

# Farm Integration, Intensification and Diversification in the Philippines: the Mindanao Experience

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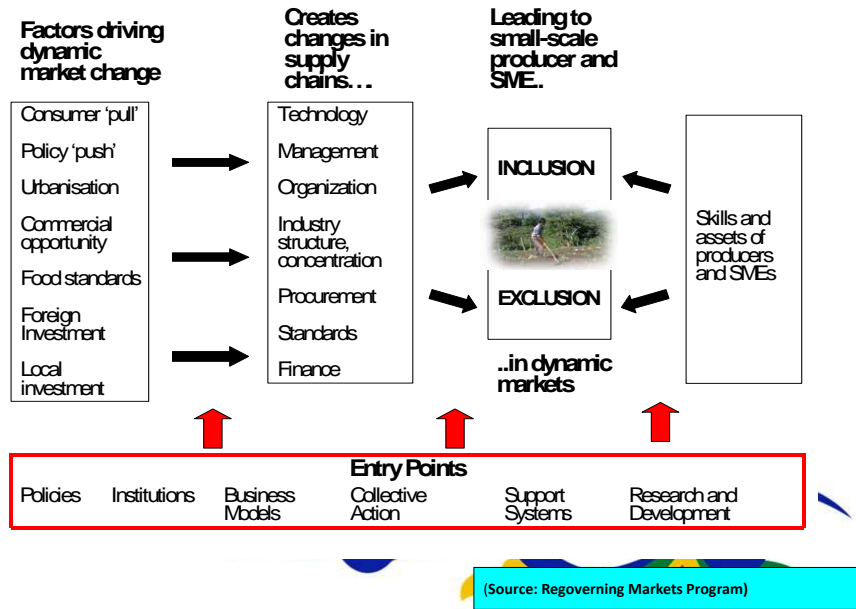


## Presentation

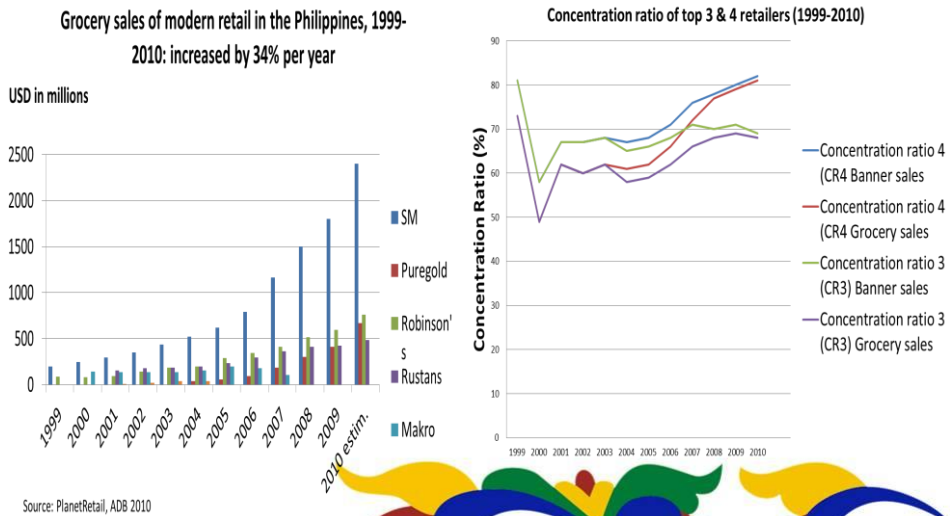
- Some key trends in agribusiness: implications on inclusive growth
- Strategies to address these trends: Farm integration, intensification and diversification
- Some evidence on the performance of these strategies: Mindanao experience
- Conclusions
- Options for development



