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# Assessing the Rural Development Impact of the Crisis in Indonesia

A report prepared by

The Center for Agro-Socioeconomic Research  
Bogor, Indonesia

And

The World Bank  
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## FOREWORD

Long drought due to the impact of *El Nino* during the planting season of 1997, monetary crisis, and political turbulence has caused Indonesia's economy in serious crisis. This situation brought into question the ability to sustain food self-sufficiency and adequately provide food for more than 200 million population. Economic crisis has devastated the incomes of most of the population, while food price has dramatically risen and adequate quantities of food are unreachable by approximately the bottom quarter of the population. Furthermore, the real Indonesia's GDP of 1998 has substantially declined at about 14%. Almost all sectors experienced negative growth except agricultural sector, which is grew at 0.2%. However, within agricultural, food crops sub-sector has experienced quite significant negative growth that is about 6.4%, while estate crops and fisheries grew at about 6.0% and 4.1% respectively.

In urban area, most of hard and poor laborers that laid-off on non-agricultural sector job such as construction, manufacturing, and services have loose their job and became unemployed. Meanwhile, in rural area many observers, researcher, or someone that interested with rural development aspect said that the impact of economic crisis was not as bad as in urban area. However, a substantial decreased in rice production may reduce the real income of rural households. Rice yield decrease has mainly due to a very significant drop in quality of production technology application especially the use of an-organic fertilizer such as TSP, KCl and ZA, and pesticide.

In order to evaluate the impact of economic crisis in more detail to the rural households dynamic, CASER in collaboration with the World Bank and funded by Asia-Europe Meeting (ASEM) Trust Fund has carried out a study in 1999 following PATANAS database of 1995 and 1997. The output of this study is expected to provide benefit for our policy maker, practitioners and other stakeholder may interest with rural development dynamic. With the completion of this study, I would like to express my sincere appreciation to the World Bank and ASEM Trust Fund for their support and assistance. I must also tank the member of research team for their commitment who has worked very hard to make this study accomplished.

Director of CASER

Dr. Tahlim Sudaryanto

## EXECUTIVE SUMMARY

- (1) PATANAS is the only study in Indonesia that conducted in series, which was started in 1995. Households sample were drawn based on villages census in accordance with the type of agroecosystems and main commodity that was usually grown by most of rural households. This study provided panel data regarding comprehensive information of rural households' socio-economic structure dynamic that includes (1) land ownership and land holding structure, (2) households' labor structure, (3) agricultural production technology application, (4) production cost and revenue, (5) income structure, (6) expenditure structure, (7) food consumption structure, etc. In addition during the economic crisis, PATANAS study also provided data and information about rural households' strategy in coping with the crisis in term of concrete action such as: (1) saving and other investment, (2) food stock for food security reason, (3) circulated saving (*Arisan*), (4) more intensive land cultivation, etc.
- (2) In 1999, PATANAS study conducted in six provinces, namely: Lampung, Central Java, East Java, West Nusa Tenggara, North Sulawesi and South Sulawesi comprised of 35 villages for 1560 households. These rural households are grouped according to income class (low, middle, and high) and size of land holding (landless, small, medium, and large). The rural households were also grouped based on agroecosystems, which are: wet land, dry land excluded estate crops, dry land included estate crops, and coastal area. Lastly, Java and Off-Java, and across regions are considered as regional grouping in order to compare households characteristic between the two.
- (3) General finding of this study signals that the impact of economic crisis at macro level (national) was not necessarily transmitted to the micro level with the same magnitude. Land ownership distribution gap in all agroecosystem areas in 1999 increased compared to 1995 except at estate crops based dryland area in Off-Java, while land holding substantially increased during the crisis. The role of agricultural sector in relation to households labor allocation in Off-Java relatively higher than in Java due to increasing outputs price. These indicators then transmitted in rural households income, which is increasing in all agroecosystem areas, however varies in volume and magnitude. Gini indexes showed that,

income distribution in Off-Java relatively better than in Java. Income gap in Java increased during the crisis compared to 1995. Even though rural households income increased but no significant Engel change in expenditure and per capita food consumption during the crisis.

