

SLIGHT PROGRESS WRONG DIRECTION OF AGRICULTURAL DEVELOPMENT: ANALYSIS OF AGRICULTURAL CENSUS 2013

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ABSTRACT

Agricultural Census 2013 shows agricultural sector as a provider of food, as well as livelihoods of majority of Indonesian people. The various agricultural sub-sectors develop mainly in Java and Bali, particularly food crops, horticulture, plantation, and animal husbandries. Most of the agricultural processing and services are also concentrated here. Social exclusion of smallholder households, as well as centralizing control of big land, are simultaneously happened, also lowest layers of the ruler of the land of the most marginalized. Meanwhile, about 45 percent of land (0.5-30 hectares) are owned by only 11 percent of affluent households. Clearly agricultural development trajectory for peasant is still far away to reach. © 2013 Journal of Rural Indonesia [JoRI] IPB. All rights reserved.

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Introduction

Census of Agriculture 2013 has just collected data from Indonesian farmers. According to the Central Statistics Agency, which manages the Agricultural Census, it is the sixth census. The Census of Agriculture is conducted every 10 years, in 1963, 1973, 1983, 1993, 2003 and now 2013.

Analysis of the Agricultural Census is useful for development, namely for

planning, policy implementation, and evaluation of agricultural development programs. These data are required by relevant ministries and institutions (especially Agriculture, Marine Affairs and Fisheries, Forestry, and the National Development Planning Agency), universities and international institutions.

Agricultural Census Process

The data collected in the Agricultural Census 2013 covers all agricultural

businesses in food crops, horticulture (vegetables, fruits, ornamental plants, and medicinal plants), plantation, animal husbandry, fisheries, and forestry, both in households, companies, as well as religious institutions, prisons, military barracks, and business groups.

Data are based on a number of recommendations from the FAO. In detail, the data generated includes land area, type of irrigation, and annual crops (planting area/number of trees/clumps), animal husbandry (livestock numbers by age group, the use of feed, and the parameters of the movement of livestock), the number of farm households by sub-sector, households doing agricultural processing, households doing agricultural services, socio-demographic characteristics (gender, age, and agricultural activities are carried out), socio-economic conditions in the communities around the forest area.

The relevance of Agricultural Census is based on the needs of current baseline data for evaluating performance and planning of agricultural development in Indonesia. Current Agricultural Census spent a total budget of around Rp 1.59 trillion. Census officer collect data through visiting agricultural businesses and agricultural entrepreneurs residence in the territory of the Republic of Indonesia. The data was collected in 1-31 May 2013

Agricultural Census 2013 data was updated from Agricultural Census 2003. There are two methods used in the latest census, which were door-to-door method, and snowballing. Door-to-door census was conducted in the agricultural sector, where census officers went directly to the farmer's house. Snowballing method was implemented for non-agricultural

sectors. Officers did not directly visit residents home, but first going to the local neighbourhood administrative unit. Officers subsequently check and re-check.

Process of data collection is shown in West Java and West Nusa Tenggara. Coverage areas in West Java reaches 119.405 census block, the block includes the 71.647 agricultural blocks and 47.758 non-agricultural blocks. The census blocks spread over 26 districts/cities, 625 sub-districts and 5,941 villages/ urban villages in West Java. In the region there are 3,311,792 farm households. BPS assigns 40,668 field workers, where as many as 10.167 is the coordinator of the team, and 30.501 are enumerators. A total of 78.31% or 31.848 of the total census concentrated in the agricultural sector.

Lombok contained 6.036 enumerators, who were recruited from 1,122 villages spread over 116 districts in ten sub-districts/cities in West Nusa Tenggara. The enumerator is incorporated in 1,509 teams, each consisting of four people. They spread to 15.035 blocks comprising of 12.577 concentration blocks and 2.548 non-concentration blocks. In concentration blocks, farm households were directly visited by enumerators from door to door, while the non-concentration block that are less than 10 households per block were attended by chairman of the neighborhood administrative unit, hamlet or extension workers. Lombok is allocated a budget of Rp 30 billion for salaries of enumerators, or each enumerator received a fee of Rp 2.8 million a month doing the census.

Preparation of Agricultural Census 2013 began in 2010, a preparation of Network Planning (NWP) and

budget. Trial questionnaire was done in 2011, including methodology, and field organizations. Rehearsals to update the directory of agricultural enterprises were conducted in 2012. Finally, in 2013 census of household income and agricultural businesses was completed.

In 2014, the result of a complete enumeration of rural household income will be analysed. There are about 180,000 samples in researching the cost structure of farm enterprise. Finally in 2015, the analysis and dissemination of the results of these sub-sectors is to be carried out.

Direction of Agrarian Change

Agricultural land is a very important asset for most farmers, especially those who are in the businesses of food crops, plantations and forestry. Most small farmers do not require large tracts of land, such as farmers of horticulture, animal husbandry, and fisheries (Sajogyo, 2006).

Farmers can be expected to maintain and even increase agricultural land. During the period 2003-2013, the average area of agricultural land increased from 3,509.59 m² to 8,580.42 m² per farmer's household, an increase of nearly 1.5 times (Appendix 1). More importantly, with a minimum land of smallholder less than 0.5 ha, the increase means the average small farmers are no longer small farmers.

Unfortunately most of the small farmers live in locations where most Indonesian farmers are. In 2013 the location includes Java and Bali as follows: Jakarta (average tenure 0.2 hectares per farmer's household), Yogyakarta (0.3 ha), Central Java (0.4 ha), East Java (0.4 ha), West Java (0.4 ha), Bali (0.5 ha) and Banten (0.5 ha). Ironically, the agriculture

that is growing in Papua are also smallholders (average tenure is 0.5 hectares per farmer's household).

When compared with the average tenure of each farmer's household at the national level, the area above can be added with West Nusa Tenggara (0.7 ha) and West Papua (0.7 ha).

When compared to 2003, the zoning is not much different. Small farmers are located in Jakarta (0.01 ha), West Java (0.1 ha), Yogyakarta (0.2 ha), Banten (0.2 ha), East Java (0.2 ha), Central Java (0.2 ha), Bali (0.3 ha). Outside Java-Bali in this category is the Riau Islands (0.3 ha), West Nusa Tenggara (0.4 ha), Papua (0.4 ha), West Papua (0.5 ha), North Sumatra (0.5 ha), West Sumatra (0.5 Ha), Gorontalo (0.5 ha).

