Eastern Indonesia-Agribusiness Development Opportunities

Stakeholder Consultation Workshop – Shallot

Surabaya 25th September, 2013



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Eastern Indonesia Agribusiness Development Opportunities (EI-ADO)





- Research commissioned by ACIAR, implemented by Collins Higgins Consulting and Indonesian partners
- EI-ADO project objectives:
 - Identify five commodity value chains linked to NTB, NTT and East Java with most potential to increase income of poor farmers
 - Identify opportunities and interventions with most potential for improving the efficiency, competitiveness and income of poor farmers
- Information and recommendations from EI-ADO study to inform DFAT in the design of the Australia Indonesia Partnership for Decentralisation – Rural Economic Development Program (AIPD-Rural).
 - \$112 million DFAT funded development program targeting Eastern Indonesian



AIPD-Rural



- **Goal:** Increase the net income of 1 million poor male and female farmers by at least 30% by 2022 (300,000 of which should be reached by 2017)
- **Objective**: to increase the competitiveness of poor male and female farmers
- **Strategy:** To address the "systematic" constraints of the agricultural sectors that are important to the poor in selected districts
 - Outcomes:
 - Improved farm practices
 - Increased access to input and markets
 - An improved sub-national business enabling environment
- Approach: Market Development or M4P





EI-ADO Methodology



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- Initial identification of 32 commodities
- Reference Group selected down to 16 commodities ٠
- 16 commodity literature reviews preformed ۲
- Provincial and Reference Group consultation for ٠ commodity prioritization
- Identification of 5 priority commodities for detailed ٠ value chain studies.

1.	Beef	
2.	Legumes	Soybean, mungbean, peanut
3.	Mango	
4.	Maize	
5.	Vegetables	Chilli, shallot, tomato & potato

Commodity Prioritisation

Commodities with most potential to increase income of the poor



Shallot Presentation



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Study Team



- Tiago Wandschneider, Team Leader / International Value Chain Specialist
- Paul Gniffke and Stephen Harper, International Vegetable Specialists
- Kuntoro Boga, National Value Chain Specialist
- Teddy Kristedi, ACIAR Project Coordinator
- Yohannes Krisnady and Ketut Puspadi, *Field Coordinators*





Areas Visited



- Sampang (East Java) and Bima (NTB): selected for value chain research
- Nganjuk: develop a wider perspective of production and marketing systems in East Java
- East Lombok, Mataram and Surabaya: develop an understanding of marketing and processing systems
- Cirebon and Brebes: gain insights about the import and export trade
- Semarang: research the processing sector





Key Informants

	Input suppliers	FGD	Prod.	Traders	Retail	Proc.	Research	Govt.	Total
West Java									
Cirebon				1					1
Lembang							1		1
Purwakarta	1								1
Central Java									
Semarang						1			1
Brebes				2					2
East Java									
Kediri				3					3
Nganjuk			3	3				2	8
Malang							1		1
Surabaya				11	7	1			19
Sampang	3	3	11	5				4	26
NTB									
Mataram				1					1
West Lombok		1							1
East Lombok				1					1
Bima, S. Besar	2	3	7	9				2	23
Total	6	7	21	36	7	2	2	8	89

Socio-Economic Importance



- Third most important vegetable crop in terms of area, after chilli and cabbage: ~ 100,000 ha
- 100,000 < No. shallot farm HHs < 300,000
- Socio-economic impacts concentrated in a selected number of provinces and districts:
 - Brebes and Tegal in Central Java
 - Nganjuk and Probolinggo in East Java (+ Madura island)
 - Bima and Sumbawa Besar in NTB





Socio-Economic Importance



- Shallot is an important source of farm and wage income
- Large numbers of men and women are employed in shallot farms and along the shallot chain
- Women consistently earn lower wages than men



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Cultivation is concentrated in Java and NTB