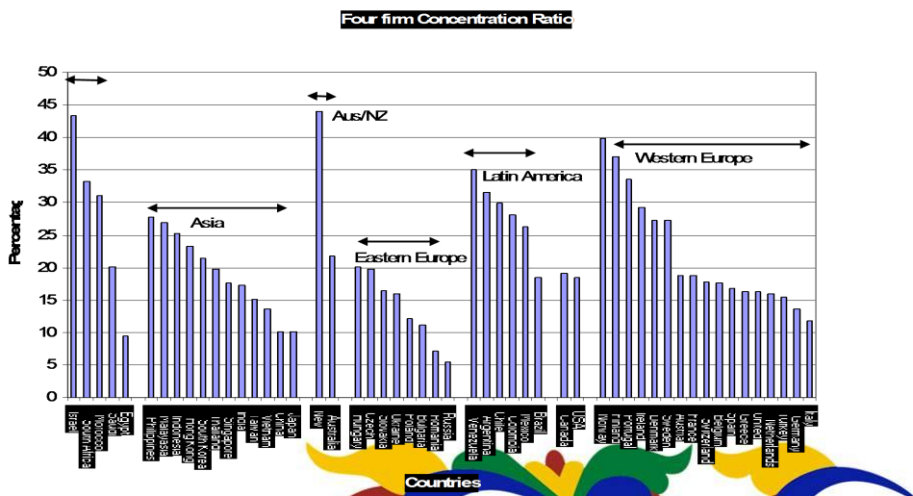
### Changes in the agribusiness system: implications to small producers & inclusive development



### Retail Food Sector: Concentrating

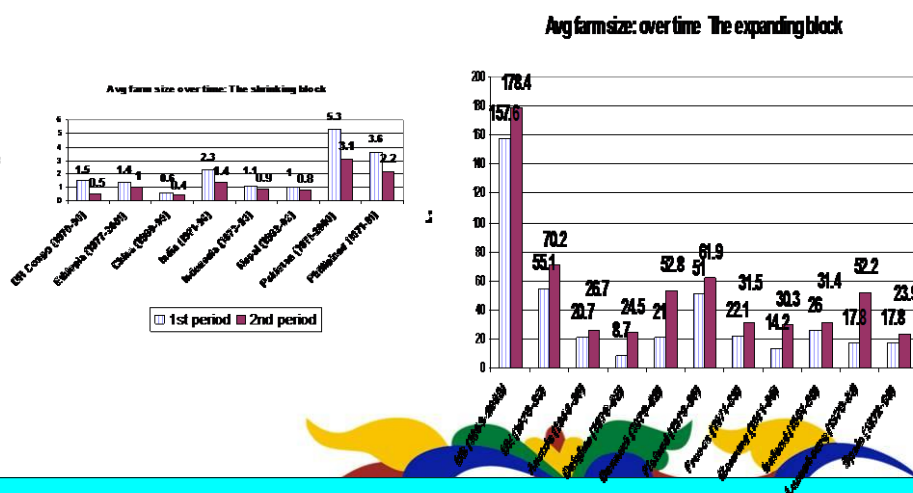


### Food Processing is concentrated and vertically integrated



(source: Roy, 2006)

### Fragmenting farms in less developed countries but consolidating in developed countries



(source: Roy, 2006)

# CLIMATE CHANGE and food security

UN Climate Summit Takes Steps to Ensure  
Food Security for 9 Billion People by 2050