Comparing the data of 2003 and 2013, the region that is getting less dominated by smallholder households are North Sumatra, West Sumatra, Riau Islands, Gorontalo, West Nusa Tenggara, West Papua.

It seems that most of the increase in agricultural land are obtained from the transition of non-agricultural land to agriculture. There was a decrease of about 40% of non-agricultural land for farmers, from 569.47 m² to 344.49 m² per household.

The highest increase in agricultural land happens in Kalimantan. In East Kalimantan, the average area of agricultural land increased by 20,148.56 m² per household, from 4,353.72 m² to 24,502.28 m² per household. In Central Kalimantan, the average area of agricultural land increased by 19,675.80 m² per household, from 10,526.23 m² to

30,202.03 m² per household. In North Borneo average area of agricultural land increased by 19,282.53 m² per household. In relative terms, the increase in the average farmland per household in East Kalimantan is 4.6 times, and about 2-fold in North Kalimantan, Central Kalimantan and South Kalimantan.

The highest changes in the structure of agricultural land was in Jakarta, reaching 90-fold, from 16,49 m² to 1,524.46 m² per household. The largest increase is caused by the increase in non-rice agricultural land, from 9.41 m² to 1,025.47 m² per farmer's household.

The increasing number of agricultural land owned by farmer's households has reduced the condition of starving for farmland. Average land use outside the household decrease, from 569.47 m² to 344.49 m² per household. A decrease of 224.98 m² per household is equivalent to almost 40% reduction. Such symptoms demonstrated land owned by another person decreased from 13.96% to only 3.86% of the agricultural land being owned.

Direction of Change in Agriculture Sector

A legal enterprise, farmer's households and other parties carry out agricultural production. Agricultural legal enterprises is farm businesses protected by law that is conducting any form of business in the agricultural sector which is fixed, continuous, established with the aim of gaining profit and the company is permitted by the competent authority at least at the district/city level, for every stage of cultivation agriculture such as planting, fertilizing, maintenance, and harvesting. The examples of such legal

enterprises are PT, CV, cooperative, foundation, SIP of Regional government.

Farming households are households in which one or more members of the household do agriculture activities with the aim to sell the harvest, partly or entirely, and the results are to be sold, either self-owned agricultural enterprises or sharing, or getting wage from others, in this case including services in agriculture. Farming households are households in which one or more members of are responsible to conduct the maintenance activities, cultivation, breeding, fattening, and others. Status of agricultural management, consisting of self-owned, sharing, wage-labours and own farm that is managed by wage-labours.

There is a little difference in the concept of farming households in the Agricultural Census 2003 and Agricultural Census 2013. In the Agricultural Census 2003, a household could be categorized into farming household only if it meets the Minimum Operational Limit (BMU) that has been established, while the Agricultural Census 2013 farming household does not comprise the Minimum Operational Limit.

Household farming land users are farming households that do one or more agricultural activities including rice, annual crops, horticulture, plantation, forestry, animal husbandry, fish farming/other biota in freshwater ponds/swamp water ponds, and captive wildlife.

Other units of farming is agricultural enterprises that is managed not by farmer's household of agricultural business, but by entities such as boarding schools,

seminaries, military barracks, prisons, educational institutions, and others.

The number of farmer's households is decreased 16% as compared to 2003 (as much as 5 millions households), while agricultural enterprises increased 4% or 155 companies (Table 1). One farm

household could manage more than one type of agricultural endeavour. Farmer's households cultivate food crops (17 million), mainly rice cultivation (14 million). Farmer's household are also doing livestock (13 million), plantations (12.8 million), and horticulture (10.6 million).

Table 1. Number of Agricultural Enterprises by Sub-sector and business communities in 2003 and 2013.

Agricultural sector	Farmer's households		Agricultural legal enterprise (Company)		Others
	2003	2013	2003	2013	
Agricultural Sector	31,232,184	26,135,469	4,010	4,165	5,922
Food crops	18,708,052	17,728,162	87	114	1,316
Rice	14,206,355	14,147,861	69	75	589
Annual crops	10,941,919	8,624,228	18	47	950
Horticulture	16,937,617	10,602,142	225	185	1,455
Plantation	14,128,539	12,770,571	1,862	2,216	1,451
Livestock	18,595,824	12,969,206	475	636	2,196
Fisheries	2,489,681	1,975,249	631	379	979
Fish cultivation	985,418	1,187,604	520	279	950
Fish catching	1,569,048	864,506	111	100	35
Forestry	6,827,937	6,782,956	730	656	964
Agriculture service	1,846,140	1,078,308			

Source: www.st2013.bps.go.id

At the farmer's household level, the largest decline occurred in horticulture, losing 6.3 million households or as much as 37% decreases. The next is livestock, losing 5.6 household or decreased by 30%. When it comes to food crops, the number of households cultivating rice did not change much (reduced 58 thousand households or 0.41%), but the number of households with annual crops decreased by 2.3 million or 21%. In the fisheries sector, while the fish catching fell by 45% (700 thousand households switching business), it turns out that aquaculture increased 200 thousand households (increased 21%).

The biggest decline in farmer's household is in Java (Appendix 2). In Central Java it declined as much as 1.5

million households (26%). In East Java, it decreased 1.3 million households (21%). In West Java it declined 1.3 million households (30%). The biggest change in farm structure occurred in Jakarta, which reduces the sector up to 77% (a decrease of 40 thousand households).

At the same time, farmer's households increase outside of Java, although not as high as the decrease in Java. An increasing number of farms are apparent in Papua, which adds 56% or 158 thousand households. Increasing number of farms generally occurred in less developed regions, namely North Maluku, West Sulawesi, Southeast Sulawesi, Central Sulawesi, North Borneo, West Kalimantan, East Nusa Tenggara, Riau.

Agricultural enterprises are concentrated in the plantation business (2,216 companies), as shown in Appendix 2. As much as 354 plantation business is added or 19% increase as compared to 2003. Increased number of agricultural companies also occurred in livestock (or the addition of 161 companies or 34%), food crops in the form of annual crops commodity (addition of 29 companies, or 1.6 times).

The largest decline occurred in fishing enterprises (decreased 252 companies or 40%), especially aquaculture (decreased 241 companies or 47%). The slightest decrease occurred in horticulture business (down 18% or 40 companies).