	Average annual harvested area (2009-11) (ha)	Share of harvested area in Indonesia (2009-11) (%)
Central Java	39,842	39
East Java	24,602	24
NTB	11,084	10.8
West Java	11,005	10.7
Total	86,533	85





• The shallot sub-sector has been growing

	2005	2006	2007	2008	2009	2010	Change (%) 2005-10
Harvested area (ha)	83,503	89,075	93,694	91,339	104,009	109,634	31.3
Production (tons)	732,400	794,714	802,810	853,615	965,164	1,048,934	43.2
Yield (tons/ha)	8.8	8.9	8.6	9.3	9.3	9.6	9.1





• The productivity of shallot farms in East Java is low

	2009	2010	2011	Average 2009-11
Central Java	10.6	11.1	10.4	10.7
West Java	11.4	9.6	10.1	10.4
NTB	10.2	10.3	7.8	9.4
East Java	6.9	7.7	9.5	8
Indonesia	9.3	9.6	9.5	9.5



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Harvest period is concentrated in the dry season ${}^{\bullet}$



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Income Statistics

Net incomes from shallot cultivation ullet

	'000 IDR	USD
Average net farm income per hectare	40,200	~ 4,150
Average wage income per hectare	14,100	~ 1,450
Total net farmer income (100,000 ha)	4,020,000,000	~ 415,000,000
Total wage income (100,000 ha)	1,410,000,000	~ 145,000,000
Total farm income (100,000 ha)	5,430,000,000	~ 560,000,000



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Income Statistics

• Net incomes from shallot cultivation in Sampang and Bima

	Sampang	Bima
Shallot cultivated area (ha)	2,000-3,500	7,000
Average net farmer income per ha ('000 IDR)	32,000	43,000
Average wage income per ha ('000 IDR)	11,000	13,000
Total net farmer income (million IDR)	65,000 - 110,000	300,000
Total wage income (million IDR)	22,000 - 38,000	90,000
Total farm income (million IDR)	85,000 – 150,000	390,000





Income Statistics

• There is a gender wage gap

	Sampang, East Java (N=4)	Bima, NTB (N=4)	S. Besar, NTB (N=1)	Nganjuk, East Java (N=2)
Male daily wage rate (IDR)	60,000	50-80,000	50,000	50,000
Female daily wage rate (IDR)	50-54,000	35–60,000	40,000	40,000
Gender wage gap	0.1 - 0.17	0.25-0.5	0.2	0.2





Employment Impacts

	Sampang East Java	Bima NTB	Sumbawa Besar NTB	Nganjuk East Java	Average
	(N=3)	(N=3)	(N=1)	(N=2)	(N=9)
Average employment (person-days/ha)	197	294	239	439	289
Wage farm labour / total farm labour (%)	74	84	100	100	89
Wage farm labour costs / total cultivation costs (%)	51	32	24	45	37
Female employment/ total employment (%)	58	42	26	25	38
Hired female workers/ total hired workers (%)	68	46	26	25	50



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Varieties Grown

	Main va	rieties	Other varieties		
	Dry season	Rainy season	Dry season	Rainy season	
Cirebon	llokos, Bima Curut	Bima Curut	Timur, Timur Carwan, Tanduyung	Timur, Timur Carwan, Bima Carwan	
Brebes	Bima Curut	Bima Curut	Bima Brebes, Bima Juna, Kuning, Timur, Ilokos	Bima Brebes, Bima Juna, Bima Suyat, Kuning	
Nganjuk	Thailand	Thailand, Bauji	Bauji, Philippine	Manjung	
Probolinggo	Super-Philip	Biru Lancor	Biru Lancor		
Sampang		Manjung, Bima Curut			
Bima	Super-Philip	Katamocha			
Sumbawa Besar	(Philippine)				



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Varietal Choices



Factors influencing varietal choices:

- Local agro-climatic conditions
- Planting season
- Availability of planting material
- Strengths and weaknesses of different cultivars: tolerance to pests and diseases, tolerance to rain, No. of days to harvest, bulb storability, bulb marketability...
- Adoption of TSS varieties remains extremely low





