

El-ADO Value Chain Conduct Synthesis Report

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Introduction

This brief report on value chain conduct is one of a series of reports synthesizing the main findings across the ten commodity value chains studied as part of the Eastern Indonesia – Agribusiness Development Opportunities (EI-ADO) project. Other short synthesis reports in this series include an analysis of export and import patterns, spatial patterns and growth patterns of the various commodities studied.

Input chain

Several multinational seed and agro-chemical companies have a strong presence in Indonesia, operating alongside a large number of local private and state-owned firms of varying sizes, including importers. Input companies rely on distributors to wholesale their products. Transactions between the two parties usually include a 3-4 month deferred payment. Distributors also sell to retailers on credit: inputs are usually paid one or two months after delivery.

Large seed and agro-chemical companies have staff stationed in production areas. That is the case, for example, of East West, BISI, Pioneer, Syngenta, Bayer, BASF, DuPont, and NuFarm. These companies have a much stronger field presence in East Java than in NTB. Only a few have staff stationed in NTT. One of the responsibilities of field staff is to organize village meetings and farm demonstrations to promote their own product solutions, especially for rice and maize, and to a much lesser extent vegetables such as tomato and chili.

The main role of distributors is to sell inputs to retailers. They are not involved in the transfer of technical know-how. Likewise, input shops play a very marginal role as sources of technical information, as they lack the required agronomic knowledge. Rarely do they participate in local demo plots established by seed and agro-chemical companies. However, they are used by these companies as the main channel for distribution of some information materials to farmers, especially leaflets and brochures.

Input retailers require prompt payment from farmers. Shops in large shallot production villages of Bima were an exception, providing significant in-kind credit to local farmers growing the crop in Greater Sumbawa district. Credit is a key element in their business model, allowing them to develop and retain a significant client portfolio (Wandschneider *et al*, 2014a).

As discussed later in this report, the field presence of large seed and agro-chemical companies offers opportunities for involving them in development programs and interventions. In contrast, it is unlikely that input retailers can add much value to farmers' existing knowledge of cultivation technologies and practices. They are very passive chain actors. While they could be targeted as providers of technical information for specific crops as an embedded service, e.g. in the proposed mango intervention on early season flowering, significant training of field staff will be required. Input companies and village traders extending credit to farmers on a regular basis offer a more cost-effective avenue.

Horizontal coordination: collective action

In three of the chains surveyed, there are national and provincial bodies representing farmers' interests:

- The Indonesian Shallot Association has a provincial arm in East Java, whose main role is to provide production data to government and serve as a channel for dialogue around import management policies (Wandschneider *et al*, 2014a).

- East Java has a chilli agribusiness association, which represents red chilli growers and comes under the umbrella of a national association (Wandschneider *et al*, 2015). The unpredictable nature of chilli prices is the main issue of concern to the association: in order to influence supply conditions and reduce members' exposure to depressed market conditions, it has developed an information system aimed at improving the planning of production areas. This initiative may provide an interesting entry point for intervention by a development program. In addition, the Chilli Agribusiness Association offers a platform for dialogue with government, particularly on imports, which are seen as a threat to Indonesian farmers.
- Engagement with government on import policy matters is the main remit of KOPI, the body representing the tofu and tempeh processing industry. KOPI advocates for an open import policy, which is important to ensure adequate access to, and prices of, soybeans, the main ingredient used in the production of tofu and tempeh.

Many farmers in Eastern Indonesia belong to producer groups. Most of these groups were established for the delivery of public extension services and the provision of government grants and subsidies. Collective action in the marketing sphere is rare. The study teams found very few cases where farmers formed informal or formal cooperative businesses to access market opportunities. While the leaders of many producer groups visited are village traders, these manage their businesses independently from the groups they belong to. Traders have no incentives to involve other group members in marketing activities. As discussed below, this would add costs and risks to their business, without fundamentally altering market access outcomes, i.e. the benefits from their trading activities. Local traders are able to perform product assembly and spatial arbitrage functions effectively and efficiently on their own.

Interestingly, some of the EI-ADO research teams came across examples of informal cooperation between traders, particularly for the transportation of agricultural commodities (see Wandschneider *et al*, 2015; Wandschneider *et al*, 2014a; and Wandschneider *et al*, 2014b). Some mango traders in Situbondo district and some shallot and chili traders in Sampang district were found to share truck loads in order to take advantage of economies of scale in transportation and reduce exposure to marketing risk, both of which are critical in a context where net marketing margins are low. In the mango chain, the sharing of vehicles also enabled traders to diversify target markets, i.e. channel supplies to more than one market location.