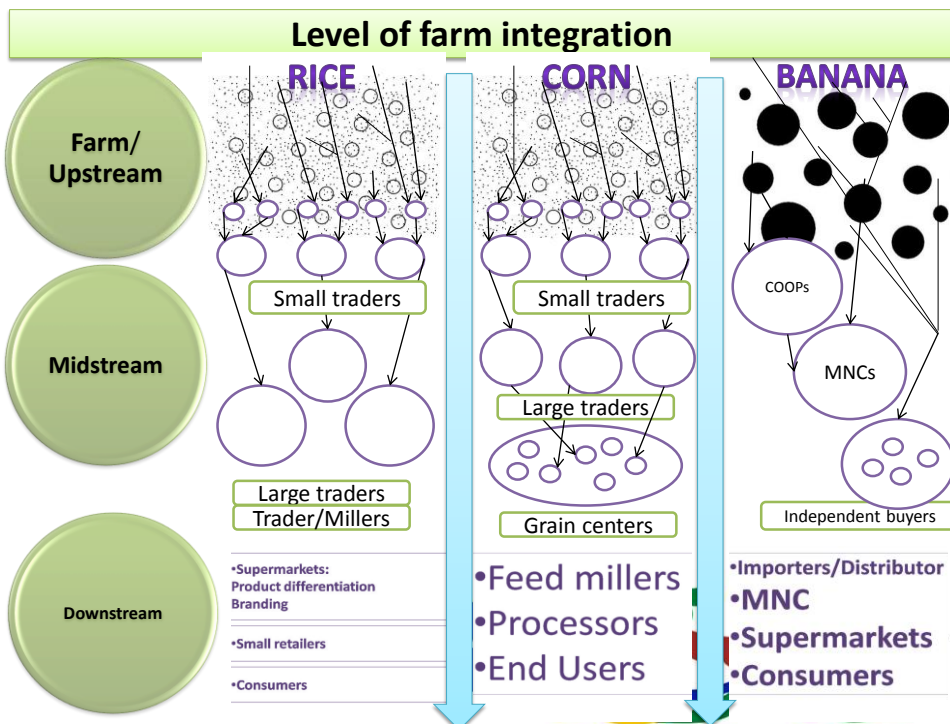
*Photo: N Palmer (CIAT)*

Source: <http://foodtank.com/news/2014/10/un-climate-summit-takes-steps-to-ensure-food-security-for-9-billion-people>

## Implications of trends to small producers and inclusive development

- Small producers (farmers, microenterprises) are the most disadvantaged group (least bargaining power) in the agribusiness chain
- Difficult to consolidate and coordinate – too many, fragmented, remote and limited connectivity due to poor infrastructure
- With climate change, production risks are on the producers even under contractual arrangements
- STRATEGIES: INTEGRATE (VERTICAL AND HORIZONTAL), INTENSIFY AND DIVERSITY
- HOW DO THESE STRATEGIES WORK IN MINDANAO?

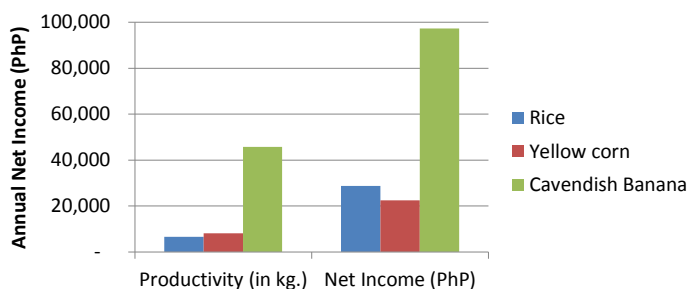
## Farm Integration-vertical and horizontal integration, consolidation, clustering



## Profitability of rice, yellow corn and cavendish banana

Crop	Rice	Yellow corn	Cavendish Banana
Productivity (in kg.)	6,547	8,139	45,682
Annual Net Income (PhP)	28,692*	22,463	97,303

\*Including personal share



Source: Survey result from a World Bank Study 2013: Cavendish Banana (N=200), Rice (N=300), Yellow corn (N=200)