Varietal Choices



- True seed shallot has several advantages over propagated seed bulbs
 - Lower transmission of seed-borne diseases (e.g. *Fusarium*); higher yields; lower planting material costs
- So why are adoption rates so low?
 - Days to harvest conflict with crop rotations
 - Tolerance to rain (Tuk Tuk variety)
 - Bulb marketability (Tuk Tuk variety)
 - Inadequate business models?
 - Transplanting or multiplication from mini-bulbs?
 - Who produces seedlings or mini-bulbs?
 - Who transfers technical know-how to farmers?





Domestic Demand



- **Consumer preferences**: bulbs that are neither too small nor too large, have a round shape, red colour, and pungent taste
- Household expenditure: shallot ranks second amongst all vegetables; rural households spend on average a larger share of their income on shallot than urban households
- Income elasticity of demand: very low or even negative





Implications



Income-inelastic demand

 growth in the domestic market will have to come from population growth, a decline in prices, or both

Price-inelastic demand

- contributes to short-term price volatility
- exacerbates the negative price impact of increases in domestic supply

Strategic priorities

- increases in farm productivity
- reduction in marketing costs
- export development
- off-season cultivation: import substitution?





Shallot Exports

- Indonesia exports very small quantities of shallot
- August-November period, peak in Sept-Oct
- Thailand and Vietnam, then Malaysia and Singapore
- Malaysia and Singapore: strictest quality requirements (bulb size, colour), clear preference for Super-Philip and Ilokos varieties
- Probolinggo main supplier of shallot for export; some export shallots are procured from S. Besar

	2008	2009	2010	2011	2012	Average 2008-12
Exports (tons)	12,314	12,759	3,234	13,792	12,647	10,949
Production (tons)	853,615	965,164	1,048,934	893,124	960,072	944,182
Exp./Prod. (%)	1.4	1.3	0.3	1.5	1.3	1.2
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Shallot Imports

- Indonesia imports significant quantities of shallot
- Imports include seed bulbs for propagation
- Thailand, the Philippines, and Vietnam are the main sources of imported shallot, followed by India and Myanmar

	2008	2009	2010	2011	2012	Average 2007-11
Imports (tons)	128,015	67,330	73,270	160,270	119,505	109,678
Prod + Imp. – Exp.	969,316	1,019,735	1,118,970	1,039,602	1,066,930	1,042,911
l / (P + I – E) (%)	13.2	6.6	6.5	15.4	11.2	10.6





Shallot Imports



 Probolinggo shallot is more expensive than imported bulbs (higher quality, taste)

Origin	Wholesale price, Surabaya (21 May 2013) IDR/kg
Probolinggo	23,000 – 27,000
Philippines	23,000
Thailand	20,000 - 23,000
Vietnam	18,000 – 20,000
India	18,000





New Import Policy



- New national and provincial regulations introduced in 2012
- Quantitative import controls: increase barriers to entry into the import trade; inflate distribution costs; and reduce the ability of importers to perform short-term spatial arbitrage and market stabilisation functions
- Price of horticultural products overshoot as a result of import bans and quotas (price of shallot increased fivefold during the first quarter of 2013 compared to the same period in 2012)



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New Import Policy



- New policy will exacerbate seasonal price variations
- Shallot farmers will face higher planting material costs
- Off-season growers will enjoy higher prices at the expense of consumers, including the poor
- Many producers do not grow shallots in the off-season and are also consumers!
- What will be the supply response to higher off-season prices (January-June)?





Price Patterns

- No clear trend in real prices
- More unstable prices since late 2010
 - erratic weather patters? unstable import flows?