### **Land Structure**

- (4) In average, size of land ownership in Java is every small and did not change with last five years that is about 0.33 ha but in Off-Java slightly increased from 1.13 ha in 1995 to 1.27 ha in 1999. Land holding was also significantly smaller in Java, which is about 0.95 ha; while in Off-Java are more than 2.0 ha. Wetland was identified as the agroecosystem area where land ownership as well as land holding size is the smallest compared to other agroecosystems in Java as well as Off-Java. These two land structures at coastal area were the largest than other ecosystem areas. Surprisingly, landless households in Java at least at PATANAS villages were relatively very high in Java, that is about 41%, while in Off-Java is only 9.5%.

### **Households Labor Structure**

- (5) Most of households labor was devoted for agricultural sector in Off-Java either for on-farm or off-farm activities, which was almost 70.0%, while in Java was about 45%. Agricultural labor allocation was increasing as size of land holding increases. On-farm was the dominant activity, where the households labor mostly allocated. In contrast, households labor allocation for non-agricultural sector in rural area was decreasing as size of land holding increases. Most of households labor in agricultural sector was engaged in entrepreneur and non-agricultural labor job such as rural industry, trading, services, professional, etc.
- (6) At wetland villages, the contribution of agricultural sector in households labor allocation decreased while, at crops based dry land, estate crops based dry land as well as coastal villages the contribution relatively increased. The declining contribution of agriculture at wetland villages was mostly due to increasing trend

of labor allocation in non-agricultural sector particularly un-skill labor. In contrast, the increasing trend of labor allocation in agriculture at other agroecosystem areas as an impact of increasing labors allocation for on-farm activities.

### **Agricultural Production Technology Application**

- (7) Rice production technology was taken as barometer to evaluate the level of technology application since most of the modern inputs were used for this crops. During the economic crisis, the level of technology application particularly fertilizer has declined significantly. TSP and Potassium (KCl) were two types of fertilizer that farmer has reduced its application in rice farming. TSP has dropped to 50% from the recommended rate of 150 kg/ha, while KCl to 10% of the recommendation, which is 100 kg/ha.

### **Income Structure**

- (8) Households' income structure at PATANAS villages comprised of agricultural income and non-agricultural income. Rice on-farm, non-rice farm income, off-farm income are the source of agricultural income. Meanwhile, source of non-agricultural income includes entrepreneur, non-agricultural labor, professional, and others. Generally, total households income increased as land holding increases either in Java or Off-Java. In average, households' total income in Java is significantly lower than total household income in Off-Java or about Rp 7.76 million and Rp 10.79 million per year. The share of agricultural income to the total income was accounted for about 49.4% in Java and 67.5% in Off-Java. In other worlds, the contribution of non-agricultural income to total households' income is very much lower in Off-Java compared to Java. The share of rice farm income is relatively small in Java, which is about 9.4% compared to 23.0% in Off-Java. Households' income at dry land excluded estate crops area was found as the lowest among agroecosystem areas, while coastal area is relatively in a better income position.

This fact indicates that the role of agricultural sector as the main source of rural households income in Off-Java is very significant, while in Java between agricultural and non-agricultural income is almost balance. This implies that, development of rural agro-industry in Java could foster the income generation from non-agricultural sector. Nevertheless, agricultural based income generation is likely better alternative for rural households in Off-Java. Increased in technical as well as economic efficiency must be given higher priority through technology generation.

### **Expenditure and Food Consumption Structure**

- (10) Rural household food expenditure in Java tends to decline as income increases for an average of 61.8%. Similar trend was also experienced in Off-Java for an average of 65.7%. However, total households expenditure was not over whelming the income in average. In other worlds, rural households still in position to have saving and other investment for income security. Non-food expenditure on the other hand, showed an increasing trend as income increases for an average of 38.2% and 34.3% in Java and Off-Java respectively. Similar to income structure, households' expenditure in dry land excluded estate crops was accounted for the lowest among agroecosystem areas.
  
- (11) Furthermore, per capita food consumption showed that rice consumption was significantly lower in Java compared to Off-Java or about 91.0 kg and 117.1 kg per year or consumption gap about 26 kg per year. Meanwhile, government subsidized rice consumption between these two region was small or about 6 kg per capita per year. The highest per capita subsidized rice consumption was identified at dry land excluded estate crops area, which is about 9.5 kg. Refer to income structure, expenditure and food consumption structure. The conclusion then, rural households at dry land excluded estate crops area seemed to be the poorest among ecosystem areas. Most of them are resource poor households and very much depend on food crops farming such as maize, upland rice, soybean cassava etc.