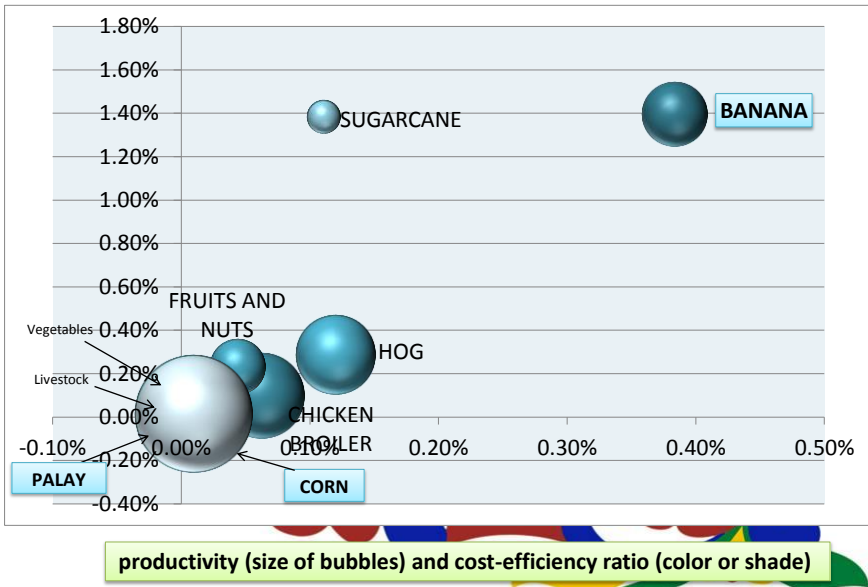


## Competitiveness index: agricultural commodity level

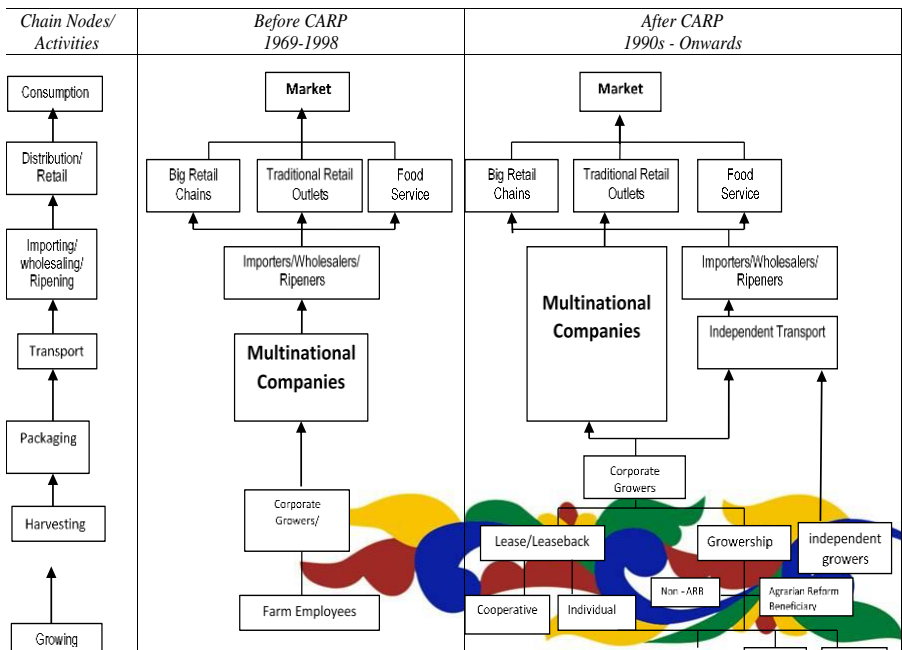
Competitiveness Indicators	Indicators (Internal Factors)	Source of Data
Profitability	Profit	NSO census of establishments (2000, 2006,2008)
Employment Generation	Number of Employees	NSO census of establishments (2000, 2006,2008)
Value Creation	Value Added	NSO census of establishments (2000, 2006,2008)
Innovation	Gross Additions to fixed assets	NSO census of establishments (2000, 2006,2008)
Cost Efficiency	Revenue/cost	NSO census of establishments (2000, 2006,2008)
Labor Productivity	Gross value added/no. of employees	NSO census of establishments (2000, 2006,2008)
Linkage to the economy (Forward & Backward)	Value of input and output (multipliers)	NSCB input-output matrix 2000 and 1994



Competitiveness performance of selected Philippines agricultural industries



Fragmenting farms FOR banana: INVESTMENTS IN INFRA, PRODUCER ORGANIZATIONS AND BUSINESS MODELS



## contract growers are profitable than non-contract growers due to higher price and productivity

	Contract	Non-contract
N=187	72%	28%
<b>Productivity (box/ha)</b>	<b>3,297</b>	<b>2,741</b>
Class A (box/ha)	2,884	2,208
% of Class A to total	87	81
<b>Production Cost (PhP/ha)</b>	<b>231,630</b>	<b>214,035</b>
<b>Postproduction Cost (PhP/ha)</b>	<b>47,131</b>	<b>53,036</b>
<b>Total Cost (PhP/ha)</b>	<b>278,761</b>	<b>267,071</b>
<b>Price (PhP/box)</b>		
Class A (PhP/box)	124.61	84.67
Class B and C/rejects (PhP/box)	54.56	32.27
<b>Rejects (PhP/ha)</b>	<b>8,571</b>	<b>5,144</b>
<b>Net Profit (PhP/ha)</b>	<b>106,487</b>	<b>(65,051)</b>