Price Seasonality



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Shallot Value Chain, Sampang, EJ



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Sokobanah Sub-District



- Production concentrated in Sokobanah
- One main season: February April
- Annual cultivated area: 1,500 3,500 ha
- Farm size: 0.2 2 ha (average = 0.5 1 ha)
- > 2,500 HHs shallot farm households
- Manjung is the main variety; Bima Curut is grown in one village



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Sokobanah Sub-District



- Low-input, mainly rain-fed production system
- Poor understanding of varietal options
- Low farm productivity (4-8 tons/ha compared to a national average of 9.5 tons/ha)



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Product Flows



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Seed Bulb Chains


Flows of Technical Information and Credit



Input Retail Network

Incipient input retail network



Input Retail Network

Limited flows of technical information and credit



Shallot Chain in Sampang



Local Shallot Transactions



- No evidence of organised collective marketing
- Crop sold by husbands, but wives often consulted before the transaction is agreed
- Prompt payment is the norm
- No evidence of "unfair pricing"
- Traders' gross and net margins vary with market prices



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Storage



- Minimal storage at farmer and trader levels
- Inter-seasonal storage not justified as shallot is sold during the off-season
- Traders cannot undertake short-term storage to protect themselves against sudden falls in market prices because they have very small stores
- Trader's facilities (5-10 ton capacity) are used to assemble supplies



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Business Linkages



- Many farmer-collector and collectorassembly trader networks are fairly stable <> reduction in transaction costs
- Larger assembly traders tend to rely on a small number of regular customers in urban wholesale markets
- Smaller assembly traders often engage in opportunistic transactions with buyers in Surabaya



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Limited Spatial Arbitrage by Sokobanah Traders



- Over-reliance on Surabaya market
- Larger traders may supply 2-4 different markets, but these are closely integrated
- No inter-island trade from Sampang

Probolinggo, Solo, Brebes, Semarang, Cibitung



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Downstream Market Channels



- Shallot channelled to consumers through traditional market channels
- Indicative price information received over the phone
- Very limited flows of technical information and credit along the Sampang chain
- In Java, less than 1% of shallot bulbs are sold to consumers through modern retail chains
- The processing sector is small



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Product Quality





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- Sampang supplies trimmed shallots
- Sampang shallot has poor reputation in the market
 - Poor bulb quality
 - growing season
 - drying practices
 - variety (size and colour)
 - nitrogen rates?
 - But farm-gate prices are relatively high
 - Off-season, proximity to Surabaya and other markets



Problems and Constraints



- Poor access to water
- Undeveloped local input distribution network
- Poor technical knowledge
- High labour costs
- Finance
- Lack of linkages with markets outside Java



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Shallot Value Chain, Bima, NTB



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Shallot in Bima





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- Bima is known as the main shallot production centre outside Java
- Three growing seasons (April to October)
- Harvest: June to October (with a peak in August-September)
- ~ 7,000 ha allocated to the crop
- Farm size: 0.1 0.5 ha (av. = ~ 0.35 ha)
- ~ 10,000 HHs shallot farm households
- Super-Philip (Philippine shallot) is the main variety



Shallot in Sumbawa Besar





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- Many Bima households also grow shallot in Sumbawa Besar
- Two growing seasons (April to August)
- Harvest: June to August
- ~ 10,000 ha allocated to the crop
- Farm size: 1-2 ha
- Super-Philip is the main variety
- Less than 10% use the local, rain-tolerant Katamocha variety



Shallot in Bima and Sumbawa Besar



- Significant intra- and inter-district variation in farm yields
- 13-25 tons/ha in S. Besar compared to 8-15 tons/ha in Bima
- S. Besar also outperforms Bima in terms of bulb quality
- Inter-district variations: soil, water, diseases
- Intra-district variations: quality of planting material and level of input use



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Product flows



Seed Bulb Chains



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Input Retail Network





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Local Shallot Chain in Bima



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Local Shallot Transactions



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Aid

- No evidence of organised collective marketing
- Prompt payment is the norm
- No evidence of "unfair pricing": strong concentration of buyers