## Households Strategy in Coping with the Crisis

- (12) Strategies that used by rural households in coping with the economic crisis at PATANAS villages, were: (1) increase saving and other investment, (2) circulated saving (*Arisan*) in cash and in kind, (3) rice stocks, and (4) non-agricultural stock, etc. All of these activities were found increasing during the economic crisis. Significant increase in rice stock was found at all areas for food security reason and waiting for better price. Dry land excluded estate crops agroecosystem is the area that mostly affected by the economic crisis.
- (13) On the other hand, dry land included estate crops has experienced price booming due to devaluation of Rupiah against dollar. Income boost has made most of rural households in this area increased their saving and other investment. However, no significant changes in food consumption structure. This circumstance indicates that household with main source of income generated from export oriented crops will be more prosperous during the crisis.



## **Policy Implication**

- (14) Labor structure implies that rural agro-industry development is the most appropriate alternative to increase rural job opportunity and reduce urban migration. Better rural and urban accessibility could increase the flow of goods and services that based on agricultural resource. Bring medium and small-scale agro-industry to the rural area could enhance home industry and this cannot be delayed any longer.
- (15) The first policy implication of rural based agro-industry is that it will derive rural household's income into a more resilient structure. In addition, this policy alternative will also broaden and strengthen income source of the rural household for better welfare. Added value of agricultural product should be for rural community so that investment in this sector should promoted in order to stimulate rural growth but with equity.
- (16) There must be technology break through to solve the rocketing price of fertilizer as well as superior variety to overcome the productivity in rice production leveling off. With population, that increase about 1.6% per year, Indonesia has no choice to increase its food security by increasing domestic rice production efficiently.
- (17) Economic crisis may not significantly affect the rural households, so that economic recovery must be directed to look forward seriously the role of agricultural sector in this program. Neglecting this sector will just let the economic recovery full of uncertainty. Strengthens rural institution might be one of the alternatives that can be considered to increase the bargaining position of agricultural sector beside rural agro-industry development.
- (18) Informal financial market such as: post harvest credit payment scheme, circulated saving, in kind credit scheme etc. at rural area should be enhanced since this has been proved very resilient in coping with the economic crisis.

Finally, understanding rural households as a system that manages limited resources for multi-purposes is one of the beauty in formulating rural development program.

Participative community based approach could enhance participation of rural households in rural development for the sake of their income and welfare.

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## I. INTRODUCTION

The growth of agricultural sector in the period of 1970s and 1980s quite high, that is above 3 % in average per annum. However, relative share of this sector to GDP was continuously decline at about 3.2% per annum till 1990, while labor share decline at 1.0 % per annum but in absolute term was still increasing. This indicated that the capacity of agricultural sector to provide employment at competitive wage rate still low. Nevertheless, in 1990s the GDP of this sector decline faster at the rate of 4.3% per annum and in absolute term begun to decline. This was also reflected in the employment that decline at 3% per annum in the same period (CBS. Various series).

The decline of agricultural growth in 1990s was mainly due to the decline of the food crops sub-sector to the agricultural GDP particularly rice. Low price policy of rice, decline in irrigation investment and rehabilitation, and fast conversion of fertile rice land particularly in Java are among factors affecting rice production. Fertilizer demand was more sensitive to fertilizer price compared with price of rice. This is the main reason that reduction of fertilizer price subsidy had and adverse effect on rice production.

Furthermore, the combination of economic crisis, political turbulence and long drought during the planting season of 1997/98 due to the impact of *El Nino*, has brought into question the ability of Indonesia to sustain rice self sufficiency and adequately feed its population. Food prices have dramatically risen and adequate quantities of food are unreachable of approximately the bottom quarter of the population. The economic crisis has devastated the incomes of most of the population. As many as 60 million of persons that have an income bellow the poverty line. A significant share of the poverty was found in very urban areas where poor laborers have been laid off their income from construction, manufacturing, and services. They are now back to the rural area and working in agricultural sector. This has brought about higher competition for job opportunity in this sector.