Source: Source: World Bank Growers' Survey 2013

## Integration and intensification lower cost per unit

Type of expense	Rice		Corn		Banana	
	Amount/kg.	% share to Retail price	Amount/kg.	% share to wholesale price	Amount/kg.	% share to CNF price
Production	8.77	23	7.18	48	6.09	20
<b>Logistics</b>	<b>3.12</b>	<b>8</b>	<b>2.52</b>	<b>17</b>	<b>1.21</b>	<b>3</b>
<i>Transport of inputs</i>	<i>0.14</i>	<i>0.4</i>	<i>0.04</i>	<i>0.3</i>	<i>0.02</i>	<i>0.1</i>
<i>harvester/thresher/sheller</i>	<i>2.89</i>	<i>7.6</i>	<i>1.5</i>	<i>10.0</i>	<i>0.18</i>	<i>0.6</i>
<i>losses during marketing</i>	<i>0.09</i>	<i>0.2</i>	<i>0.03</i>	<i>0.2</i>	<i>0.2</i>	
<i>drying</i>			<i>0.07</i>	<i>0.5</i>		
<i>Packing</i>					<i>0.34</i>	<i>1.1</i>
<i>transport farm-dryer-buyer</i>			<i>0.88</i>	<i>5.9</i>		
<i>Transport farm - packing house</i>					<i>0.47</i>	<i>1.5</i>
Total Cost	11.89	31	9.70	65	7.30	23



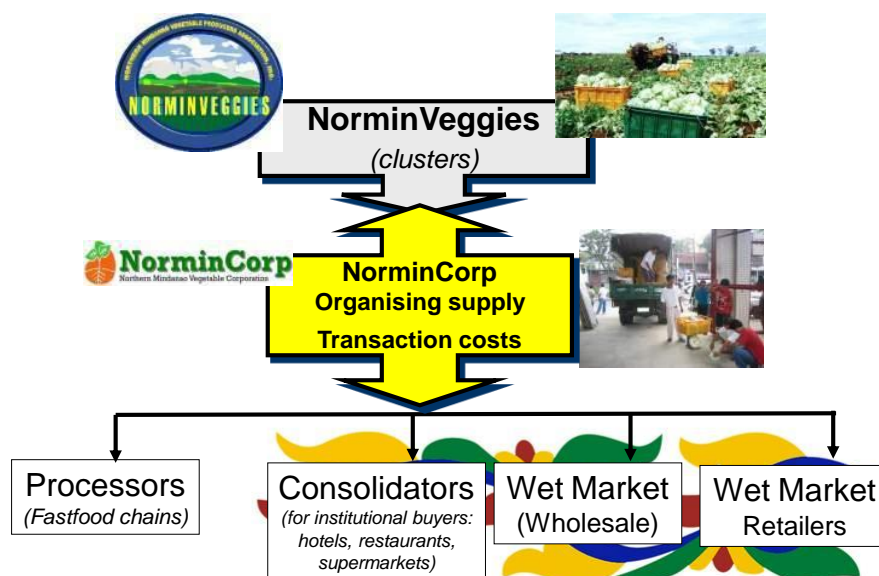


Clustering: 'HORIZONTAL INTEGRATION' IN VEGETABLES:  
access high value markets and increase profits

Product	Wet Market	Supermarket	Wet Market	Supermarket
	Sweet Pepper		Tomato	
Volume Sold	320	530	1,650	750
Farm Price (P/kg)	71.25	87.50	12.00	40.00
Cost (P/kg)				
Seeds	1.05	1.35	0.12	0.40
Fertilizer	4.33	5.56	0.29	0.95
Pesticide	6.77	8.69	0.30	1.00
Animal	0.00	0.00	0.00	0.00
Materials	0.82	1.06	0.27	0.88
Labor	4.26	5.46	0.79	2.60
Total Production Cost	17.24	22.12	1.77	5.83
Gross Margin	54.01	65.38	10.23	34.17
Marketing Cost	0.11	0.12	0.32	1.06
Transportation	1.27	1.37	0.40	1.32
Cluster Fee	3.56	4.38	0.60	2.00
Net Profit	49.07	59.52	8.91	29.79

Source: ACIAR 2012

**Doubly specialised intermediaries:**  
business-oriented *and* development-motivated



IMPACT OF CLUSTERING ON SMALL FARMERS: Crs-USDA FARM project in  
Mindanao 2012-2015

Indicator	Collective Marketing	Rice	Coffee	Cacao
Productivity*	Individual	4,267	1.4	1.28
	Cluster	4,269	2.6	2.12
	<i>% difference</i>	0.03	87	66
Production per farmer	Individual	4,991	847	189
	Cluster	5,543	1,307	440
	<i>% difference</i>	11	54	133
Price (per kilo)	Individual	16.79	79	98.0
	Cluster	16.25	98	105.3
	<i>% difference</i>	(3)	24	7
Production Cost per farmer (PhP)	Individual	18,120	3,909	2,907
	Cluster	24,623	5,648	6,410
	<i>% difference</i>	36	44	121
Marketing cost per farmer (PhP)	Individual	14,535	5,588	1,258
	Cluster	13,753	3,821	1,323
	<i>% difference</i>	(5)	(32)	5
Net Income per farmer (PhP)	Individual	26,027	12,654	3,070
	Cluster	5,048	29,120	8,701
	<i>% difference</i>	(81)	130	183



\*Rice (per ha.), Coffee (per tree), Cacao (Per tree), Vegetable (Per kg.)