Some level of cooperation between tofu and tempeh processing enterprises in parts of East Java was also reported (Cambon, S and Rachaputi, C.N. 2013). Although none of the processors interviewed was a member of a cooperative, many tofu and tempeh producers are known to form part of such structures. Processing cooperatives may undertake bulk purchases of soybeans and packaging materials on behalf of members and may also market their production.

The structure and conduct of marketing systems must be considered in any pragmatic discussion about opportunities for targeting producer organizations as vehicles for improving farmers' access to markets. The marketing system for EI-ADO commodities is characterized by a strong presence of village collectors and assembly traders. Traditional market channels are dominant and spot market transactions the norm. In these competitive, traditional market environments the revenues associated with product assembly and post-harvest quality

management functions rarely justify the costs and risks of collective action. In other words, in such contexts, marketing groups or cooperatives have difficulties competing with local traders, who tend to enjoy better access to working capital and marketing networks and do not have to incur the coordination and management costs associated with collective action, nor deal with the free-riding problems and conflicts that so often undermine the performance of formal and informal cooperative enterprises. In short, well-developed, atomistic spot markets are not conducive to the emergence of competitive and profitable marketing group enterprises.

Collective marketing is a more viable proposition when it reduces the service provision and transaction costs incurred by buyers, for example in the context of contract farming, or when it enables farmers to differentiate themselves in the market place, i.e. supply agricultural products with high-value quality attributes that cannot be easily found in spot markets. Certified safe and organic vegetables, special varieties for processing or export, and crops for overseas markets with phyto-sanitary access barriers and other strict quality requirements fit into this category.

In eastern Indonesia, however, contract farming is an uncommon vertical coordination arrangement, at least in the chains surveyed. Safe and organic vegetable markets are very incipient and largely supplied by a few commercial farms. And while there is some export activity in a few of the chains surveyed, such as mango and shallot, this is an opportunistic trade focused on markets with relatively low entry barriers and based on traditional procurement channels and spot market transactions. In short, incipient development of premium chains, combined with a lack of lead firms working closely with farmers to access high-value market opportunities, create an environment where farmer-owned collective enterprises have little chances of succeeding.

This discussion has obvious implications for development programs. In the chains surveyed, marketing groups or cooperatives do not offer opportunities for pro-poor impacts at scale. Existing producer groups are a possible entry point for technology transfer interventions, but most will never become competitive and sustainable enterprises. Market structure and conduct aside, these groups generally lack the membership profile, internal governance systems, self-reliance, and leadership that are so critical for their success as business ventures. Most were formed for accessing extension services and, more importantly, government grants and subsidies. They did not emerge out of farmers' own initiative to work together as a business. In some contexts there may be opportunities for forming new groups with a strong business orientation, but this is a challenging proposition. The formation of new groups would require traders or lead firms to be actively involved, supporting group development processes as an integral part of their business models, with external agencies playing a facilitation and technical advisory role.

Vertical coordination: spot markets

Spot market transactions account for the vast majority of trade in the chains surveyed. As mentioned, farmers typically sell to local collectors or assembly traders. Prices are determined on the basis of supply and demand conditions at the time of the transactions. Prompt payment is often the norm, but in some areas and for some commodities payment after one or two days is not uncommon, a practice that reduces the working capital constraints that traders face.

In the vegetable chains in Malang and Batu districts, it is common for local traders to advance inputs and cash loans to farmers they know well and trust (see Wheatley *et al*, 2014; Wandschneider *et al*, 2015; and Wandschneider *et al*, 2014a). This is also common practice amongst traditional peanut roasters in East Java, small potato processing enterprises in Batu, and tofu processors in NTB that source some of their supplies directly from farmers (see Cambon, S and Rachaputi, C.N. 2013; Wheatley *et al*, 2014). Production loans function as an implicit verbal contract, whereby borrowers agree to sell their harvest to lenders, with the value of the debt deducted from future payments. While no interest is normally charged, a small price discount may apply as compensation for the credit services provided.

In a context where institutional credit is rarely an option, where informal moneylenders charge very high interest rates, and where lead firms have no presence in production areas, local buyers are often the only source of affordable credit available to farmers. For village traders and small processors, in turn, in-kind credit reduces product search and negotiation costs, and is a necessary strategy for securing future supplies when competitors in production areas are also offering similar embedded services to farmers.