In rural areas, a sharp decline in rice production has reduced real farm income, lowered employment and raised fears of inadequate food availability. Rice production has declined from about 51 mmts in 1996 to about 45 mmts in 1998. Despite long drought and forest fire, sharp decline in availability of fertilizer and improved seed to small holders. To meet the food gaps government import 5.83 mmts in 1998. Increasing imports, deteriorating

nutritional status, episodes of urban hoarding, defensive build-up of village food stocks and sporadic confiscation of urban commercial stocks has called into question the Government's ability to maintain food security.

However, the growth of agricultural GDP in 1997 as well as 1998 remain positive in the performance of national GDP that decline at 4.9% and 13.7% respectively. The positive growth of agricultural sector was mainly due to relative high growth of industrial crops and fishery sub sector as export commodities. The economic sector is badly affected by the crisis, for example, construction decline at 40%, finance at 27%, commerce at 19%, and non-oil and gas decline at 15%. Coping the economic crisis especially at the rural area need a strategy that requires accurate data and information from a comprehensive study. Understanding the impact of economic crisis to the dynamic of rural economy is very important because the strong link between rural economy and agricultural sector can be a "*prime mover*" of our national development.

A study about rural employment, labor allocation and rural household income in a panel study framework (PATANAS) that was conducted in 1995 and 1999 has provided huge data of the impact of agricultural development to the rural economic structure. In general, the study showed that agroecosystem variability, accessibility between rural and urban area and type of farming determines the structure of employment and household income and expenditure, labor mobility, land holding, assets ownership etc.

#### 1.1. Objective

To identify the impact of economic crisis to the rural household economic dynamic.

To analyzes the rule of agricultural sector as a *prime mover* of rural economy development in order to escape from the crisis.

To provide data and relevance information to the policy maker as an input for development policy formulation in short and medium term.

#### 1.2. Location and Sample of Study

PATANAS study in budget year of 1999/2000 was conducted in 6 provinces that include *Lampung, Central Java, East Java, Wets Nusa Tenggara, North Sulawesi and South Sulawesi*. Sampled villages for each province are the same as previous PATANAS study framework. The determination of villages was based on agroecosystem characteristics, dominant commodity, and accessibility. At each village was selected 50 rural households based on the block census conducted previously. Stratified cluster sampling technique was

employed to determine the households. Stratification is done based on productive assets holding, (2) fishing equipment for fishing villages, and (3) animal population for livestock based villages. In addition, cluster is determined according to agricultural sector and non-agricultural sector.

### 1.3. Classification of Villages by Agroecosystem

It is useful to analyze the socio-economic aspect of rural household by agroecosystem zones. In this study, PATANAS villages are grouped into 4 areas, namely: (1) wet land area that rice is considered as major commodity, (b) dry land with secondary crops (cassava, corn, soybean, etc.) as major commodities, (c) dry land that estate crops as major commodities, and (d) coastal areas. The distribution of villages by agroecosystem is shown in Table 1.1.

### 1.4. Classification of Household

In this research, rural household samples at PATANAS villages are grouped into two classification based on: (1) land holding, and (2) income class. The first classification is proposed to analyze income structure, employment, saving, credit, asset, land occupation, etc.; while the second classification is proposed to analyze expenditure and consumption

The classification is constructed based on the households sample distribution by computing the average ( $\mu$ ) of land holding and average income as well as the its consecutive standard deviation (sd). Refer to the approach, the four groups of household by land holding are determined such as: (1) land less, (2) small, (3) middle, and (4) large. Each group is defined below:

- (1) landless : no land holding within the year of time reference
- (2) small : land holding  $\leq (\mu - 0.25 \text{ sd})$ .
- (2) medium :  $(\mu - 0.25 \text{ sd}) < \text{land holding} \leq (\mu + 0.25 \text{ sd})$
- (3) large : land holding  $> (\mu + 0.25 \text{ sd})$

Table 1.1. Classification of Villages by Agroecosystem, Patanas 1999.

