international trade**.

# Notable Examples of Cross-Border Investments

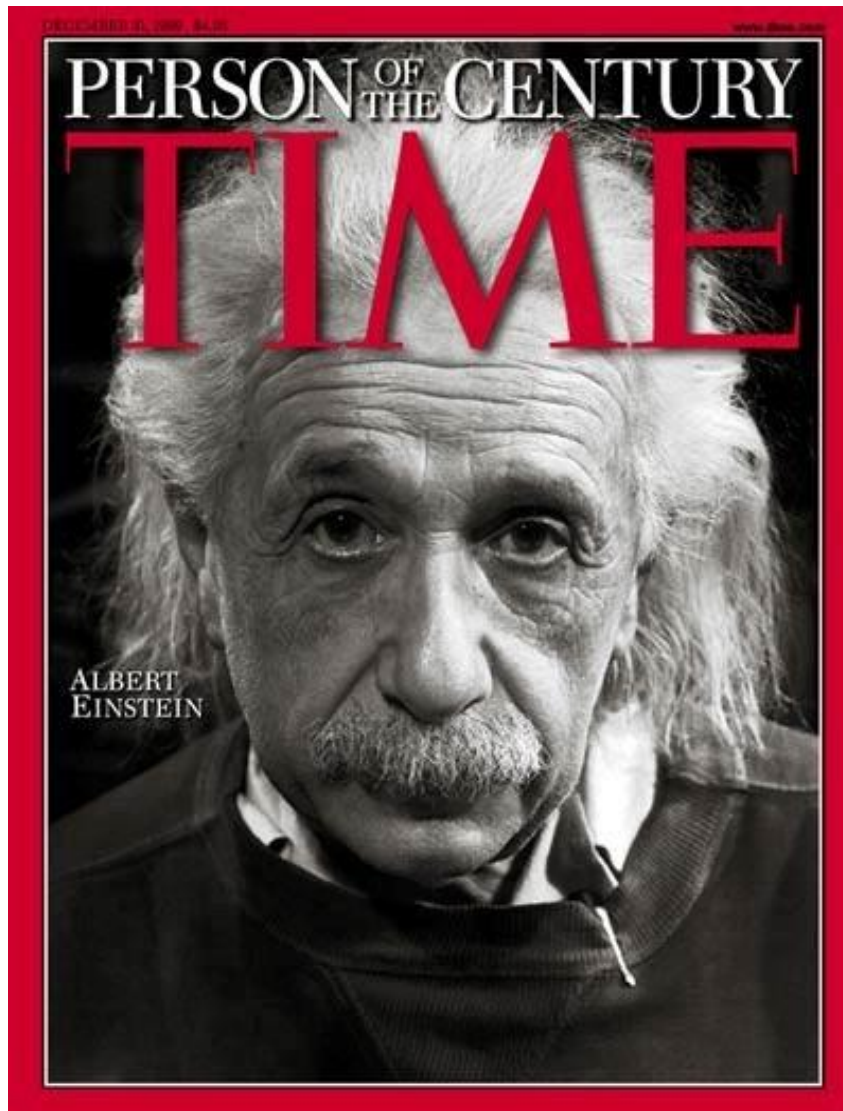
**Viet Nam** – 2000s – Golden Resources (Hong Kong); Kitoku  
(Japan) JV with Angimex in An Giang province  
2007 – Vinafood JV with Iraqi Company in Cantho;  
2012 – Vinafood JV with Singapore company in Dong Thap

**Cambodia** – QQ Rice – JV with Malaysian Co; CCAD – JV with  
Sinograin & Yunnan Pan Asia Ag Cooperation &  
Development Co; Long Grain Co – JV with UK and Indian  
investors; Batambang Rice Investment Co (BRIC) – JV with  
Singapore investor; Crystal Rice Kampuchae – JV with Asia  
Golden Rice (Thai) in Kampot

**Lao PDR** – Lao World (Thai); Sengarthit (French)

**Myanmar** – Myanmar Japan Rice Industry Co Ltd – JV between MAPCO  
and Mitsui – 4 Integrated Rice Processing Centers; JV Siacom  
(French) with XY Trading Co Ltd in Ayeyarwaddy.

**Philippines is missing out!**



“The **significant problems** we face today **cannot be solved** at the **same level of thinking** we were at when we **created them**”

*Albert Einstein*