Storage



- Some shallot bulbs are stored from October to November-December, especially by traders
- In many years storage is a profitable activity
- Inter-seasonal storage activity is somewhat limited
 - Working capital constraints
 - Risk
 - Space constraints



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Exchange of Technical Information



Access to Credit



Downstream Market Channels



Traditional Wholesale Market Channel





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Dominant channel

- Inter-island traders have strong linkages with buyers in different market locations
- Transactions are coordinated over the phone (prices are indicative)
- Trust is an essential ingredient in longdistance traditional trade costs and risks
 - Yet, advance of funds from wholesale buyers is uncommon



Processing Channel



- About 15 traders in Bima have contracts with Indo-Food
- Indo-food provides an important outlet for grade C shallot (20-25% of the harvest in Bima; most difficult to market)
- Most traders in Bima are not interested in supplying Indo-food because of low prices and delayed payment procedures





Export Channel



- 4 traders in Lombok and at least 1 in Bima supply shallot trading companies in Brebes and Cirebon linked to the export (and import) trade
- Traders in Lombok reportedly supply around 200 tons of export shallot each between June and August
- Most comes from Sumbawa Besar
- Transactions are coordinated and prices determined over the phone
- The export channel provides a premium, "lowrisk" outlet for quality shallot (super-Jumbo)



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Bulb Quality Dimensions



- Size
- Shape
- Colour
- Moisture content
- Firmness
- Cleanliness



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Grade (Size) Production and Pricing

Approximate distribution of production by grade

	Grade A (%)	Grade B (%)	Grade C (%)
Bima	20	50	30
Sumbawa Besar	90	10	0

Example of prices paid by inter-island trader

	Super- Jumbo	Grade A	Grade B	Grade C
Trader selling price (IDR/kg)	10,500	8,000	6,500-7,500	4,000-5,000



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Quality Management Systems



- On-farm drying for 7-10 days (longdistance trade)
- Prices received by inter-island traders and paid to farmers are influenced by size and other quality traits
- Inter-island traders often re-sort bundles and carry out additional cleaning and drying
- Shallot is always sent to other islands in bundles, with leafy tops on (long-distance trade)



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Problems and Constraints



- Land availability
- Quality of planting material
- Finance
- Pests and diseases
- Logistics



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Key Interventions



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Key Interventions - Sampang



- 1. Development of a local market for more productive, higher-value varieties
- 2. Development of inter-island trade
- 3. Investment in drying and storage capacity



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Key intervention 1: Higher Value Varieties



- Participatory on-farm and market testing of rain-tolerant varieties
- Facilitation of linkages between assembly traders and outside seed bulb suppliers
- Varieties for on-farm testing: Bima Curut, Bauji, Katamocha, Batu Iju, Biru Lancor and Maja Cipanas
- Timeframe: 2-3 years in 4-5 villages



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Potential Impacts



- Higher net farm incomes for 2,000 3,000 HHs (~ 2,000 ha)
- Increased trading volumes and incomes
- Expansion of shallot cultivation



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Risks / Weaknesses



- Trial varieties may not perform as well as current ones
- Availability of planting material
- Scaling-out to Pamekasan and Sumenep districts?



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Key Intervention 2: Inter-Island Trade



- Participatory market testing
- Facilitation of linkages between assembly traders and wholesalers in different islands
- Provision of post-harvest advisory services to assembly traders
- Proposed target market locations: Denpasar, Mataram, Banjarmarsin, Kupang
- Timeframe: 3 years



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Potential Impacts



- Higher farm-gate prices for 3,000 3,500 HHs
- Higher trader margins
- Scaling-out to Pamekasan and Sumenep districts?