Increased number of agricultural companies occurred in the region of Central to South Sumatra, Kalimantan, and Papua regions (Appendix 2). For Kalimantan, in Central Kalimantan, there was an increase in the number of company as much as 131 (increased 1.4 times), in West Kalimantan, an increase of 107 companies (64%), in East Kalimantan, an increase of 86 companies (81% increase). For the region to South Central Sumatra, Riau an increase in 81 companies (46%), an increase in Jambi as much as 46 companies (60%), South Sumatra increased 60 companies (51%), an increase in Bengkulu as much as 36 companies (88%), an increase in Lampung as much as 31 companies (34%), in the Bangka Belitung there was an increase of 12 companies (28%), there was an increase in Riau Islands as much as 29 companies (increased 5-fold). There was an increase in Papua as much as 8 companies (18%), and 9 companies (28%) in West Papua.

Deterioration of the number of agricultural companies occurred in East Java, which reached 243 companies decline. There was a decrease down to 37%, as compared to 653 companies in 2003.

Other entities of agricultural businesses mostly take form of self-sufficient groups. This group enterprises are as much as 5,922 groups. Highest numbers of enterprises are working on livestock, as much as 2,196 groups or 37% (Table 1). East Java dominates the increased number of this business group as much as 1.083 or 18% (Appendix 2).

Agricultural Census 2013 does special census of cow and buffalo. Data of cows lead to tensions in recent years. Beef scarcity in the market ahead of Eid in 2011 was assessed as errors of Livestock Census 2011 that said the availability of beef were sufficient but in reality it was not adequate for the community. In the following year the company importing cattle made their own lowest commodity data to get an increase in the import quota arrangement. It later emerged that this mode has become part of corruption.

According to the Agricultural Census 2013 (Appendix 3), the number of beef cattle reached 12.7 million, consisting of 8.5 million cows and 4.2 bulls. The number of dairy cows is 400 thousand, and as many as 1.1 million buffalo. Overall the number of cows and buffaloes reached 14.2 million.

The population of beef cattle and dairy cattle are most numerous in East Java, which reached 3.6 million beef cattle and 223 thousand dairy cattle. The largest buffalo population is in East Nusa

Tenggara, which amounted to 133 thousand buffalos.

Livestock Census in 2011 resulted in the number of 14.8 million beef cattle. There was a decrease in the next two years as much as 2.1 million or 14%. Considering that 67% of beef cattle population is female, there is a possibility that the cause of population decline is partly due to cutting productive cows, which are needed to maintain the cattle population in the country.

Not all commodities are directly consumed or sold. A total of 2.4 million farmer's households (or 9%) process their own commodities (Appendix 4). To process crops is to change from raw materials into semi-finished commodities or semi-finished commodities into finished commodities or raw materials into finished commodities in order to increase the value of the commodities. Location of farm processing is more in Java, which is 486 thousand households in Central Java, 398 thousand in East Java and 219 thousand in West Java.

Plantation commodities are the most widely self-processed farming households commodities, commonly known as people's estates (1.2 million households). Next is food commodity, which is processed by 870 thousand farm households. Central Java dominates the processing of food crops (24% or 209 thousand households), horticulture (18% or 27 thousand households), plantation (16% or 181 thousand households), and forestry (30% or 91 thousand households).

As many as 1 million farm households (1%) also do agricultural services (Appendix 5). Households doing agricultural service is household

conducting business on the basis of the remuneration or contract/in bulk, such as serving businesses in agriculture.

Over half of the agricultural services households are doing their services on food crop sub-sector (56% or 598 thousand households). Below it is the Horticultural services, which are done by 242 thousand households (22%). Agricultural services are dominated by farmer's households in East Java, agricultural services for food crops (137 thousand households or 23%), horticulture (31 thousand households or 31%), plantation (43 thousand households or 18%), livestock (15 thousand households or 23%). For fishery commodities there are almost equal dominance between West Kalimantan (10 thousand households or 12%) and East Java (9 thousand households or 12%). For forestry commodities, there is a predominance of agricultural services in South Sumatra (43 thousand households or 26%).

Smallholder

Agriculture is dominated by men as compared to women with a general ratio of 8 men : 2 women (Table 2). Male dominance is getting higher (9:1) in the fish cultivation and fish catching. Ratio of men and women in agriculture are clearly not equivalent to the sex ratio in Indonesia, which revolved around 1:1. This comparison indicates a lesser chance for women to participate in the agricultural sector.

Agricultural Census 2013 also collected agricultural households tenure at the time of data collection. Smallholder households are farm household who control less than 0.5 acres of land. The number of smallholder households are

calculated based on the amount of agricultural and non-agricultural land held by households. Farm households that only do activities of marine fish cultivation, fish farming in open waters, sea fishing,

fishing in public waters, forest harvesting/wildlife hunting, and agricultural services are not categorized as farm household land users.

Table 2. Number of Farmers by Sector, Subsector and Sex in 2013

Sector and Subsector	Male	Female	Total
Agricultural sector	24,362,157	7,343,180	31,705,337
Food crops	16,096,457	4,302,682	20,399,139
Horticulture	9,342,562	2,608,427	11,950,989
Plantation	11,729,886	2,386,579	14,116,465
Livestock	11,080,280	3,658,009	14,738,289
Fish cultivation	1,141,125	147,740	1,288,865
Fish catching	869,022	58,232	927,254
Forestry	6,221,033	1,027,997	7,249,030

Source: www.st2013.bps.go.id

Smallholders refer to the lowest layer of farm household, hence its presence becomes important as information to view the welfare of the agricultural sector. It would be difficult to imagine tenure under 0.5 Ha to improve the well-being of household.

From Table 3 it is known that most of the reduction in the number of farm households (about 5 million) took place in smallholders (about 5 million). The number of smallholder households dropped from 19 million in 2003 to 14 million in 2013. In more detail, the actual loss of smallholder's households happened for smallholders having less than 0.1 hectares of land, approximately 5 million less than 2003 (from 9.4 million to 4 million), which means the lowest layer of the smallholders. The biggest change occurred in Jakarta (Appendix 6), where the decline in farm households by 38 thousand (80% decrease) is almost entirely in the decrease of smallholder households (by 37 thousand or 81% decrease).

The increased number of farm households appear only in the group that controls the 1-2 Ha and above 3 hectares of land, hence it is conceivable that the bottom layer of the smallholder farmers have gone out of the possession of land, may now become farm workers or out of the agricultural sector.

