EI-ADO Value Chain Structure Synthesis Report

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Introduction

This brief report on value chain structure 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 important patterns, chain conduct, spatial patterns and growth patterns of the various commodities studied.

Scale of farm enterprises

Agricultural landscapes in Eastern Indonesia are dominated by small farms. For all the crops surveyed, farms typically range from 0.1 to 1 hectare. East Java and Lombok Island tend to have smaller farms than Sumbawa Island or NTT because of higher population pressure on land. They also have more intensive cattle production systems, with rural households normally owning three or four heads, whereas in Sumbawa and NTT households typically manage four to seven animals. The small-scale nature of cattle and crop production poses some challenges to external agencies, as farm households tend to have limited financial resources for investment in potential innovations and moderate to high levels of aversion to risk.

Many of the farmers interviewed as part of the EI-ADO studies were organized in groups. It is estimated that in the cattle sub-sector alone Eastern Indonesia has more than 1,400 small groups (Waldron *et al*, 2013). Eligibility for participation in public support programs has been a major reason behind group formation, especially in the cattle and maize sub-sectors, where the government runs large cattle and seed distribution schemes, respectively. Collective action in the marketing sphere is rare, at least in the EI-ADO commodity sub-sectors. Consequently, the impact of farmer groups on chain structures is marginal at best.

Input chains

Input chains in Eastern Indonesia are represented in Figure 1.

Farmers typically buy hybrid seed and agro-chemicals from local stores supplied by larger input retailers in the district or by wholesale distributors linked to large manufacturing companies and importers (see Figure 1). Small nursery businesses play an important role in the chilli and tomato seed chains, especially in more commercialized areas, such as Malang.

For vegetatively propagated crops, the case of shallot and potato, farmers tend to retain part of the harvest for planting during the next season but many also rely on purchases from other growers and local traders. Similar strategies are employed when open-pollinated varieties are used, as in the case of legumes, or maize in Madura Island and NTT province. Some soybean seed may at times be sold by input stores with links to state-owned enterprises or small seed developers (Cambon, S and Rachaputi, C.N. 2013).

As mentioned, government is an important actor in the cattle input chain, with a large number of agencies managing their own animal distribution schemes. According to Waldron *et al* (2013), more than 500 farmer groups in eastern Indonesia are likely to be involved in these programs, with NTB and NTT having by far the largest concentration of beneficiaries. Artificial insemination is used in some of the government schemes.

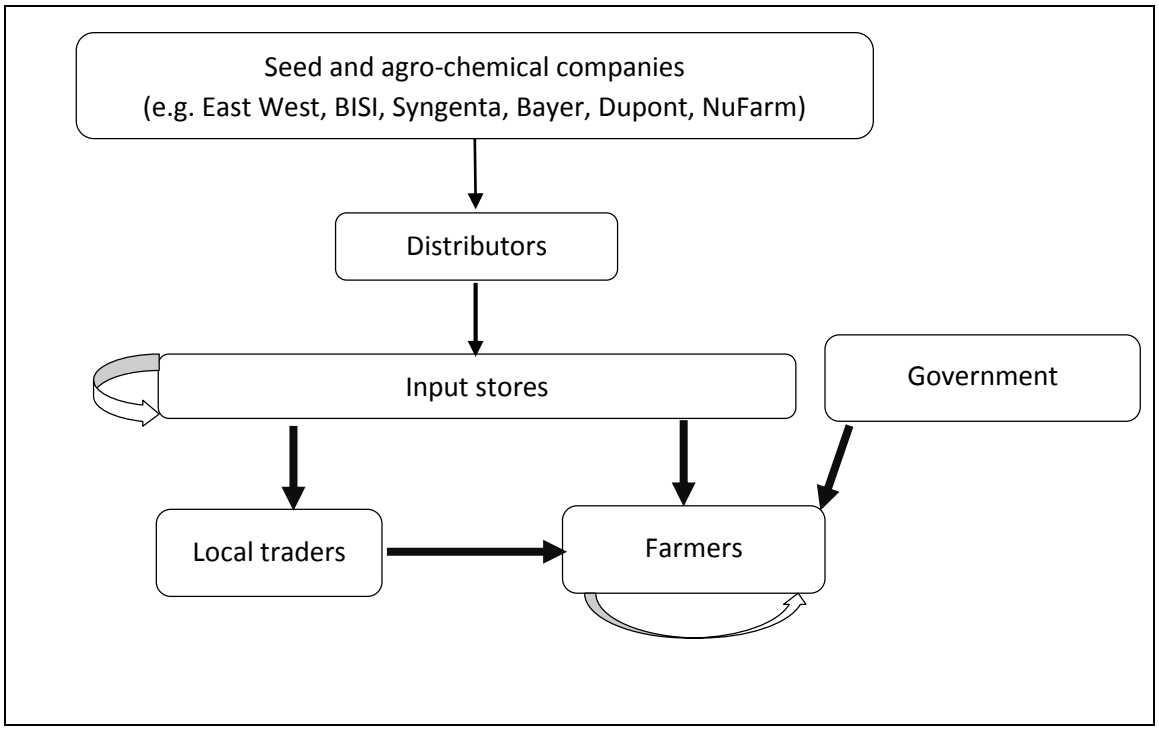

Figure 1: Agricultural input chains in Eastern Indonesia

Government is also heavily involved in the maize seed chain (Flewelling *et al*, 2013). In 2012 alone, roughly 3,000 tonne of free hybrid seed were distributed under the *Bantuan Langsung Benih Unggul* Program. Another program, "Field School for Integrated Pest Management", allocates the equivalent of 15 ha of free hybrid seed to participating farmer groups. In the AIP-PRISMA district of Timor Tengah Selatan, the program is working with 80 groups, each with a membership of 15 to 30 farmers, covering an area of 1,200 ha of land. The National Seeds Reserve provides free maize seed to farmers affected by crop failure due to floods, droughts, or extreme pest and disease outbreaks. Some state-owned companies, for example PT Pertani and PT Sang Hyang Sri, sell maize seed at subsidized prices on a government project basis through their own network of retail outlets, the government extension system, and private shops.

There is much less direct government involvement in legume and vegetable seed chains. Some certified soybean seed is produced under contract with state-owned companies, such as PT Pertani and PT Sang Hyang Sri, but this accounts for a relatively small share of the seed market (Cambon, S and Rachaputi, C.N. 2012). In the potato and shallot seed chains, government intervention is focused on the provision of certification services. Certified potato seed accounts for up to 5% of planted areas in East Java (Wheatly *et al*, 2013). According to the key informants interviewed, the share of certified shallot bulbs for propagation is likely to be smaller (Wandschneider *et al*, 2014).

A consistent finding across the value chain studies for maize, vegetables and pulses is that farmers often lack access to quality seed. Not only do farmers have limited access, but they lack the knowledge of the benefits of adopting certified seed. Most farmers still prefer to save (or buy) seeds from the previous year's harvest for use as planting material. The reasons include; to reduce seed planting costs, they lack knowledge on where or how to purchase quality seeds; quality seeds are often not available in the market; and when quality seed is

available there is often a reluctance to purchase due to concerns around counterfeit labelling or inconsistent quality assurance standards.

The government does provide a quality assurance system for seed producers and farmers across food and horticultural crops. The system is managed by the Seed Control and Certification Agency (BPSB) and while it is effective in providing quality certified seed in certain areas it lacks consistency and effectiveness due to the provincially funded nature of the program.

Local market channels

There are many common elements in local marketing systems for the different study commodities. Farmers generally sell their production to small village collectors or village assembly traders that supply processing enterprises and urban wholesalers within the district, the province, and other provinces and islands, either directly or through larger traders (see Figure 2).

Marketing landscapes are highly fragmented or crowded. In many ways, agricultural markets in production areas fit the perfect competition model, with limited product differentiation and many small suppliers and small buyers, both with fairly good access to spot price information, competing with each other. NTT is a special case as farmers in remote villages may have few buyers for their production and limited access to price information.

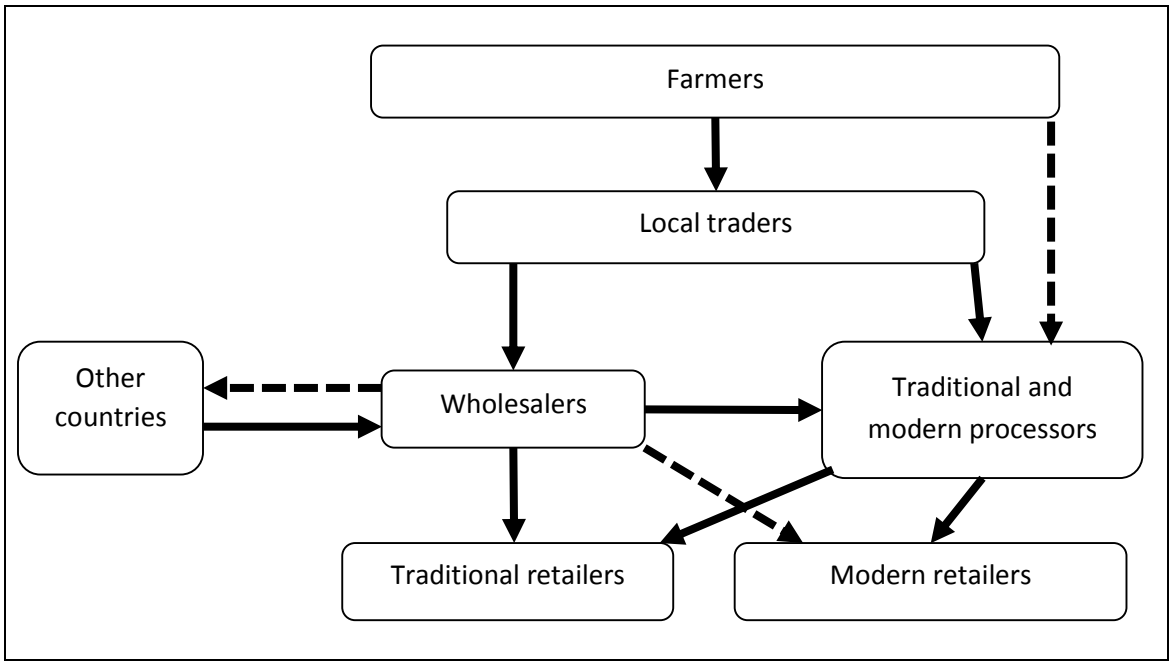

Figure 2: Agricultural chains in Eastern Indonesia

In Eastern Indonesia farmers rarely have a direct relationship with modern processing, wholesaling, retailing, or export enterprises. In all the chains surveyed, there is very limited or no presence of lead firms sourcing directly from farmers. In cases where large agribusiness enterprises have their own procurement networks in production areas, as in the chili and potato chains, the number of contract growers is very small, at least in eastern Indonesia. This is because these firms generally prefer to procure their supplies from traders (chilli chain) or rely largely on imports (potato chain). Unsurprisingly, none of the EI-ADO research teams identified clear opportunities to reach large numbers of farm households in

eastern Indonesia through strategic partnerships with large agricultural trading and processing firms.

Processing

In Indonesia soybeans are consumed in processed form, mainly as tempeh and tofu, or used as an animal feed ingredient (Cambon, S and Rachaputi, C.N. 2013). A small proportion is used in soy sauces. Most maize from Eastern Indonesia is processed by large animal feed mills, except in Madura Island and NTT province, where it is largely consumed as food (Flewelling *et al*, 2013). There is also a fair amount of processing activity in the peanut, chili and shallot chains, but very little in the mango, tomato and mung bean chains (Cambon, S and Rachaputi, C.N. 2013; Wandschneider, 2015, 2014a, 2014b, 2013). The demand for processed fruit and tomato is relatively small and largely met by imports.

The structure of the processing sector varies considerably across the study chains. The cattle slaughtering industry is highly decentralized and fragmented, comprising thousands of small certified abattoirs, many unofficial slaughter points, and few medium-size slaughterhouses (Waldron *et al*, 2013). Most are owned by local governments or state-owned enterprises. Some exceptions aside, slaughterhouses and abattoirs do not purchase animals. They merely provide a service to butchers, who bring the cattle and their own work teams to the facilities, paying a fee for each animal killed. The beef is typically retailed in traditional markets by the butchers themselves, their relatives, or stallholders with whom they have a longstanding business relation. A typical butcher in Each Java will purchase and slaughter about 50 head per month. Most slaughterhouses and abattoirs handle less than 10 animals in a day. The three largest in East Java have a combined daily slaughter rate of about 400 animals. In NTB, the two largest, located in West Lombok and Greater Sumbawa districts, have a daily slaughter capacity of 50-100 head each.

Tofu and tempeh are produced by micro and small household processors employing less than 10 people (Cambon, S and Rachaputi, C.N. 2013). There are 200 to 250 tofu and tempeh processing enterprises in Lombok Island alone, and another 70 or so in Bima and Dompu, the two AIP-PRISMA districts in Sumbawa Island. In Sampang, another project district, there are an estimated 30 tempeh and tofu processors. Most of these enterprises process between 50 and 100 kgs of soybeans per day. The largest and more sophisticated tempeh processor in Bima district has a daily processing target of 500 kgs. Many processors are organized in cooperatives, of which the Indonesian Tempeh and Tofu Producers Cooperative (KOPTI) is by far the largest. The main role of KOPTI is to lobby government for an open import policy to ensure a steady and affordable supply of soybeans.

Although more soybeans are used in the production of tempeh, the tofu industry is less reliant on imports. Local varieties are preferred because they are cheaper and have higher outturn rates than imported soybeans, but these are favoured by tempeh processors on account of their firmness and homogeneous size. Interestingly, it appears that producers in NTB are less dependent on imports than their counterparts in East Java, with locally produced soybeans accounting for about half of their total purchases. Furthermore, the larger processors in NTB procure beans directly from farmers and farmer groups, whereas in East Java they tend to source them from village traders and urban wholesalers.

The potato, shallot and peanut processing industries have a dualistic structure, with a few large food companies operating alongside geographically scattered clusters of micro and

small enterprises, often processing different products or targeting different market channels (Wheatley *et al*, 2014; Wandschneider *et al*, 2014a; Cambon, S and Rachaputi, C.N. 2013):

- Indofood is the market leader for potato chips (*kripik)*, competing with at least two other large firms. In eastern Indonesia, there is a growing traditional *kripik* processing cluster in Batu, near Malang, which currently comprises some 30 registered household enterprises producing mainly for the local tourism market. This cluster processes about 500 tons of potato per annum.
- Shallot is used in the preparation of instant noodle sauces. The market is dominated by Indofood and Wings, which have large processing facilities in West Java and Surabaya, respectively. The shallot bulbs are sourced from village assembly traders and urban wholesalers. There is also a cottage fried shallot processing industry. In eastern Indonesia, it is concentrated around Surabaya.
- Garuda Foods is the leading producer of peanut snacks, followed by PT Dua Kelinci. Mitra Foods and Orang Tua Group are two other large peanut snack producers. These four companies are based in central and western Java, but source peanuts from traders in different provinces, including East Java and NTB. In these two provinces there are some localized clusters of household enterprises producing roasted peanuts, especially in East Java. One such cluster, located in Taloh village of Malang district, was visited by the legume chain study team.

The animal feed processing industry is dominated by large millers (Flewelling *et al*, 2013). The industry is concentrated in Java, but there are also several large feed mills in Sumatra and South Sulawesi. The largest feed milling cluster is located in and around Surabaya, comprising eight mills. These can process up to 5.3 million tons of maize per annum. They absorb the bulk of maize production from East Java and NTB.

The chili processing industry has an even more concentrated structure. The market is dominated by two *sambal* producers, ABC Heinz and Indofood. Their processing facilities are located in Jakarta and Semarang, respectively. Small and large chilies are sourced from traders, but some big red chili supplies are grown under contract.

Retail channels

Indonesia has several large supermarket chains with a national presence, as well as several smaller regional chains, some with just a few outlets. In 2009, Carrefour had 63 hypermarket and 20 supermarket outlets. 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 stores managing their own purchases from selected suppliers independently. The practical implication is that supermarket outlets often operate as small procurement units.

The supermarket segment as a whole commands a very marginal share of the whole fresh food market, even in Java, where there is a dense outlet network in the main cities. Supermarkets and hypermarkets sell about 12,700 tons of beef per annum, i.e. about 3% of Indonesia's total beef production (Waldron *et al*, 2013). Recent survey data collected from 1,180 respondents in three affluent cities of Java, Surabaya, Bogor, and Solo, show that only 9% of residents in neighbourhoods with large modern retail outlets purchase most of their

mangoes from hypermarkets and supermarkets; the shares for chili, shallot, potato, and tomato ranged from 1% and 2% (Umberger, personal communication). In sum, after more than a decade of very rapid growth of the modern retail segment, the vast majority of Indonesians still rely on wet markets, semi-permanent stands, peddlers, small shops, and other traditional outlets for their daily fresh food purchases. Supermarkets and hypermarkets only have a significant share of the retail market for imported fruits, such as apples and oranges, and processed foods, such as potato chips and peanut snacks.

Several studies have highlighted the opportunities available to smallholder farmers in high-growth, high-value modern retail chains[1]. Clearly, this conclusion is at odds with the data and analysis presented above. It is based on exaggerated claims about supermarkets' share of the fresh food retail market; overly optimistic assumptions about growth rates, where the rapid expansion in outlets, including mini-marts, which focus on non-perishables, are taken as an indication of expansion in fresh food sales; and an analysis focused on prices and margins but overlooks volumes, transaction costs and entry barriers, i.e. structure and conduct of supermarket chains. Many studies also fail to mention that supermarket chains are not investing in their upstream supply base, as the costs of such a strategy seem to exceed likely benefits.

Export channels

Export channels were not covered in detail in the EI-ADO studies. In all the chains surveyed there was little or no export activity. In many cases exporters were located outside Eastern Indonesia, where most or all the fieldwork was conducted. Still, the mango and shallot chain studies offer some important insights about the structure of export chains (Wandschneider *et al*, 2013, Wandschneider *et al*, 2014a).

Mango and shallot exporters rely on traditional procurement channels, sourcing produce from a few assembly traders and wholesalers in and around production areas with whom they have a well-established business relation. Supplies are channeled to a small number traditional export markets when there is enough supply of produce that meets certain quality requirements and spot prices are low enough to justify transportation to other countries. In other words, the mango and shallot export trade is underpinned by short-term spot market conditions. It is an opportunistic trade.

Exports account for a relatively small share of the business portfolio of mango exporting firms. For example, large wholesalers in Sumatra are still the main client of PT Sumber Buah, a fruit trading enterprise from Cirebon, West Java, and Indonesia's leading mango exporter. PT Alamanda Utama, a horticultural export company from West Java, also ships mangoes to Singapore, Malaysia, Hong Kong and the Middle East, but this trade represents a small part of its business, which includes other fruits and a wide range of vegetables.

The shallot export trade is dominated by a few companies in Brebes and Cirebon. Most exports are conducted towards the end of the peak harvest season, or soon after, i.e. in September and October, when Thailand, Malaysia and Vietnam have little domestic production. Those companies are also heavily involved in the shallot import trade, supplying large traditional traders across Java and in Sumatra, Kalimantan, Bali and Lombok.

[1] ADP/2005/066 'Markets for high-value commodities in Indonesia: Promoting competitiveness and inclusiveness, examines the transformation of chillies, prawns, shallots and mangoes' and AGB/2009/060, 'Improving market integration for high value fruit and vegetable production systems in Indonesia.'

Eastern Indonesia is a major source of mangoes and shallot for export markets. Mango exporters are either located in East Java or have close links to village traders in major production districts within the province, such as Pasuruan, Kediri and Probolinggo. Most export shallots come from Probolinggo and Greater Sumbawa districts, which supply the best-quality shallots.

All references are contained within the Synthesis Collection_References document.