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Risks / Weaknesses



- Trial markets may not perform as well as current ones
- Import policies diversification of markets
- Impact on farm-gate prices will require that many traders become involved in the inter-island trade
- Limited drying and storage capacity







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Key intervention 3: Drying and Storage Capacity



- Conditional on development of inter-island trade
- Co-funding of investments by assembly traders in drying and storage facilities
- Provision of post-harvest advisory services to assembly traders
- Timeframe: 2 years



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Potential Impacts



- Reduced exposure to adverse short-term price fluctuations in Java markets
- Improved product quality => positive impact on farm-gate prices?
- Necessary condition for development of inter-island trade from Sampang
- Scaling-out to Pamekasan and Sumenep districts?
- Impact on the marketing of other crops?





Risks / Weaknesses



• What is the willingness of shallot traders to pay for drying and storage facilities?



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Key Interventions - Bima



- 1. Development of a local market for true seed shallot
- 2. Upgrading of conventional seed bulb chains
- 3. Investment in storage capacity for offseason marketing
- 4. Establishment of assembly market in Bima





Key Intervention 1: True Seed Shallot



- Partnership with EWINDO (Bima)
- Partnership with PV PHS (Sumbawa Besar)
- Development of small-scale seed multiplication businesses (G0 / G1) with technical and financial assistance from private sector partners
- Varieties: Tuk Tuk (Bima), Maserati (S. Besar)
- Timeframe: 2 years





Potential Impacts



- Higher net farm incomes for 10,000 HHs (~ 15,000 ha)
 - 2-year target in S. Besar = 20 nurseries;
 250 HHs
 - 4-year target in S. Besar = 20 nurseries;
 1,000 HHs
- Increased trading volumes and incomes
- Expansion of shallot cultivation, esp. in Sumbawa Besar





Risks / Weaknesses



- Production risks (especially in the case of Tuk Tuk)
- High current yields in Sumbawa Besar
- Will productivity gains per season compensate for longer crop growing cycles?
- Bulb marketability (especially in the case of Tuk Tuk)







Key intervention 2: Conventional Seed Chains



- Facilitation of linkages between Bima traders and suppliers of certified / quality seed bulbs in EJ
- Development of certified / quality seed bulb production systems in Bima
 - Variety: Super-Philip
- Timeframe: 2 years / 3 years





Potential Impacts



- Higher net farm incomes for 5,000 HHs (~ 10,000 ha in Bima and S. Besar)
- Increased trading volumes and incomes



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Risks / Weaknesses



- Further research on conventional seed bulb production and marketing systems is needed
- Crowding-out of TSS interventions
- Performance of certification systems
- Availability of certified / quality seed bulbs
- Willingness of farmers to pay for expensive planting material









Key Intervention 3: Storage



- Co-funding of investments in storage by individual farmers and farmer groups
- Provision of post-harvest advisory services to farmers
- Timeframe: 2 years



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Potential Impacts



- Higher selling prices due to off-season marketing
- US\$ 150 * 500 HHs = US\$ 75,000 per annum



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Risks / Weaknesses



- Availability of land for storage facilities
- Willingness of farmers to invest in storage due to liquidity constraints and risk aversion
- No systemic impact on market prices (no indirect impacts)



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Key Intervention 4: Assembly Market



- What is the rationale?
 - How would an assembly market improve farm-gate prices in a system where there is strong competition between traders and where traders and farmers have good access to price information?
 - How would an assembly market lead to improvements in quality management systems?





Research Gaps (1)



- Past research focused on production issues (varieties; pest management practices) and Brebes
- All proposed interventions have a strong pilot or learning dimension



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Research Gaps (2)



- Some areas for future research
 - Technical and financial feasibility of TSS in NTB
 - TSS business development models
 - Conventional seed bulb production and marketing systems
 - Storage systems
 - Quality price differentials
 - Export chain development



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Key Interventions Shallot- Summary



Sampang

- 1. Development of a local market for more productive, higher-value varieties
- 2. Development of inter-island trade
- 3. Investment in drying and storage capacity

Bima

- 1. Development of a local market for true seed shallot
- 2. Upgrading of conventional seed bulb chains
- 3. Investment in storage capacity for off-season marketing
- 4. Establishment of assembly market in Bima