Table 3. Number of Households by Land Tenure in 2003 and 2013

Area (m2)	2003	2013
<1000	9.380.300	4.338.847
1000-1999	3.602.348	3.550.185
2000-4999	6.816.943	6.733.364
5000-9999	4.782.812	4.555.075
10000-19999	3.661.529	3.725.865
20000-29999	1.678.356	1.623.434
≥30000	1.309.896	1.608.699
Total	31.232.184	26.135.469

Source: www.st2013.bps.go.id

On the other hand, there is a tendency in the direction of agricultural development directly with the development of smallholders, as happened in Eastern Indonesia (Appendix 6). In Papua, there was an increase up to 80% of

smallholder households (from 170 thousand to 305 thousand), in the East Nusa Tenggara increased 39% (from 225 thousand to 290 thousand), in West Sulawesi increased 16% (from 44 thousand to 51 thousand), in Maluku increased 13% (from 69 thousand to 78 thousand), in North Maluku rose 11% (from 20 thousand to 22 thousand).

The condition is opposing smallholder agricultural development budget that continues to increase. There was a spike in the budget from 2007 to 2008 (19 trillion rupiah), and from 2010 to 2011 (as much as 7 Trillion rupiah).

Table 4. Indonesian Agriculture Budget, 2007-2012 (billions of rupiah)

No	Item	2007	2008	2009	2010	<u>2011</u> <u>(APBN</u> <u>Perubahan</u> <u>)</u>	<u>2012</u> <u>(APBN)</u>
1	Central Government Expenditure	20.941,60	39.582,00	41.781,00	44.927,20	51.854,00	52.018,20
	a. Functions of agriculture, forestry, marine, and fisheries	7.570,30	11.241,80	8.716,80	9.004,70	17.219,90	18.717,50
	b. Subsidy	13.371,30	28.340,20	33.064,20	35.922,50	34.634,10	33.300,70
	b.1. Fertilizer	6.260,50	15.181,50	18.329,00	18.410,90	18.803,00	16.944,00
	b.2. Seeds	479,00	985,20	1.597,20	2.177,50	120,30	279,90
	b.3. Credit program	47,50	77,60	151,00	180,30	443,80	469,70
	b.4. Food	6.584,30	12.095,90	12.987,00	15.153,80	15.267,00	15.607,10
2	Transfer to Local Government	1.492,20	1.492,20	1.492,20	1.543,60	1.806,10	1.879,60
	Dana Alokasi Khusus in Agriculture	1.492,20	1.492,20	1.492,20	1.543,60	1.806,10	1.879,60
	Total	22.433,80	41.074,20	43.273,20	46.470,80	53.660,10	53.897,80

Source: www.kemenkeu.go.id

Perhaps the problem lies in the budget allotment. Seen from Table 4, most of the agricultural development is in the hands of the central government (up to 97%). As much as 64% to 80% of the budget are used for subsidies, especially fertilizer subsidy (47%-55%) and food subsidy (39%-49%). The strengthening of the functions of agriculture received 20%-36% of the budget. This indicates the direction of agricultural development is entirely to deal with domestic fertilizer consumption and food consumption of farmer's household. Development is not directed to obtain a new innovation by strengthening the agricultural function.

In a period of 10 years (2003-2013) it can be shown that the direction of the

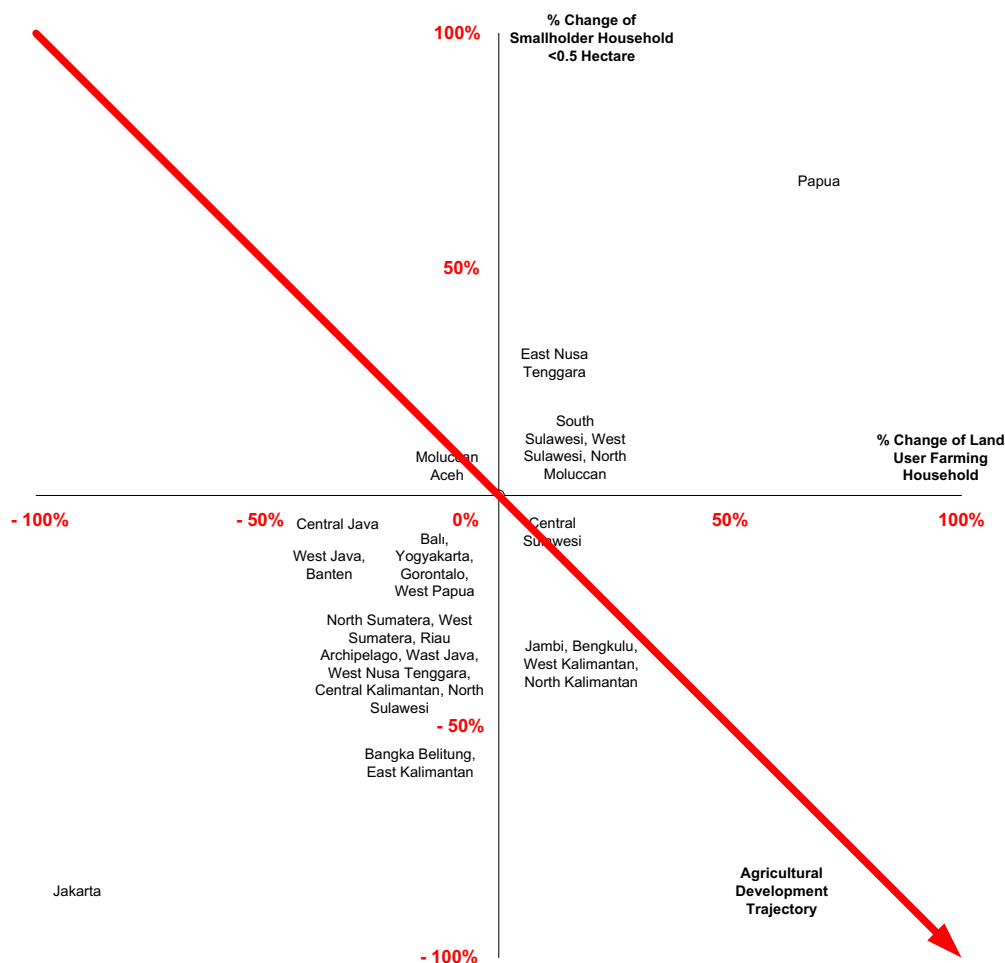
development of agriculture is distorted (Figure 1). It should be that the strengthening of agricultural land holding would be followed by reduction of smallholder households, in order for the agricultural development to improve the welfare of farmers (Sajogyo. 2006). But none of the provinces show this indication. More provinces went to the wrong direction of agricultural development.