Local buyers tend to be fairly flexible regarding quality standards. Otherwise they would be at a disadvantage vis-à-vis competitors, as farmers generally look for buyers who can purchase all their production. They want to avoid a situation where they have to search for buyers specifically for lower-quality produce. The prices received will often reflect the quality preferences of chain intermediaries and consumers. For example, the price of cattle will vary significantly depending on the body condition, breed and sex of the animal because of their influence on meat outturn rates (Waldron *et al*, 2013).

Moisture content is the most important product standard for the maize animal feed industry and reflected in ex-mill purchasing prices, but the price differentials appear too low to justify investment in effective drying technologies for the rainy season by farmers and traders (Flewelling *et al*, 2013).

For peanuts, product form rather than intrinsic quality attributes, such as colour or moisture content, appears to be the main price differentiation factor at the farm level (Cambon, S and Rachaputi, C.N. 2013). Farmers selling shelled peanuts fetch higher prices than those supplying dry unshelled peanuts and wet unshelled peanuts. Finally, farmers do not sort their mung beans for size or other attributes. However, in the production areas of NTT visited by the EI-ADO research team, the smaller, shiny variety commands a premium of about 20% over the larger, dull variety.

Shallot producers often sell mixed-grade bundles, but the prices fetched will reflect bulb size, colour and pungency, three attributes that are valued by consumers, as well as moisture content, which impacts on product shelf-life and post-harvest weight losses (Wandschneider, 2013b). In a district such as Malang, tomatoes are picked at different maturities, depending on distance to target markets, and sorted mainly for size by collectors, in the presence of farmers, with different grades fetching different prices (Wandschneider *et al*, 2014b). In the case of mango, there is an even stronger positive correlation between farm-gate prices and fruit size, even for farmers that sell their harvest ungraded (Wandschneider *et al*, 2013). Other key mango quality attributes have little or no influence on farm-gate prices because they cannot be visually inspected at harvest time or are not valued enough by consumers.

Traders, quality and technical knowledge flows

In districts such as Situbondo and Probolinggo, village traders should have an interest in adopting early-season technologies in their own mango farms, and encourage farmers they regularly buy mangoes from to follow their example, as this would extend their trading season and generate additional income. Yet, those traders are unable to promote this particular innovation as they lack the necessary knowledge of crop manipulation technologies (Wandschneider *et al*, 2013). As another example, shallot traders in Sampang could be playing a much greater role in local chain innovation processes if they were linked to reliable suppliers of different varieties suited to rainy-season conditions (Wandschneider *et al*, 2013b). Many shallot growers in Sokobanah buy bulbs for propagation from village traders, sometimes on credit. In one village, farmers grow the Bima Corot, a variety imported from Brebes, in Central Java. In all other villages, farmers plant Manjung, which is sourced from neighbouring Pemakasan district. The EI-ADO team was somewhat surprised to find that none of the farmers and traders interviewed was knowledgeable about other varieties. There is therefore a clear need for exposure to new cultivars, as these may out-perform existing ones. This should be of interest to traders: adoption of more productive varieties would increase their planting material and shallot sales. It should also be noted that local traders are themselves potential early adopters, because they have their own shallot farms.

In mango, fruit flies and anthracnose reduce the shelf-life but have no influence on farm-gate prices because these problems only manifest themselves one week to 10 days after harvest. Most mangoes are normally retailed a few days after leaving the farm. The fact that other quality defects, including sooty mould caused by flattids, skin marks caused by wind and branches, and latex marks caused by poor harvesting practices, have little or no impact on farm-gate prices reflects consumer preferences and purchasing power: most Indonesians are unable or unwilling to pay significant premiums for clean mangoes with no skin marks. Mango farmers selling their crop on the tree, sometimes several months before harvest, also lack the incentives to invest in quality.

In the case of legumes, however, the EI-ADO research team found little evidence of significant quality price differentials at the farm level (Cambon, S and Rachaputi, C.N. 2013). For example, although soybeans are wholesaled in three different grades, defined on the basis of bean size, colour, and moisture content, it appears that farmers receive no premium for meeting higher-grade requirements.

Aflatoxin in maize is a major issue, especially during the wet season, but under current pricing structures this problem can only be addressed through regulatory measures, which are difficult to impose and enforce. Aflatoxin is also a significant problem in peanuts, but as in the case of maize, traders and farmers lack the price incentives for investment in post-harvest technical solutions.