No.	Province		Village		Agroecosystem		Major Commodity	Agroeco. Code
	Cod e	Name	Cod e	Name	elev.	eco.		
1	18	Lampung	1	Gunung Rejo	Upland	Wet Land	Vegetables	1
2	18		2	Air Nanningan	Upland	Dry Land	Estate Crops (Coffee, Pepper)	3
3	18		3	Sumber Rejo	Low Land	Wet Land	Rice	1
4	18		4	Komerling Putih	Low Land	Dry Land	Secondary Crops (Cassava)	2
5	18		5	Beringin	Low Land	Dry Land	Estate Crops (Pepper)	3
6	18		6	Kota Napal	Low Land	Dry Land	Cassava + Sugar Cane	2
7	33	Central Java	1	Cepogo	Upland	Dry Land	Dairy	2
8	33		2	Kr. Wungu	Low Land	Wet Land	Rice	1
9	33		3	Kwadungan Gunung	Upland	Dry Land	Tobacco	2
10	33		4	Karang Tengah	Upland	Dry Land	Vegetables	2
11	33		5	Larangan	Low Land	Wet Land	Onion	1
12	33		6	Kr. Moncol	Low Land	Wet Land	Rice	1
13	33		8	Mojoagung	Low Land	Wet Land	Sugar Cane	1
14	35	East Java	1	Gerih	Low Land	Wet Land	Rice + Sugar Cane	1
15	35		2	Selosari	Low Land	Wet Land	Rice + Sugar Cane	1
16	35		3	Terung Kulon	Low Land	Wet Land	Rice + Sugar Cane	1
17	35		4	Sungun Legowo	Coastal	Coastal	Shrimp + "Bandeng"	4
18	35		5	Brondong	Coastal	Coastal	Fish	4
19	35		6	Wiyurejo	Upland	Dry Land	Vegetables	2
20	52	West Nusa Tenggara	1	Gonjak/Gerunung	Low Land	Wet Land	Rice	1
21	52		2	Sengkol	Low Land	Wet Land	Rice	1
22	52		3	Karang Baru	Upland	Dry Land	Garlic	2
23	52		4	Plampang	Low Land	Dry Land	Livestock (Cow)	2
24	52		5	Sukadamai	Low Land	Dry Land	Estate Crops (Cashew Nut)	3
25	71	North Sulawesi	1	Rumoong Atas	Upland	Dry Land	Estate Crops (Clove)	3
26	71		2	Pakuweru	Low Land	Dry Land	Estate Crops (Coconut)	3
27	71		3	Wailan	Upland	Dry Land	Vegetables	2
28	71		4	Karegesan	Low Land	Dry Land	Coconut + "pala"	3
29	71		5	Mogoyunggung	Low Land	Wet Land	Rice	1
30	73	South Sulawesi	1	Margolembo	Low Land	Wet Land	Rice	1
31	73		2	Baroko	Upland	Dry Land	Vegetables	2
32	73		4	Selli	Low Land	Wet Land	Rice	1
33	73		5	Ka'do	Upland	Dry Land	Estate Crops (Coffee)	3
34	73		6	Rumbia	Low Land	Dry Land	Secondary Crops (Corn)	2
35	73		7	Batupanga	Low Land	Dry Land	Estate Crops (kakao)	3

**Note:**

1 = Agroecosystem: Wet Land

2 = Agroecosystem: Dry Land excluded estate crops as major commodities

3 = Agroecosystem: Dry Land included estate crops as major commodities

4 = Coastal, major commodities fish, shrimp, etc.

Classification by income group is also using similar approach and three income groups are then determined such as: (1) low, (2) middle, and (3) high. The income groups are defined as bellow:

- (1) low : income  $\leq (\mu - 0.5 \text{ sd})$ .
- (2) medium :  $(\mu - 0.5 \text{ sd}) < \text{income} \leq (\mu + 0.5 \text{ sd})$ .
- (3) high : income  $> (\mu + 0.5 \text{ sd})$ .

Where  $\mu$  is the average income and sd is its standard duration.

Distribution of rural households sample by class of land holding as well as by group of income are presented in Table 1.2 and Table 1.3. Using this approach then the households distribution is close to normal (bell shape distribution). The number of samples in this study are 1560 rural households that distributed in Java and Off-Java a number of 589 and 971 households respectively.