Provinces that are somewhat closer (although still far) to the agricultural development purpose are Jambi, Bengkulu, West Kalimantan and North Kalimantan. As for Jakarta and Papua are the opposite (in Jakarta land tenure and smallholder households are both

decreased, while in Papua both are increased), but both are far away from the

direction of agricultural development that is able to improve the life of farmers.

Figure 1. Relation of Farmer's households and smallholder Household, 2003-2013



Conclusion

At a fixed point, Agricultural Census 2013 showed the important role of agriculture sector as a provider of food, as well as the livelihoods of the majority of society. Assuming each household consists of four people, there are approximately 105 million residents with a livelihood in the agricultural sector, or about 45% of Indonesia's population. This figure does not include casual employees in the agricultural sector otherwise known as farm labourers, which are not included in the Agricultural Census 2013.

The various sub-sectors of agriculture develop mainly in Java and Bali, particularly food crops, horticulture, plantation, and livestock. Most of the processing and agricultural services are also concentrated here. This indicates the value added agricultural activities are still concentrated in Java and Bali.

Symptoms of the exclusion of the lower layer of smallholders are apparent, while concentration of a very broad land tenure is indicated to occur. Actually, the lowest layers of smallholders are the most excluded. While 11% of farmer's

households owned about 45 percent of the land that sized 0.5-30 ha.

Clearly the direction of agricultural development for the welfare of the worst-off farmers is not met. This is demonstrated by the use of development funds for fertilizer consumption and agricultural consumers, as well as the discrepancy between the reduction of land and increased smallholder households.

Given that the development land occurred outside Java, Bali, and Sumatra, innovation would be directed to develop agriculture in Kalimantan, Sulawesi, Nusa Tenggara, Maluku, and Papua. Technical innovation and community development needs to be integrated so that agricultural development does not end with the addition of smallholder households, but increasing the number of great farmer entrepreneurs instead.

Farmers can also join as a group or collaborate with with private enterprises outside agriculture. In Appendix 2 there seems to be great opportunities in East Java. Equal opportunities seem to appear in all provinces in Indonesia. Particularly for the youngest province, North Kalimantan, this joint farming institutions need to be grown.

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Appendix 1. Area Average Land Mastered by Farming Households by Region and Type of Land in 2003 and 2013 (m²)

Province	Non-agricultural Land		Agricultural Land (Rice fields)		Agricultural Land (Non-Rice fields)		Agricultural Land Area		Ownership of land	
	2003	2013	2003	2013	2003	2013	2003	2013	2003	2013
Aceh	780.4	383.10	4,001.67	2,066.61	8,480.24	7,814.69	12,481.91	9,881.29	13,262.31	10,264.39
North Sumatera	452.52	309.83	984.25	1,456.17	3,131.99	9,004.65	4,116.25	10,460.83	4,568.76	10,770.66
West Sumatera	656.89	247.79	1,480.34	2,383.54	2,827.69	6,994.67	4,308.03	9,378.20	4,964.91	9,625.99
Riau	1,629.91	607.68	531.97	743.34	9,308.09	25,074.15	9,840.05	25,817.49	11,469.96	26,425.17
Jambi	1,759.01	499.98	1,028.41	963.16	10,103.76	23,230.65	11,132.18	24,193.80	12,891.19	24,693.79
South Sumatera	1,225.99	570.96	2,092.49	3,211.59	6,979.50	15,717.19	9,071.99	18,928.78	10,297.91	19,499.74
Bengkulu	1,593.31	391.13	1,628.10	1,451.19	8,346.90	15,778.84	9,975.00	17,230.03	11,568.31	17,621.16
Lampung	998.10	537.69	1,443.06	2,007.12	5,098.02	8,494.19	6,541.08	10,501.31	7,539.18	11,039.01
Bangka Belitung	1,015.28	816.79	100.60	321.98	4,626.10	16,896.89	4,726.69	17,218.88	5,741.97	18,035.67
Riau Islands	657.67	944.51	95.28	52.95	1,748.82	8,317.54	1,844.10	8,370.49	2,501.76	9315.00
DKI Jakarta	81.95	135.98	7.09	499.00	9.41	1,025.47	16.49	1,524.46	98.44	1,660.44
West Java	186.60	196.18	708.10	2,372.85	576.66	1,794.05	1,284.76	4,166.90	1,471.35	4,363.08
Central Java	309.53	243.20	936.45	1,771.87	947.51	1,714.15	1,883.97	3,486.02	2,193.49	3,729.22
DI Yogyakarta	293.06	233.44	388.51	706.00	999.59	1,742.93	1,388.11	2,448.94	1,681.17	2,682.37
East Java	301.16	273.96	907.77	1,858.10	971.08	1,811.01	1,878.85	3,669.11	2,180.01	3,943.06
Banten	218.97	180.35	796.28	2,566.16	981.86	2,632.34	1,778.15	5,198.50	1,997.12	5,378.85
Bali	306.89	334.91	648.33	1,262.93	1,881.64	3,424.64	2,529.96	4,687.57	2,836.86	5,022.48
West Nusa Tenggara	389.81	252.02	1,574.87	3,002.61	1,733.62	3,391.17	3,308.48	6,393.77	3,698.30	6,645.79
East Nusa Tenggara	1,738.15	396.19	986.51	1,228.38	6,246.08	7,616.50	7,232.59	8,844.88	8,970.75	9,241.07
West Kalimantan	2,486.76	512.45	2,140.21	2,696.42	10,732.54	23,266.15	12,872.75	25,962.56	15,359.51	26,475.02
Central Kalimantan	2,603.48	778.57	2,126.01	2,524.13	8,400.21	2,7677.9	10,526.23	30,202.03	13,129.71	30,980.60
South Kalimantan	1,073.96	408.75	2,186.71	4,252.41	2,282.07	8,160.09	4,468.78	12,412.50	5,542.74	12,821.25

Continued Appendix 1. Area Average Land Mastered by Farming Households by Region and Type of Land in 2003 and 2013 (m²)