In other words, price incentives for investment in quality are being conveyed through spot market channels.

It is often assumed that farmers linked to traditional market channels have few incentives to invest in quality because they sell their crops ungraded or because of low quality price differentials. In many of the chains surveyed that is not necessarily the case. For example, tomato and mango growers that are successful in controlling pests and diseases will not only achieve higher yields, but will also be rewarded with higher prices.

While in some commodity chains farmers have some price incentives to invest in quality, they are often constrained in their ability to take advantage of quality-upgrading opportunities. For example, mango growers in the districts visited were found to have very poor knowledge of pest and disease management.

Poor knowledge of production technologies and limited access to finance are two of the constraints highlighted in many of the EI-ADO studies.

Credit

Credit arrangements between traders in production areas and urban buyers in major wholesaling centres were reported as important in the soybean, peanut, and mango chains. Large wholesalers involved in the inter-island trade, for example, advance working capital funds to their suppliers as part of their procurement strategies. While these wholesalers have little or no relevant knowledge about quality upgrading technologies, in the case of mango at least, some were identified as having a critical role to play in quality management innovations at different levels of the chain.

Trust is a critical determinant in the choice of partner in a transaction. Despite the presence in a given area of many farmers and traders, there is often a fair degree of stability in local trading networks. Farmers often prefer selling certain crops or certain livestock to the same buyer, often a village trader they know well and trust. Likewise, local traders tend to nurture stability in their supply networks. Long-standing business relations, often underpinned by family and old friendship ties, are also a key ingredient in trade networks beyond the community. There are exceptions, however, as in the case of chili and shallot traders in Sampang district supplying wholesale markets in Surabaya. While these traders have contacts in Pabean and Keputran wholesale markets, opportunistic sales upon arrival at the market are common practice.

Business Relationships

There are several reasons why the parties in a transaction often know each other well and have been doing business for a long time. This reduces their search and negotiation costs, as well as the risk of unfair behavior due to asymmetries in access to information by one of the parties, including opportunistic pricing and misreporting of physical and quality losses. The latter can represent a significant marketing cost, especially in the inter-island trade in vegetables and cattle. In Malang, in a context of significant intra- and inter-daily price fluctuations, strong levels of trust have led to innovative market-risk sharing arrangements between farmers and some vegetable traders, whereby farm-gate prices are determined after the produce has been sold in Porong market, near Surabaya.

Long business relationships also reduce default risks, thereby enabling short-term credit flows along the chain, including input credit and cash loans to farmers, working capital advances from buyers, and delayed payment by a few days or more. The experience of inter-island fruit and vegetable traders in Batu illustrates the potentially significant losses incurred when buyers default on their payments. Several Batu trading businesses stopped supplying fruits and vegetables to Kalimantan after wholesale buyers defaulted on their debts. Others have just one or two reliable buyers in Kalimantan and are not interested in expanding their client portfolio for fear of payment default.

The importance of trust has significant implications for value chain development programs. Chain actors will often be reluctant to conduct business with new suppliers or buyers because of the time it takes to build the necessary trust and the risks involved. Business and

chain upgrading opportunities may be missed as a result. Market linkage facilitation services can lower these barriers. Chain development programs are well positioned to play an honest broker role by helping chain actors to identify potential upstream and downstream business partners and working with both parties to develop a mutually beneficial relation.

Traders

Finally, it should be noted that regularity of interaction between chain actors creates a favourable context for the exchange of technical and market-related information along the chain, although such flows are generally limited due to knowledge constraints. For example, a significant opportunity to raise the incomes of mango farmers and traders in East Java and their wholesale buyers in Jakarta and other large cities in Java, through the development of off-season cultivation, has been identified. However, the technical information required to enable such innovation is not flowing from wholesalers to village traders and from these to farmers because of systemic knowledge failures.

This suggests that traditional chain actors, particularly local traders with close linkages to farmers, are well positioned to engage in pro-poor innovation processes that can deliver benefits to all the parties involved. In other words, local traders, the main link between farmers and outside markets, can play an important role in promoting certain technical and marketing innovations, and should therefore be considered as a possible entry point for value chain development interventions.