**Table 1.2. Distribution of household by class of land holding, PATANAS 1999.**

Land holding	Java		Off Java		Aggregate	
	N	Percent	N	Percent	N	Percent
Land Less	232	39.39	83	8.55	315	20.19
Small	200	33.96	470	48.4	709	45.45
Medium	101	17.15	206	21.22	212	13.59
Large	56	9.51	212	21.83	324	20.77
ALL	589	100.00	971	100.00	1560	100.00

**Table 1.3. Distribution of household samples by income class, PATANAS 1999.**

Income Class	Java		Off Java		Aggregate	
	N	Percent	N	Percent	N	Percent
Low	171	29.03	247	25.44	431	27.63
Medium	332	56.37	584	60.14	903	57.88
High	86	14.60	140	14.42	226	14.49
ALL	589	100.00	971	100.00	1560	100.00



## II. GENERAL DESCRIPTION OF STUDY AREA

### 2.1. Location

There are little changes in locations and name of PATANAS villages in 1999. First, Air Naningan village in Lampung previously belongs to South Lampung District, since 1995 belong to newly established District that is Tangganus District. Second, up to 1995, Gonjak village is still a part of the Gerunung village, but in the study of 1999, Gonjak has become separate village.

Agroecosystem of villages within or among provinces is greatly varied; this aimed to capture the rural households dynamic. Twelve villages out of 35 villages are belong to irrigated agroecosystem including two villages of rainfed, 21 villages of dry land, and 2 villages at coastal area. Among 12 villages of irrigated *sawah* (paddy field), eight villages dominantly growing rice and 3 villages in East Java growing in relay between rice and sugarcane, while one village (Larangan vil.) in Central Java dominantly growing onion. Meanwhile, villages with dry land is very diversified in farming but most of these villages growing estate crops such as sugarcane, coffee, pepper, coconut, clove, cashew nut and other spice crops. In addition, there are also 4 villages at dry land area dominantly growing vegetables and two villages are livestock dominant areas. The rest are use to grow cassava, tobacco, bananas, garlic or onion, maize, and mango. Two villages in East Java where the households are dominantly engage in fisheries. For example, Sungun Legowo is srime pond village, and Brondong village dominated by fisherman.

Distance between PATANAS villages and the nearest town (district capitol) varied from 2-150 km and no serious problem in accessibility. This is indicated by availability of infrastructure and transportation facilities that is relatively easy and good at least at 33 villages. The distribution of PATANAS villages based on province, district, commodity, and level of accessibility is presented in Table 2.1.

Despite of farm activities, small-scale home industry, services, and entrepreneur are also developed. Home agro-industries are developed at two villages and small-scale industries for non-agricultural products are developed at 22 villages, services at 27 villages, while small entrepreneur and other services are almost exist at each village. Agri-business and trade for example, includes agricultural input and output, as well as consumption goods (Table 2.1).

## 2.2. Land use and Ownership

Land use pattern at each village implicitly indicated the distribution of existing agroecosystem. Generally, total area of dry land and estate land is larger than irrigated land. For example, at Air Naningan village that represents estate land agroecosystem, area of estate crops was about 2397 hectares, dry land 2215 hectares, while irrigated land only 55 hectares in 1994. Meanwhile, Sumberrejo village that represents irrigated land; rice field is about 176 hectares only and dry land more than 189 hectares. (Table 2.2).

Average size of land ownership at Sumber Rejo village is about 0.30 hectare per farm household, while for dry land or estate crop land is 0.38 hectare at Kota Napal village and 1.84 hectare at Beringin village. Most of the households in these villages are owner, number of landless households varied from 2.3 percent to 33.3 percent.

In Central Java, the total area of villages in general, is smaller compared with villages in outer islands. However total rice field is larger particularly villages with dominant irrigated land agroecosystem. Karangwungu, Karangmoncol and Larangan villages for example, land size varied at 0.10-0.18 hectare per household. Meanwhile, villages at dry land area such as Cepogo, Kwadungan Gunung, Karang Tengah, and Mojoagung, the average land size is around 0.18-0.49 hectare. Number of landowner is varied across villages, at Mojoagung for example; the number is only 19.8 percent. Villages like Karangwungu, Karangmoncol, Larangan and Mojoagung; the number of landowner is less than 50 percents. However, the percentage of owners ranges from 73 percent to 86 percent at Kwadungan Gunung, Karang Tengah and Cepogo villages.