Province	Non-agricultural Land		Agricultural Land (Rice fields)		Agricultural Land (Non-Rice fields)		Agricultural Land Area		Ownership of land	
	2003	2013	2003	2013	2003	2013	2003	2013	2003	2013
East Kalimantan	2,050.69	676.21	732.06	1,861.91	3,621.66	22,640.38	4,353.72	24,502.28	6,404.41	2,5178.50
North Kalimantan	2,675.26	610.50	1,182.09	2,212.91	7,395.25	25,646.96	8,577.34	27,859.87	11,252.61	28,470.37
North Sulawesi	505.86	340.85	575.3	1,154.48	4,491.37	11,936.13	5,066.66	13,090.61	5,572.53	13,431.46
Central Sulawesi	2,021.20	727.62	1,359.70	1,941.46	7,859.06	14,502.49	9,218.76	16,443.95	11,239.96	17,171.57
South Sulawesi	522.76	307.35	2,196.78	4,164.51	4,052.70	6,722.85	6,249.47	10,887.36	6,772.23	11,194.71
Southeast Sulawesi	1,484.58	698.90	987.99	1,587.27	7,554.57	13,981.56	8,542.56	15,568.83	10,027.14	16,267.72
Gorontalo	865.91	468.36	753.95	1,505.00	3,749.51	9,067.92	4,503.46	10,572.91	5,369.37	11,041.27
West Sulawesi	1,327.65	426.60	1,120.30	1,385.08	8,089.47	12,497.73	9,209.76	13,882.82	10,537.41	14,309.42
Maluku	1,034.30	324.47	172.51	427.42	6,696.31	8,191.18	6,868.83	8,618.59	7,903.13	8,943.06
North Maluku	1,086.08	362.27	194.22	293.28	11,169.04	16,797.24	11,363.26	17,090.52	12,449.34	17,452.78
West Papua	1,539.38	571.49	291.14	363.08	2,968.23	6,388.06	3,259.38	6,751.14	4,798.76	7,322.63
Papua	1,478.02	600.52	316.31	437.75	2,525.05	3,875.50	2,841.36	4,313.25	4,319.38	4,913.77
INDONESIA	569.47	344.49	1,008.34	1,988.99	2,501.25	6,591.43	3,509.59	8,580.42	4,079.06	8,924.91

Source: www.st2013.bps.go.id

Appendix 2. Number of Farmer's household by Region and Agricultural businesses of 2003 and 2013

Province	Farmer's household		Agricultural businesses		Others
	2003	2013	2003	2013	2013
Aceh	699.370	644.851	131	100	111
North Sumatera	1.492.104	1.327.759	455	420	352
West Sumatera	709.351	644.610	99	71	293
Riau	541.050	581.517	177	258	102
Jambi	414.986	431.589	77	123	120
South Sumatera	971.458	958.724	118	178	46
Bengkulu	280.964	277.136	41	77	128
Lampung	1.293.192	1.226.455	92	123	127
Bangka Belitung	139.315	124.970	43	55	66
Riau Islands	74.195	69.991	6	35	10
DKI Jakarta	52.583	12.287	48	31	28
West Java	4.345.148	3.058.612	480	479	397
Central Java	5.770.801	4.290.619	242	225	579
DI Yogyakarta	574.920	495.781	44	20	90
East Java	6.314.370	4.978.358	653	410	1.083
Banten	898.021	592.841	78	98	58
Bali	492.394	408.233	63	84	406
West Nusa Tenggara	719.875	600.613	65	53	98
East Nusa Tenggara	729.483	778.854	35	37	500
West Kalimantan	614.738	627.638	168	275	72
Central Kalimantan	302.414	270.914	97	228	164
South Kalimantan	471.972	432.328	122	125	112
East Kalimantan	203.179	180.614	118	214	38
North Kalimantan	38.948	44.735	38	28	-
North Sulawesi	324.374	253.503	91	50	267
Central Sulawesi	396.622	401.891	60	49	131
South Sulawesi	1.082.251	980.946	135	80	129
Southeast Sulawesi	314.011	316.262	18	32	20
Gorontalo	133.083	122.515	42	26	23
West Sulawesi	167.098	185.847	18	14	23
Maluku	184.376	175.362	57	52	235
North Maluku	129.246	130.233	21	20	69
West Papua	75.790	70.223	32	41	30
Papua	280.502	438.658	46	54	15
	31.232.184	26.135.469	4.010	4.165	5.922

Source: www.st2013.bps.go.id

Appendix 3. Number of Cattles and Buffaloes by Regency/City, 2013

Province	Cattle			Dairy Cow			Buffalo			Cattle, Dairy Cow, and Buffalo		
	Bull	Cow	Total	Bull	Cow	Total	Bull	Cow	Total	Male	Female	Total
Aceh	148,308	255,913	404,221	5	20	25	32,834	79,116	111,950	181,147	335,049	516,196
North Sumatera	157,670	365,607	523,277	453	1,448	1,901	30,394	63,572	93,966	188,517	430,627	619,144
West Sumatera	100,866	225,808	326,674	271	830	1,101	29,576	56,754	86,330	130,713	283,392	414,105
Riau	55,437	119,994	175,431	60	206	266	8,641	23,596	32,237	64,138	143,796	207,934
Jambi	42,714	76,316	119,030	5	14	19	13,065	28,090	41,155	55,784	104,420	160,204
South Sumatera	76,352	139,601	215,953	105	219	324	8,622	17,693	26,315	85,079	157,513	242,592
Bengkulu	32,681	73,334	106,015	31	152	183	5,436	12,346	17,782	38,148	85,832	123,980
Lampung	217,733	355,750	573,483	46	222	268	5,979	16,648	22,627	223,758	372,620	596,378
Bangka Belitung	3,563	4,638	8,201	94	314	408	86	125	211	3,743	5,077	8,820
Riau Islands	5,692	11,779	17,471	1	4	5	6	6	12	5,699	11,789	17,488
DKI Jakarta	2,031	77	2,108	314	2,372	2,686	144	59	203	2,489	2,508	4,997
West Java	211,184	171,765	382,949	15,580	88,252	103,832	38,550	69,753	108,303	265,314	329,770	595,084
Central Java	506,376	993,701	1,500,077	33,372	70,422	103,794	19,958	42,074	62,032	559,706	1,106,197	1,665,903
DI Yogyakarta	81,859	190,935	272,794	511	3,815	4,326	362	618	980	82,732	195,368	278,100
East Java	1,110,223	2,476,486	3,586,709	23,330	199,580	222,910	9,213	18,914	28,127	1,142,766	2,694,980	3,837,746
Banten	34,785	11,286	46,071	8	23	31	28,321	70,389	98,710	63,114	81,698	144,812
Bali	185,489	292,657	478,146	19	123	142	899	1,081	1,980	186,407	293,861	480,268
West Nusa Tenggara	201,921	447,018	648,939	5	13	18	23,646	56,447	80,093	225,572	503,478	729,050
East Nusa Tenggara	247,945	555,505	803,450	7	32	39	40,045	93,077	133,122	287,997	648,614	936,611
West Kalimantan	59,604	80,600	140,204	52	117	169	640	1,579	2,219	60,296	82,296	142,592
Central Kalimantan	18,279	33,641	51,920	0	0	0	2,117	7,692	9,809	20,396	41,333	61,729
South Kalimantan	37,208	78,027	115,235	34	122	156	6,648	15,038	21,686	43,890	93,187	137,077