Opportunities for pro-poor chain upgrading are often missed when local traders are disregarded as an agent of pro-poor change. Local traders are often neglected in value chain interventions. They are generally perceived as too conservative and small in scale for leveraged impacts. There is often a tendency for external agencies or projects to prioritize instead an integration of smallholder farmers in more demanding but higher-value modern channels, often through partnerships with lead firms. However, as shown in the different EI-ADO chain studies, local traders tend to have strong and long-standing relations with farmers, often involving a certain level of embedded service provision. They rarely drive the development of whole chains, but are important agents of innovation at the local level.

Vertical coordination: contract farming

Contract farming is a risk-sharing arrangement that enables agribusiness firms to plan future supplies and farmers to access technology, credit, technical services and markets. When backward vertical integration is not an option because land for establishment of plantations is not available, or when it is not considered a viable strategy because of the costs and risks involved, agribusiness firms have to rely on spot markets and/or forward contracts. In some contexts, contract farming will prove superior or complementary to spot market purchases. All will depend on the commodity in question, the market structure, the marketing strategy of the agribusiness firm, and its contract design and implementation capacity. From a farmer perspective, contract farming is an attractive proposition for commodities with high establishment and production costs and when it provides a vehicle for accessing higher-value markets. Contract farming is only a viable and sustainable arrangement when it serves the interests of both parties involved by reducing their costs, mitigating the risks they face, and/or increasing the value of their production.

The different EI-ADO study teams came across few examples of contract farming schemes in eastern Indonesia. While contract farming is common in the tobacco and poultry sub-sectors, these were outside the scope of EI-ADO. Amongst the chains surveyed, no cases of

contract production were found for mung beans, small chili, shallot, tomato and mango. In the other chains surveyed, contract growers account for a marginal or small share of producers. Some examples are presented for illustration:

Cattle chain

Large commercial operations in eastern Indonesia are well described in the EI-ADO cattle chain study (Waldron *et al*, 2013). Santori and Agrisatata, the two largest feedlots in East Java, have no formal links to farmers, but Wayhu Utama, a smaller feedlot in Tuban district with about 600 breeding cows and integrated beef retail operations, has cattle fattening contracts with some 100 small farmers across 17 villages. The company provides financial, technical and feed services as part of the contractual agreements. Farmers found to be side-selling animals are excluded from the scheme. Four other contracting schemes are described in the EI-ADO cattle chain study: one in NTB and three in NTT. A large trader in Central Lombok was found to have formal contractual relations with members of his own cattle production group. The leader of Gejati, a large cattle cooperative in Kupang, who is also a large trader, has purchasing and profit-sharing agreements with about 550 farmers organized in 22 cattle breeding groups and five cattle fattening groups. He also distributes cattle and provides loans to non-cooperative members. Tanaoba Lais Manekat, a development NGO in NTT, works with about 250 contract producers in different districts. The NGO owns and markets the cattle, with farmers retaining 70% of sales' profits minus a small administration fee. PUSKUD, a private company in NTT that sells cattle through an auctioning system, has in place similar profit-sharing arrangements with contract fatteners since 2002. The services provided include training, the supply of vet products, and veterinary support. About 1,500 cattle farmers participate in this scheme. PUSKUD believes it has the capacity to service up to 7,500 farm households, but availability of finance is a constraint.

Maize chain

The EI-ADO maize research team did not come across any example of contract production in the maize chain. However, according to a recent study, three state-owned companies have been working with contract maize growers in NTB since 2009, as part of the government's national Corn Agribusiness Development Programme. It is unclear whether these arrangements are still in place as side-selling by participating farmers was widespread.

Peanut chain

While none of the farmers interviewed in East Java was growing peanuts under contract with lead processing firms, the development of contract production in NTB by Garuda Foods has been documented. The company started supporting farmer groups in that province in 2006, with technical assistance from the International Finance Corporation (IFC). By 2008 more than 8,000 farmers were involved in the program. In 2009, however, the company decided to withdraw from Sumbawa Island. It subsequently stopped supporting contract growers in Lombok Island. While the exact reasons behind those decisions are unclear, it appears that high service delivery costs, difficulties to develop enough seed supply, and side-selling played a major role. Farm gross margin data shows that contract growers were earning much higher profits from the peanut crop than non-contract growers. Still, many were unhappy about the contracting system. High farm investment costs, tight crop delivery schedules, the requirement that peanuts are supplied fresh rather than dried, and conflicts over payments were some of the problems reported. In addition, many farmers in Lombok were reluctant to grow the Bima variety, which was being promoted by Garuda Foods

because of its suitability for the production of peanut snacks. Currently, Garuda Foods is mainly targeting Sulawesi for direct sourcing of peanuts from farmers. The company has recently built a factory in that island and is working with farmers in an area of about 6,000 hectares.