Irrigated land is also dominant at villages in West Nusa Tenggara and balance with dry land. Average land ownership across villages' range from 0.14 hectare to 2,48 hectares. Unfortunately, data about percentage of landowner and non-landowner were not available in 1994. Data about land use and ownership were also not available.

Meanwhile in North Sulawesi the total land use for estate crops production is dominant except at Mojoagung village that represents irrigated land agroecosystem. In general, Average Land ownership per household is ranging from 0.57 hectare at Wailan village to 1.64 hectare at Pakuweru village. More than 70 percent of households are landowner except at Pakuweru and Karegesan where most of households are landless or not own any piece of land.

Table 2.1. General descriptive of sample villages, PATANAS 1999.

No.	Village	District	Agro-ecosystem	Main commodity	Accessibility		Industry, service, and trade			
					Village-District distance (Km)	Transportation facility	Agric. Home industry	Non-agric. Home industry	Service	Entrepreneur and trade
A.	Lampung:									
	1. Sumberejo	Lampung Tengah	irrigated land	rice	5	Easy	14	36	7	143
	2. Komering Putih	Lampung Tengah	dry land	cassava	20	Easy	n.d.a	n.d.a	n.d.a.	n.d.a
	3. Gunung Rejo	Lampung Selatan	dry land	banana	180	Easy	8	17	8	67
	4. Air Nanningan	Tanggamus	dry land	coffee	60	Easy	56	4	29	11
	5. Kota Napal	Lampung Utara	dry land	sugarcane	42	Fair	15	65	5	15
6. Beringin	Lampung Utara	dry land	pepper	15	Easy	17	6	33	44	
B.	Central Java:									
	1. Cepogo	Boyolali	dry land	milk	15	Easy	-	262	36	60
	2. Kr.wungu	Klaten	irrigated land	rice	21	Easy	4	8	16	21
	3. Kw .Gunung	Temanggung	dry land	tobacco	13	Easy	-	-	1	30
	4. Kr. Tengah	Banjarnegara	dry land	vegetable	50	Easy	-	-	1	104
	5. Karangmoncol	Pemalang	irrigated land	rice	29	Easy	25	2	13	5
	6. Larangan	Brebes	irrigated land	onion	23	Easy	21	-	40	201
7. Mojoagung	Pati	dry land	sugarcane/ cassava	14	Easy	10	2	16	64	
C.	East Java:									
	1. Wiyurejo	Malang	dry land	vegetable	2	Easy	n.d.a	n.d.a	n.d.a	n.d.a
	2. Gerih	Ngawi	irrigated land	rice,sugarca ne	15	Easy	8	25	45	184
	3. Terung Kulon	Sidoarjo	irrigated land	ne	18	Easy	4	4	-	1
	4. Sungun Legowo	Gresik	costal	rice,sugarca ne	20	Easy	-	32	-	6
	5. Selosari	Kediri	irrigated land	ne	17	Fair	3	9	13	53
6. Brondong	Lamongan	costal	shrimp rice, sugarcane fish	28	Easy	n.d.a	n.d.a	n.d.a	n.d.a	

Note: n.d.a = no data available

Tabel 2.1. General descriptive of sample villages, PATANAS 1999 (continued).

No.	Village	District	Agro-ecosystem	Main commodity	Accessibility		Industry, service, and trade			
					Village-District distance (Km)	Transportation facility	Agric. Home industry	Non-agric. Home industry	Service	Entrepreneur and trade
D.	West Nusa Tenggara:									
	1. Karang Baru	Lombok Timur	dry land	garlic/onion	17	easy	4	24	30	67
	2. Sengkol	Lombok Tengah	wet land	rice	15	easy	25	79	26	54
	3. Gerunung/Gonjak	Lombok Tengah	wet land	rice, pond	3	easy	5	4	5	35
	4. Plampang	Sumbawa	dry land	livestock	60	easy	4	7	7	33
5. Sukadami	Dompu	dry land	cashew	17	easy	3	18	35	9	
E.	North Sulawesi:									
	1. Mogoyungung	Bolaang M.	Wet land	rice	46	easy	17	-	17	65
	2. Wailan	Minahasa	dry land	vegetable	43	easy	8	3	23	68
	3. Pakuweru	Minahasa	dry land	coconut	87	easy	30	-	17	52
	4. Rumoong Atas	Minahasa	dry land	clove	38	easy	31	11	16	42
5. Karegesan	Minahasa	dry land	pepper	12	easy	9	-	47	44	
F.	South Sulawesi:									
	1. Margolembo	Luwu	Wet land	rice	150	easy	8	-	6	21
	2. Baroko	Enrekang	dry land	vegetable	36	easy	n.d.a	n.d.a	n.d.a	n.d.a
	3. Selli	Bone	wet land	rice, soybean	52	easy	-	-	-	35
	4. Ka'do	Tator	dry land	coffee	38	fair	2	-	-	13
	5. Batupanga	Polmas	dry land	Cocoa	35	easy	2	20	6	22
6. Rumbia	Jeneponto	dry land	maize,mango	31	easy	11	15	6	16	