Continued. Appendix 3. Number of Cattles and Buffaloes by Regency/City, 2013

Province	Cattle			Dairy Cow			Buffalo			Cattle, Dairy Cow, and Buffalo		
	Bull	Cow	Total	Bull		Bull	Cow	Total	Bull		Bull	Cow
East Kalimantan	27,541	51,554	79,095	10	18	28	1,406	2,525	3,931	28,957	54,097	83,054
North Kalimantan	4,388	9,615	14,003	0	0	0	1,163	1,983	3,146	5,551	11,598	17,149
North Sulawesi	35,651	70,190	105,841	0	106	106	0	0	0	35,651	70,296	105,947
Central Sulawesi	80,641	169,339	249,980	3	7	10	902	2,507	3,409	81,546	171,853	253,399
South Sulawesi	278,917	705,119	984,036	292	1,118	1,410	36,143	54,499	90,642	315,352	760,736	1,076,088
Southeast Sulawesi	60,491	169,872	230,363	0	0	0	755	1,316	2,071	61,246	171,188	232,434
Gorontalo	49,201	125,657	174,858	3	11	14	3	13	16	49,207	125,681	174,888
West Sulawesi	20,554	61,504	82,058	6	38	44	1,809	5,658	7,467	22,369	67,200	89,569
Maluku	22,901	51,036	73,937	0	1	1	5,850	11,934	17,784	28,751	62,971	91,722
North Maluku	25,094	40,928	66,022	0	0	0	370	401	771	25,464	41,329	66,793
West Papua	16,158	32,001	48,159	0	0	0	1	0	1	16,159	32,001	48,160
Papua	27,120	52,454	79,574	2	3	5	164	385	549	27,286	52,842	80,128
Indonesia	4,186,577	8,499,707	12,686,284	74,619	369,602	444,221	353,748	755,888	1,109,636	4,614,944	9,625,197	14,240,141

Source: www.st2013.bps.go.id

Appendix 4. Numbers of Farming Households Doing Processing of Agricultural Products by Region and Sub-sector in 2013

Province	Food Crops	Horticulture	Plantation	Livestock	Fisheries	Forestry	Total
Aceh	22,422	3,804	36,674	3,350	2,144	882	65,704
North Sumatera	30,112	4,656	46,013	4,280	3,112	2,362	85,134
West Sumatera	28,503	2,603	27,927	3,435	2,283	2,013	60,252
Riau	3,656	2,292	18,530	1,614	3,553	1,300	29,721
Jambi	3,899	1,342	8,273	624	994	845	15,132
South Sumatera	11,205	5,984	18,357	2,442	4,400	3,640	43,207
Bengkulu	2,649	1,060	14,537	1,015	583	793	20,030
Lampung	22,077	2,220	21,424	1,179	1,769	3,962	50,786
Bangka Belitung	1,120	479	1,295	250	1,326	1,016	5,072
Riau Islands	655	1,242	6,823	283	2,443	1,428	11,380
DKI Jakarta	42	120	6	82	120	-	353
West Java	95,360	15,619	74,759	7,123	8,980	34,241	219,338
Central Java	209,126	26,637	180,673	14,695	7,027	90,508	485,902
DI Yogyakarta	65,042	2,474	9,573	1,736	374	14,373	88,181
East Java	173,158	20,937	133,618	20,432	4,872	74,574	398,116
Banten	6,867	5,905	5,010	1,277	222	9,467	26,942
Bali	3,347	394	8,624	327	129	2,651	14,165
West Nusa Tenggara	11,422	1,058	20,965	1,277	539	3,930	37,770
East Nusa Tenggara	19,760	6,130	68,140	2,315	3,193	9,883	98,714
West Kalimantan	15,019	3,834	27,901	1,787	5,245	2,727	51,910
Central Kalimantan	5,764	3,062	5,151	1,516	6,041	3,611	20,648
South Kalimantan	5,367	1,079	3,770	798	4,980	3,156	18,237
East Kalimantan	4,417	692	5,381	416	3,252	1,289	14,662
North Kalimantan	2,383	230	679	159	1,297	693	4,974
North Sulawesi	3,796	2,509	83,416	898	1,580	2,802	88,593
Central Sulawesi	11,972	4,851	104,002	2,480	4,097	3,478	120,444
South Sulawesi	21,687	3,111	26,219	5,146	3,094	6,343	61,591
Southeast Sulawesi	16,172	2,191	31,270	566	3,611	4,286	52,908
Gorontalo	1,530	653	14,016	376	177	664	16,670
West Sulawesi	2,432	802	13,725	760	695	539	17,882
Maluku	25,550	7,855	46,121	1,496	6,481	3,042	70,914
North Maluku	20,696	4,234	78,406	1,038	2,215	1,501	87,050
West Papua	1,432	1,320	4,256	344	3,082	2,122	9,199
Papua	22,862	6,527	9,618	5,856	6,841	7,055	46,043
Indonesia	871,501	147,906	1,155,152	91,372	100,751	301,176	2,437,624

Source: www.st2013.bps.go.id

Appendix 5. Number of Households by Region doing Agricultural Services Sub-sector in 2013