Potato chain

In the past, Indofood developed contract relations with potato growers in different parts of East Java for the cultivation of the Atlantic variety. These schemes were short-lived, however, as they failed to deliver tangible benefits to participating farmers (Wheatley *et al*, 2014). Currently, the company's contract farming operations in East Java are confined to Bondowoso district. Around 70 farmers participate in this scheme. No input credit is provided. Farmers are paid one to four weeks after delivering the crop, a very poor practice, although some receive partial payment at harvest time. Late delivery of seed tubers and cases where some were rotten by the time they reached farmers were reported. Indofood also works with contract growers in Sembalun, East Lombok, on the slopes of Mount Rinjani. Two groups, with a combined membership of 428 farmers, are involved. The potato chain team was surprised to find that none of the groups had written contracts with Indofood. Verbal agreements work well in informal and highly personalized marketing systems, but not in contexts where farmers are dealing with distant firms. Such practice undermines the transparency of contractual relations and the development of trust. Contract growers in Sembalun were benefiting from input credit services, but had serious complaints about late supply of seed tubers imported from Australia and the fact that these were too large, resulting in very high planting costs. Moreover, Indofood was purchasing their crop for a low price. The company appears to be under the wrong impression that this poses no threat because the Atlantic variety is not commonly traded in fresh potato markets. However, as in other areas where Indofood contract farming operations broke down, farmers will gradually shift to Granola potato or other vegetable crops if these offer higher returns than Atlantic potato. Gross margin data for one contract farmer growing both Granola and Atlantic potato suggests that that is the case.

Chilli chain

ABC Heinz and Indofood, the two leading *sambal* manufacturers, rely on spot markets to access small chili and big chili supplies. Some big red chili is also procured through forward contracts with producers and local entrepreneurs working closely with farmers. The vegetable chain team was able to collect some useful information on the ABC Heinz contracting system (Wandschneider *et al*, 2015). Three years ago this was underperforming, in large part because of weaknesses in contract design: ABC Heinz was offering farmers a fixed price, which was clearly inadequate in a context characterized by very volatile spot market prices. The company has since revised its pricing formula, with contract suppliers paid a pre-determined benchmark price only when this is higher than spot market prices. If the price rises above the benchmark price, purchasing prices are adjusted upwards, albeit only partially. ABC Heinz has forward supply contracts in different parts of Java so as to reduce exposure to localized crop failure risks and ensure a continuous supply throughout the year. In each of the target districts of East Java, the company works with just one or two contract suppliers. These can be a registered farmer cooperatives or a local entrepreneur. Each cooperative has a relatively small membership, normally ranging from 15 to 30 farmers.

Soybean chain

Unilever has been sourcing black soybeans from contract growers for the production of its specialty, sweet soy sauce since 2001. By 2012, 9,000 farmers in two districts of Central Java and six districts of East Java, organized in formal cooperatives and informal groups, were participating in the program, managing a total area of 2,600 ha and supplying 60% of the company needs. The remaining 40% were procured from traders in West Java. The contract farming program is implemented in partnership with Gadjah Mada University. It appears to be running well, although side-selling may become an issue in the future following increased interest on the crop from traders in program areas. Unilever is planning to replicate the model in the coconut sugar and black tea chains, as part of its commitment to corporate social responsibility.

The chains surveyed are generally characterized by limited product differentiation and market segmentation. In such contexts, it is generally cheaper for agribusiness firms to procure local or imported supplies in spot markets than develop forward contract relations with producers. Contract farming schemes are costly ventures: credit-worthy farmers have to be selected and mobilized, inputs supplied, financial and technical services delivered, farm production processes monitored, marketing services provided, and contracts enforced. The operational costs associated with such schemes will always be significant, even when producer organizations and local intermediary agents are involved.

Contracting firms are also exposed to side-selling (or strategic default) risks. These are particularly high for relatively undifferentiated and widely traded smallholder commodities, which are the norm in the chains surveyed. Some exceptions aside, contract farmers in eastern Indonesia have no shortage of buyers and will be tempted to sell through traditional trading channels whenever spot market prices exceed contract prices. This risk is particularly high for large agribusiness firms, as they are not embedded in the socio-economic fabric of target communities. Opportunistic side-selling was found to be widespread amongst farmers growing maize under contract with state-owned companies. It was also an issue in the peanut and chili contract farming schemes reviewed. Careful design and good implementation of contracts will reduce but not eliminate the risk of strategic default by participating farmers.