Note: n.d.a = no data available.

Source: Village's Monography

Table 2.2. Land use pattern and land ownership at sample villages, PATANAS 1994

Province/village	Type of agroecosystem (ha)			Average ownership (ha)	Percentage of owner	Percentage of non-owner
	Irrigated land	Dry land	Estate land			
1. Lampung:						
- Gunung Rejo	198,0	134,0	1312,0	0,96	97,7	2,3
- Air Nanningan	55,0	2215,0	1397,0	-	-	-
- Sumberrejo	176,0	189,0	9,0	0,30	9,3	9,3
- Komerling Putih	103,0	2558,0	-	1,17	4,6	4,6
- Kota Napal	21,0	565,0	165,0	0,38	15,1	15,1
- Beringin	2,0	13,0	405,0	1,84	33,3	33,3
2. Jawa Tengah:						
- Cepogo	0,0	210,0	0,0	86,4	13,6	13,6
- Karangwungu	114,8	0,0	0,0	29,2	70,8	70,8
- Kw. Gunung	14,4	127,6	0,0	73,1	26,9	26,9
- Karang Tengah	0,0	346,0	30,0	74,0	26,0	26,0
- Karangmoncol	373,5	53,2	0,0	39,4	60,6	60,6
- Larangan	925,0	25,0	24,8	43,6	56,4	56,4
- Mojoagung	43,0	315,0	0,0	19,8	80,2	80,2
3. NTB:						
- Karang Baru	797,0	435,0	581,0	0,29	n.d.a	n.d.a
- Sengkol	1224,0	308,0	-	0,50	n.d.a	n.d.a
- Gerunung/Gonjak	516,0	-	-	0,14	n.d.a	n.d.a
- Plampang	619,0	1007,0	45,0	2,48	n.d.a	n.d.a
- Sukadamai	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a	n.d.a
4. Sulut:						
- Mogoyungyu	359,0	206,0	0,0	0,86	71,4	28,6
- Wailan	40,0	294,0	0,26	0,57	73,9	26,1
- Pakuweru	120,0	652,0	742,0	1,64	47,9	52,1
- Rumoong Atas	25,0	255,0	599,0	0,84	78,3	21,7
- Karegesan	100,0	100,0	422,0	0,90	39,2	60,8
5. Sulsel:						
- Margolembo	460,0	216,0*	-	1,17	86,2	13,8
- Baroko	-	2227,0*	-	0,93	98,7	1,3
- Selli	1163,0	160,0*	-	1,33	89,4	10,6
- Ka,do	250,0	291,0*	-	0,64	96,8	3,2
- Batupanga	6,0	1250,0*	-	1,12	99,4	0,6
- Rumbia	-	620,0*	-	0,99	95,0	5,0

Source: Villages Monografi, 1994.

Note: \* including estate crops land

Similar to North Sulawesi, total area of dry land and estate land is also larger than irrigated land. Average ownership across PATANAS villages is ranging from 0.64 to 1.33 hectare per farm household. This figure of land ownership is relatively higher compared with other provinces. Meanwhile, average number of households across villages is around 86-99 percent and this is the highest among PATANAS villages.

### 2.3. Population

Generally, population at PATANAS villages in three provinces (Lampung, West Nusa Tenggara, and South Sulawesi) is increasing during the period of 1994-1997. