EI-ADO Value Chain Spatial Patterns Synthesis Report

Author: Tiago Wandschneider

Introduction

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

Spatial Patterns

The three study provinces (East Java, NTT and NTB) vary in terms of their importance in the supply of agricultural commodities. East Java stands out as a major crop and livestock production centre (see Table 1). The province has the largest concentration of cattle in Indonesia, is the leading producer of maize, chili, soybean, peanut and mango in the country, and the second largest producer of shallot and mung bean, after Central Java. NTB is an important producer of mungbean, soybean and shallot, accounts for about 5% of Indonesia's mango and peanut production, and has a similar share of the country's cattle herd. NTT has about 5% of the national cattle population, 4% of domestic mango and mungbean production, and 3% of the total maize and peanut harvest. The province is a marginal soybean and vegetable producer.

Table 1: Share (%) of East Java, NTB and NTT in national production (2010-12)

Commodities	Share of national production (%)		
	East Java	**NTB**	**NTT**
Maize	31.3	2.4	3.3
Chili	18.2	1.8	0.4
Shallot	21.5	9.8	0.3
Potato	11.7	0.5	0
Tomato	6.8	2.9	0.8
Peanut	29	5.1	3
Soybean	41.1	9.8	0.2
Mung bean	24.8	14.7	3.9
Mango	34.7	6.1	3.7
Beef cattle	31	5.7	5.1

Source: Author's calculations based on BPS data

The cattle chain is an obvious candidate for intervention due to the large number of rural households involved in production activities: it is estimated that about 1.2 million households in East Java and about 400,000 households in both NTB and NTT raise cattle (Waldron *et al*, 2013). Likewise, large numbers of rural households grow maize. East Java has more than 1.2 million hectares (ha) under the crop, while NTB and NTT have about 240,000 ha and NTB 117,000 ha, respectively (see Table 2). Given an average farm size of about 0.5 ha, one can

assume that there are some 3 million maize farm households in those three provinces of Eastern Indonesia. It should be noted, moreover, that maize is typically grown by resource-poor households due to the relatively limited investment requirements, the contribution to food security and the low marketing risks associated with the crop.

None of the other study crops compares to maize in terms of cultivated area or number of growers (see Table 2). Still, soybean and peanut are widely grown across Eastern Indonesia: more than 250,000 ha are allocated every year to each of these crops. Soybean is a major component of agricultural production systems in three AIP-PRISMA districts, namely Sampang, Bima and Dompu, which have a combined cultivated area of 50,000 to 65,000 ha per annum. Peanut is a different case: of all AIP-PRISMA districts, only Sampang is a significant producer, with a cultivated area of more than 20,000 ha (Cambon, S and Rachaputi, C.N. 2013). Tuban district is the main peanut production and marketing centre in Eastern Indonesia.

Table 2: Harvested area (ha) for EI-ADO crops in East Java, NTB and NTT (2012)

Commodities	Harvested area (ha)		
	East Java	**NTB**	**NTT**
Maize	1,244,927	116,950	240,107
Soybean	220,815	62,888	2,691
Peanut	213,792	38,890	21,563
Mango	76,532	10,696	7,446
Chili	63,185	5,247	1,981
Mungbean	55,881	27,775	13,183
Shallot	22,323	12,333	725
Potato	10,391	337	85
Tomato	4,663	1,333	1,114

Source: BPS data

Chilli is the main vegetable crop in East Java, but production is scattered across many districts. Between 3,000 and 4,000 ha are allocated to the crop in Sampang and Malang, which have by far the largest production area amongst all AIP-PRISMA districts (Wandschneider *et al*, 2013c). Production of other EI-ADO vegetable crops is concentrated in just a few districts. Most shallot production comes from Probolinggo, Nganjuk, parts of Madura Island, Bima, and Greater Sumbawa (Wandschneider *et al*, 2014a).[1] Potato cultivation is largely confined to high-altitude areas around Mount Bromo, with most production coming from Pasuruan, Probolinggo and Malang districts (Wheatley *et al*, 2014). There is very little potato cultivation in other parts of Eastern Indonesia, with the exception of the area surrounding Mount Rinjani in East Lombok.

Tomato is an important vegetable crop in just five districts: Malang, Kediri, Banyuwangi, Batu and East Lombok (Wandschneider *et al*, 2014b).

---

[1] *The importance of shallot in Greater Sumbawa is not reflected in official data, perhaps because in this district the crop is grown by farmers from Bima renting land on a seasonal basis.*

Finally, while small mango orchards are a common feature of farming landscapes in many parts of East Java and Lombok and Sumbawa islands, none of the AIP-PRISMA districts is a leading producer (Wandschneider *et al*, 2013).

Spatial production patterns have important geographical targeting implications for development projects with ambitious outreach objectives, such as AIP-PRISMA. In the cattle and maize chains, projects with a narrow, pre-defined district portfolio can still aspire to benefit large numbers of households because the two commodities are a major source of rural incomes across the whole Eastern Indonesia region. There is also scope to reach large numbers of farm households through interventions in the soybean and peanut chains in selected AIP-PRISMA districts, although the potential for impact could be significantly enhanced if other major production areas were to be targeted as well. For other EI-ADO commodities, however, a flexible approach to the selection of project areas is needed for impacts at scale.

Instead of starting with a pre-determined district portfolio, projects should consider targeting the main production areas. This will lead to different district portfolios for different commodities. For example, Probolinggo, Pasuruan and Kediri are leading mango producing districts in Eastern Indonesia and therefore obvious choices for interventions in the mango chain. If the shallot sub-sector is targeted as a vehicle for poverty reduction and rural development, then Nganjuk, Probolinggo, Madura Island, Bima and Greater Sumbawa are the locations with a larger concentration of producers. In the case of chilli, a more diversified geographical portfolio may be required because production is so spatially scattered.

This discussion illustrates some of the possible tensions between area-based and value chain-centred approaches to poverty reduction and rural development. In the former case, there is an ex-ante selection of certain areas or districts based on government preferences, poverty indicators, and other criteria. The choice of agricultural commodities is normally a function of the geographical areas selected, i.e. a decision to work with a particular commodity will be informed by its importance within local production systems and the opportunity it may offer for livelihood improvements in target areas. This will limit the commodity portfolio of a project. In contrast, in a value chain-centred approach commodities are normally chosen on the basis of their potential as vehicles for poverty reduction and rural development, with the choice of project areas dictated by their relevance as production and marketing centres and the business strategies and geographical focus of lead agribusiness firms with whom a program or project may want to work.

AIP-PRISMA provides a good example of these tensions. In order to have tangible impacts on rural livelihoods, the program aims to intervene in a large number of agricultural chains. However, none of the 12 program districts is a leading mango producer. Tomato is an important crop in some areas of Malang district only, where it is grown in small farm plots as part of a highly diversified vegetable production system. Potato cultivation is confined to the slopes of Mount Boro in Malang. Chilli has some socio-economic importance in Malang and Sampang, but not in the other program areas. While peanut cultivation is a possible candidate for intervention in Sampang and North Lombok, cultivated areas and number of growers in all other project districts are fairly small. What these examples show is that, if restricted to its original choice of program areas, AIP-PRISMA will be missing many opportunities for pro-poor impacts. Confronted with this reality, it was decided that the program would adopt a more flexible geographical targeting strategy, with decisions about location portfolios guided by

outreach potential. The program also started looking at opportunities for intervention in new chains, such as cashew, coffee, and cassava.

All references are contained within the Synthesis Collection_References document.