Intensification-increasing efficiency  
(output per unit input), productivity



## Impact of Intensification strategies In rice

Farm characteristics	Midsayap		Mlang		Pikit		Lambayong		Average		% difference
	Productivity/ ha./yr	Net income/ha./yr.	Productivity/ ha./yr	Net income/ha./yr.	Productivity /ha./yr	Net income/ha./yr	Productivity /ha./yr	Net income/ha./yr	Productivity /ha./yr	Net income/ha./yr.	
Irrigated	6,370	26,981	7,278	37,259	5,661	27,501	7,018	36,086	6,582	31,957	63.69
Non-irrigated	1,647	(3,867)	6,117	19,936	5,605	21,787	6,529	40,237	4,975	19,523	
Mechanized	6,052	22,155	8,515	39,572	5,308	15,417	6,763	37,477	6,660	28,655	60.83
Mixed	6,209	27,722	6,820	32,641	6,502	31,286	7,040	34,165	6,643	31,454	
Non-mechanized					4,170	18,687			4,170	18,687	
Certified Seeds	6,882	36,693	7,854	41,510	7,275	34,057	6,946	40,835	7,239	38,274	52.54
Non Certified	6,016	20,375	6,112	25,007	5,370	20,929	6,977	34,054	6,119	25,091	
Organized	6,089	30,916	7,155	34,434	5,800	30,185	6,803	32,732	6,462	32,067	28.53
Non-organized	4,602	(474)	6,808	33,035	6,149	25,412	7,395	41,821	6,239	24,949	



**Irrigation improves profitability by 18% particularly for contract growers via increase in productivity and decrease in production costs**

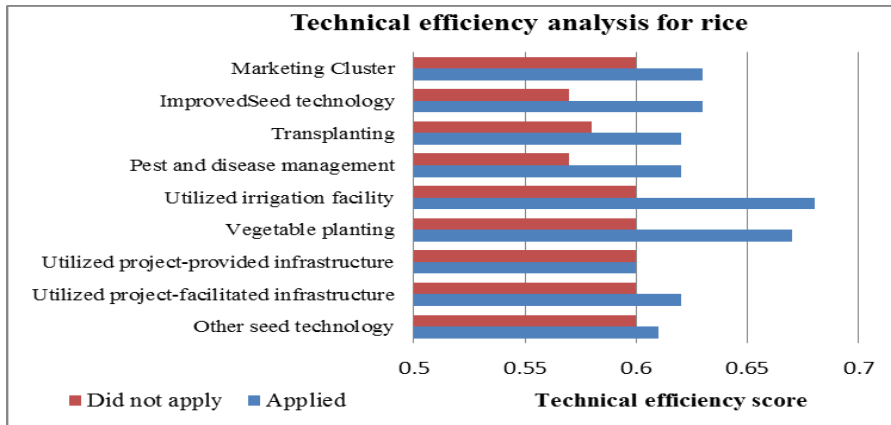
	Not irrigated	Irrigated	Total Contract Growers	% difference
Contract growers				
N	78	56	134	
<b>Productivity (box/ha)</b>	<b>3,244</b>	<b>3,370</b>	<b>3,297</b>	<b>4</b>
Class A (box/ha)	2,807	2,990	2,884	7
% of Class A to total	87	89	87	3
<b>Production Cost (PhP/ha)</b>	<b>237,130</b>	<b>223,969</b>	<b>231,630</b>	<b>-6</b>
<b>Postproduction Cost (PhP/ha)</b>	<b>42,172</b>	<b>54,039</b>	<b>47,131</b>	<b>28</b>
<b>Total Cost (PhP/ha)</b>	<b>279,302</b>	<b>278,008</b>	<b>278,761</b>	<b>-0.5</b>
<b>Price (PhP/box)</b>				
Class A (Php/box)	124.45	124.83	124.61	0.30
<b>Net Profit (PhP/ha)</b>	<b>98,967</b>	<b>116,961</b>	<b>106,487</b>	<b>18</b>

Source: Source: World Bank Growers' Survey 2013



Impact technology, extension services and infrastructure on rice efficiency:

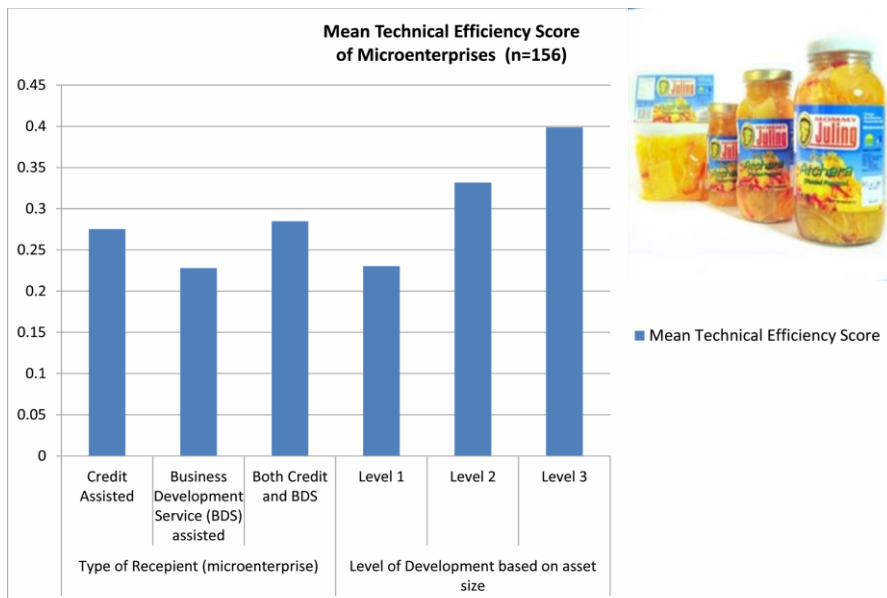
CRS-USDA Farm Project in Mindanao (2012-2015)



(N=236; SOURCE: CRS 2015)



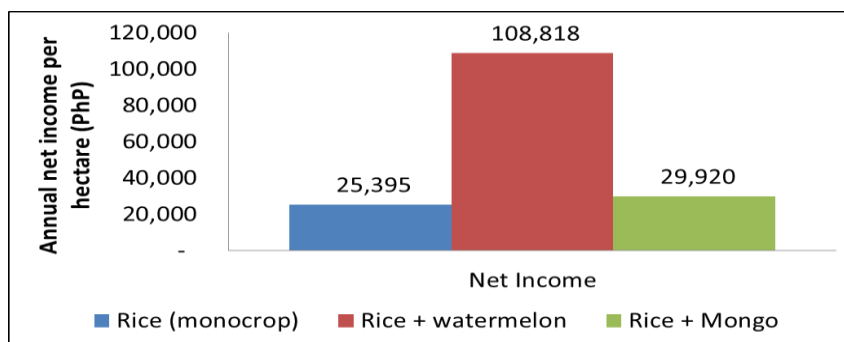
Credit not enough to improve efficiency of micro food processors, it must be combined with technical assistance



## Diversification -multiproduct



### Diversification in rice: it pays but

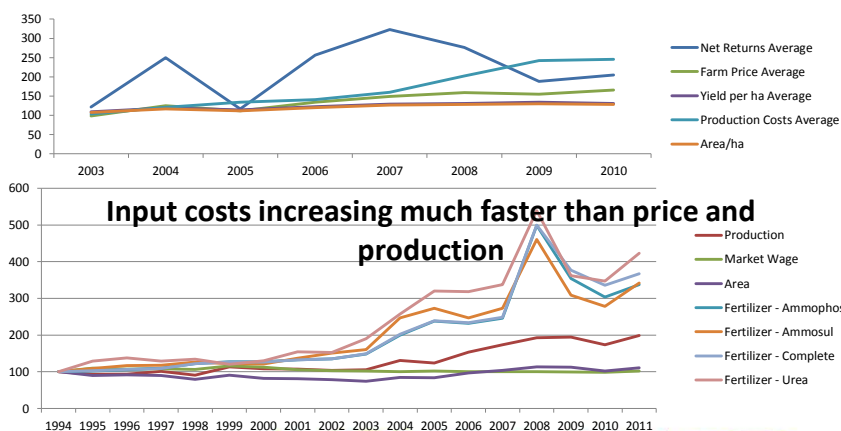


	Rice (monocrop)	Rice w/ intercrop (watermelon)	Rice w/ intercrop (Mongo)
Income from rice	25,395	25,395	25,395
Sales - intercrop (Watermelon/Mongo)		150,682	6,375
Production & Post production costs		67,259	1,850
Income from intercrop		83,423	4,525
Total annual income	25,395	108,818	29,920

Source: Survey result from a World Bank Study 2013: Rice (N=300), Key informant interviews (2015)



**profitability is low and erratic while costs  
increased faster (14% per year) than price (7%)  
and yield (4%)**



Source: BAS 2012

### Latest Global Competitiveness Index (2015-2016): Weak infrastructure

	Cambodia	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
GCI 2015-2016	90	37	18	47	2	32	56
<b>Basic Requirements</b>	93	49	22	66	1	42	72
1. Institution	111	55	23	77	2	82	85
<b>2. Infrastructure</b>	101	62	24	90	2	44	76
3. Macroeconomic environment	64	33	35	24	12	27	69
4. Health and primary education	87	80	24	86	2	67	61
<b>Efficiency enhancers</b>	101	46	22	51	2	38	70
5. Higher education and training	123	65	36	63	1	56	95
6. Goods market efficiency	93	55	6	80	1	30	83
7. Labor market efficiency	38	115	19	82	2	67	52
8. Financial market development	66	49	9	48	2	39	84
9. Technological readiness	105	85	47	68	5	58	92
10. Market size	90	10	26	30	35	18	33
<b>Innovation and sophistication factors</b>	121	33	17	47	11	48	88
11. Business sophistication	122	36	13	42	18	35	100
12. Innovation	122	30	20	48	9	57	73

Source: Global Competitiveness Report 2015-16

## Conclusions

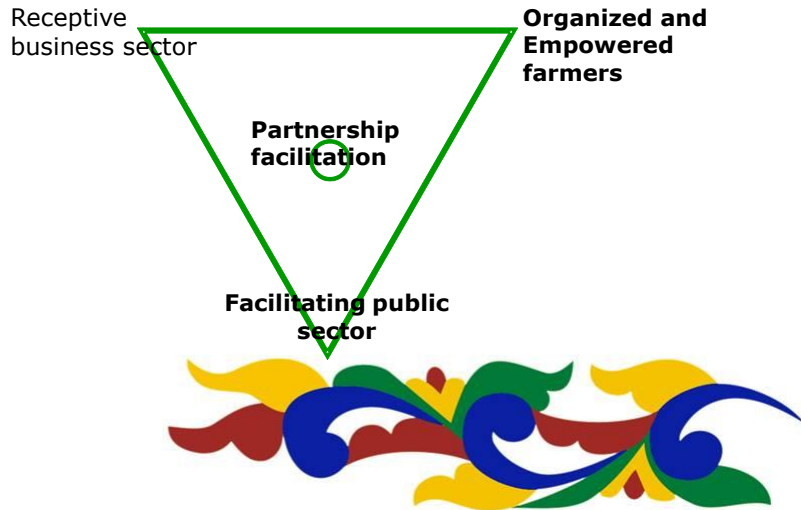
- Farm integration works for sectors where private sector investments in infrastructure and technology are highest
- Industry clustering and consolidation efforts are slowed down by issues in infrastructure and inadequate extension services
- Intensification is important to enhance productivity and become competitive but there are challenges and trade-offs
- Diversification is challenging but important to minimize production and market risks



### Options for development

- Promote clustering but effective interventions in infrastructure and extension services must be in place
- Enhance delivery of extension services by improving capacity of LGUs, coordination with academe and private sector and incentives for academic personnel to provide extension services
- Promote private sector investments in agriculture by effectively matching their needs and those of stakeholders involved particularly farmers
- Strengthen priority producer organizations and provide a package of interventions that will help them meet market requirements
- Policy support to attract investments and private-public partnerships, regulation for environmental and quality compliance, ensuring more equitable distribution of benefits in the chain

## Foundation of success



Thank you