Province	Food crops	Horticulture	Plantation	Livestock	Fisheries	Forestry	Total
Aceh	16,572	2,266	6,069	1,557	1,194	1,394	23,516
North Sumatera	20,974	4,880	14,368	2,736	4,667	13,008	51,997
West Sumatera	26,185	2,415	17,194	1,555	3,841	5,545	49,377
Riau	6,475	2,058	31,614	1,847	1,758	1,232	39,116
Jambi	2,696	1,100	6,408	651	574	2,195	11,827
South Sumatera	29,549	3,759	22,260	3,113	5,375	43,189	92,199
Bengkulu	2,974	676	3,555	209	223	540	6,962
Lampung	31,084	4,045	9,746	1,795	3,728	5,263	50,231
Bangka Belitung	695	485	3,467	249	371	619	4,695
Riau Islands	195	422	839	136	192	806	2,281
DKI Jakarta	100	249	-	149	69	10	549
West Java	83,022	13,985	8,670	12,684	7,293	13,803	119,426
Central Java	74,032	9,446	11,211	5,060	12,736	14,722	111,114
DI Yogyakarta	7,297	2	4	826	1	16	8,012
East Java	137,371	31,011	43,318	14,397	9,301	10,173	213,655
Banten	16,605	3,558	2,650	2,400	2,214	15,083	36,103
Bali	2,656	679	1,007	530	484	370	5,257
West Nusa Tenggara	11,988	1,139	1,377	461	232	1,016	13,686
East Nusa Tenggara	14,663	1,544	3,496	2,346	2,709	5,222	27,278
West Kalimantan	13,400	2,746	13,928	2,703	9,593	6,218	39,433
Central Kalimantan	5,808	1,513	4,936	1,011	2,014	3,443	15,240
South Kalimantan	16,764	1,725	3,553	840	1,375	5,166	25,911
East Kalimantan	3,603	1,454	2,629	611	1,504	684	8,146
North Kalimantan	739	324	296	193	667	280	1,899
North Sulawesi	5,003	1,687	5,933	1,242	1,076	1,922	13,327
Central Sulawesi	10,618	880	7,285	528	550	1,239	17,317
South Sulawesi	40,922	1,789	4,313	1,884	2,347	4,551	50,785
Southeast Sulawesi	4,372	278	2,021	189	744	2,113	8,591
Gorontalo	3,618	737	1,032	526	405	1,268	6,022
West Sulawesi	3,712	638	3,981	224	137	1,211	8,980
Maluku	1,369	550	2,401	173	609	1,322	5,516
North Maluku	257	159	730	139	275	331	1,575
West Papua	645	887	1,030	277	805	1,173	4,147
Papua	2,036	547	542	389	429	947	4,135
Indonesia	597,999	99,633	241,863	63,630	79,492	166,074	1,078,305

Source: www.st2013.bps.go.id

Appendix 6. Number of Land user Farmer's household and smallholders based on Region in 2003 and 2013

Province	Land user Farming household				Smallholders			
	2003	2013	Change (m2)	% Change	2003	2013	Change (m2)	% Change
Aceh	691,454	637,778	-53,676	-8%	248,823	276,729	27,906	11%
North Sumatera	1,451,813	1,308,392	-143,421	-10%	751,330	570,184	-181,146	-24%
West Sumatera	695,739	640,695	-55,044	-8%	357,797	275,135	-82,662	-23%
Riau	511,395	568,070	56,675	11%	125,418	68,568	-56,850	-45%
Jambi	401,052	426,647	25,595	6%	101,836	65,499	-36,337	-36%
South Sumatera	946,858	949,801	2,943	0%	218,091	110,932	-107,159	-49%
Bengkulu	275,769	275,559	-210	0%	49,147	35,974	-13,173	-27%
Lampung	1,272,932	1,218,927	-54,005	-4%	447,126	362,148	-84,978	-19%
Bangka Belitung	127,412	117,488	-9,924	-8%	52,891	26,069	-26,822	-51%
Riau Islands	56,086	50,230	-5,856	-10%	28,379	20,545	-7,834	-28%
DKI Jakarta	47,262	9,515	-37,747	-80%	45,428	8,611	-36,817	-81%
West Java	4,242,003	3,039,716	-1,202,287	-28%	3,501,867	2,298,193	-1,203,674	-34%
Central Java	5,697,473	4,262,608	-1,434,865	-25%	4,629,877	3,312,235	-1,317,642	-28%
DI Yogyakarta	573,092	495,401	-77,691	-14%	479,780	424,557	-55,223	-12%
East Java	6,189,481	4,931,502	-1,257,979	-20%	4,893,626	3,755,833	-1,137,793	-23%
Banten	875,287	584,259	-291,028	-33%	634,415	379,888	-254,527	-40%
Bali	485,531	404,507	-81,024	-17%	313,111	257,181	-55,930	-18%
West Nusa Tenggara	686,172	587,617	-98,555	-14%	446,040	350,130	-95,910	-22%
East Nusa Tenggara	722,039	770,864	48,825	7%	224,987	289,917	64,930	29%
West Kalimantan	594,483	616,895	22,412	4%	120,575	81,287	-39,288	-33%
Central Kalimantan	273,806	261,227	-12,579	-5%	45,564	29,083	-16,481	-36%
South Kalimantan	450,903	420,352	-30,551	-7%	193,773	133,853	-59,920	-31%
East Kalimantan	180,515	165,413	-15,102	-8%	56,075	27,326	-28,749	-51%
North Kalimantan	34,595	39,369	4,774	14%	9,084	6,343	-2,741	-30%
North Sulawesi	300,834	246,394	-54,440	-18%	103,154	72,055	-31,099	-30%
Central Sulawesi	372,636	387,258	14,622	4%	69,935	74,073	4,138	6%
South Sulawesi	1,049,449	950,241	-99,208	-9%	408,673	338,108	-70,565	-17%
Southeast Sulawesi	293,555	299,926	6,371	2%	72,188	63,809	-8,379	-12%

Continued. Appendix 6. Number of Land user Farmer's household and smallholders based on Region in 2003 and 2013

Province	Land user Farming household				Smallholders			
	2003	2013		2003	2013		2003	2013
Gorontalo	118,257	117,251	-1,006	-1%	44,791	40,962	-3,829	-9%
West Sulawesi	160,863	179,814	18,951	12%	43,560	50,696	7,136	16%
Maluku	178,497	170,169	-8,328	-5%	68,913	78,140	9,227	13%
North Maluku	124,480	127,865	3,385	3%	19,679	21,857	2,178	11%
West Papua	71,131	65,458	-5,673	-8%	39,344	37,570	-1,774	-5%
Papua	266,728	424,058	157,330	59%	169,774	305,380	135,606	80%
Indonesia	30,419,582	25,751,266	-4,668,316	-15%	19,015,051	14,248,870	-4,766,181	-25%