Contract farming is sometimes targeted by development organizations as an entry point for chain upgrading interventions because of its potential to deliver leveraged impacts. In certain contexts, partnerships with contracting agribusiness firms can enable significant numbers of farmers to access new technologies, adopt improved farm management practices, and access more remunerative markets. External agencies can play a catalyst role by co-funding the establishment of new schemes or the expansion of existing operations, thereby lowering the cost and risk barriers faced by contracting firms. Investment and operational costs can also be reduced when projects become involved in the mobilization and organization of farmers, the implementation of farm trials and demonstrations, and the delivery of training and technical advice. Finally, some development organizations can provide critical technical assistance to agribusiness firms during the contract design and implementation stages: these firms often have poor understanding of agricultural technologies and farm management systems or the socio-economic conditions under which smallholder farmers operate.

While contract farming may offer some opportunities for increasing farm household incomes in eastern Indonesia, especially in East Java and NTB, it is not a magic bullet. For many of

the commodities surveyed contract farming is not a viable vertical coordination arrangement because spot market purchases provide a less costly and less risky alternative. Maize, small chili, mung beans, and mango fit into this category. Furthermore, with the exception of the Unilever black soybean program in East Java and the defunct Garuda peanut scheme in NTB, all the experiences reviewed involve a relatively small number of farmers.

This discussion has important strategic implications for development projects with ambitious outreach targets and an interest in partnering with lead firms, such as EI-ADO. First, a decision to target contract farming as a vehicle for pro-poor chain innovation must be preceded by careful assessments of the business model of potential private sector partners, their motivations, and their capacity to develop mutually beneficial and sustainable partnerships with suppliers. These will only succeed when there is a strong business case for all the parties involved, i.e. when both lead firms and farmers have much to gain from forward contracts. Furthermore, such arrangements are more likely to survive the test of time when progressive lead firms, with a clear vision and strategy, and the ability to adjust contracting models and practices in response to the needs and preferences of participating farmers, are involved.

Second, in order to achieve meaningful development impacts, projects in eastern Indonesia will need to work with several private sector partners, in many districts and different chains. Narrow district and commodity portfolios will significantly limit the opportunities to target contract farming as a livelihood improvement tool. There is a strong case, therefore, for supporting agribusiness firms to establish contract farming operations or expand and upgrade existing schemes irrespective of the commodity in question and their district preferences, provided such partnerships have the potential to improve the livelihoods of significant numbers of resource-poor farm households in target provinces. Value chain studies focused on specific districts, such as those conducted under EI-ADO, are not the best method for identifying such opportunities. A more private sector-centred approach, based on in-depth consultations with lead agribusiness firms operating in different sub-sectors, is needed.

Informal contracting

The way many local traders work with farmers is akin to a contracting system. Provision of input credit and/or cash loans by local traders occurs to varying degrees in most of the chains surveyed. Credit functions as an implicit verbal contract whereby the farmer agrees to sell the crop to the trader. The value of in-kind and cash loans is deducted from payments or reflected in the price paid at harvest time. Prices are determined on the basis of spot market conditions. Similar arrangements were also found in the roast peanut processing chain in East Java, in the potato processing cluster in Batu, and in the tofu processing chain in NTB (but not in East Java, where processors rely heavily on imported soybeans).

Cases where farmers and local traders or processors are bound by credit relations may offer effective entry points for injection of technical and market information. It is likely that some exchange of technical information is embedded in these informal contracting relations, but as mentioned, this is limited by knowledge constraints. Some of the traders and processors interviewed at the village and district levels expressed an interest in becoming more involved in the transfer of technologies to farmers.

This discussion has important implications for development agencies and programs. Given this context, and from a project perspective, larger and entrepreneurial local traders with

close links to smallholders often provide a more cost-effective and sustainable entry point for an upgrading of market linkages than farmer groups or cooperatives. They should be considered, for example, in interventions targeting the development of contracting systems with lead firms or supply arrangements with downstream buyers interested in accessing quality produce for higher-value domestic or export chains.

Vertical coordination in the modern retail segment

Modern retailers are rather passive chain actors. Discussions with supermarket managers indicate that the development of new supply relations with fresh food suppliers do not rank high in their priority list. Individual outlets retail small volumes and have a fairly stable list of suppliers.

The supermarket sector is very fragmented. Indonesia has several chains with a national presence, each with dozens of outlets spread across the country, and many regional chains comprising several stores. For example, in 2009, Carrefour had 63 hypermarkets and 20 supermarkets. As of September 2012, Hero had 36 supermarkets and Giant 96 supermarkets and 44 Hypermarkets. Ramayana currently has 121 outlets and Hypermart 90. Many supermarket chains have decentralized fresh food procurement systems, especially outside West Java, with individual or small clusters of stores managing their own purchases from selected suppliers independently. The practical implication is that supermarket outlets often operate as small procurement units.

Supermarkets generally offer much higher prices than traditional wholesalers, even though the quality of the produce supplied is not necessarily higher than that is display in wet markets. One of the main reason why super markets offer higher prices is purchase volumes are small, they require a continuous supply of different products, typically pay one or two months after delivery, and impose high penalties for non-compliance with contractual conditions. Unsurprisingly, they are supplied by large traders who conduct most of their sales through traditional market channels or by small trading companies that specifically target modern retailers and operate on the basis of a high-value, low-volume business model.

None of the independent value chain studies identified supermarkets as a promising avenue for pro-poor impacts at scale. There is little scope for projects to generate significant benefits to large numbers of smallholder farmers by linking them to modern retail chains. There may be good opportunities in some cases for developing closer links between farmers or local traders and supermarket suppliers, for example in the mango chain, but in a context where quality (and productivity) upgrading processes are facilitated with different markets in sight, including the traditional inter-island trade and exports, not just the modern retail segment.

While in some chains processing enterprises offer possible entry points for pro-poor chain upgrading interventions, their potential outreach is relatively limited. As mentioned, in some chains, traditional and modern processing firms have developed direct relations with smallholder farmers. While these experiences offer AIP-PRISMA possible entry points for pro-poor chain intervention, their potential to reach large numbers of farmers within the program lifetime is relatively limited. Traditional household processors have a very small scale of operation. In the case of larger modern firms, past attempts to develop contract farming relations have proved challenging. Some contract farming schemes have been relatively successful, but they usually involve a small number of farmers and have somewhat limited scalability potential.

Furthermore, fruit juice companies rely largely on imported concentrate, while the few food companies producing tomato sauce, of which ABC Heinz is the largest, mainly use imported paste. Some processed mango products, such as dried mango and mango candy, can be found in modern retail outlets, especially in the largest cities, but most comes from countries such as the Philippines, Thailand, Malaysia and Singapore.

Highly fragmented marketing landscapes pose considerable challenges to value chain development projects. In these contexts, chain participants may be reluctant to invest in some farm innovations due to their small-scale of operation and the likelihood that benefits may be appropriated by competitors. An absence of large firms working directly with farmers also limits the scope for generating leveraged impacts through partnerships with individual trading or processing enterprises. In other words, projects may need to involve many different chain participants in innovation processes in order to deliver impacts at scale.

Government Intervention

The government does not subsidize seed or other external inputs for other EI-ADO crops, although farmer groups are targeted by DINAS Pertanian for distribution of tractors, sprayers, and other equipment. Hence, recent developments in production were largely market-led, although the government does intervene in input and product markets through import restrictions. However, government intervenes in seed markets for crops such as potato, shallot, and soybean by restricting imports. Aimed at supporting local seed production, these restrictions end up penalizing farmers by inflating the cost of planting material purchased in the market (the case of shallot) and by limiting the availability of quality seed (the case of potato). While the government has been actively supporting the development of a local certified potato seed industry, after several decades of direct involvement, this can only cover 2% of domestic needs (Wheatley, 2014). Moreover, potato growers in East Java have limited access to certified potato seed, as production is concentrated in West Java.

These programs have been subject to a number of criticisms. Subsidized seeds are frequently delivered to farmers after the planting season, perhaps due to an overly bureaucratic distribution process. Often, the type of seed distributed, whether hybrid or composite, is neither quality seed nor what farmers would have chosen to plant. Cases where subsidized seed is sold by beneficiaries to other farmers have been reported. While some seed companies may benefit as suppliers to government programs, other companies and retailers suffer from lower demand for their seed products. In other words, government programs undermine market development, crowding-out commercial retail channels and creating disincentives for non-participating companies to invest in product development, marketing and demonstrations for farmers, and an expansion of their distribution networks.

All references are contained within the Synthesis Collection_References document.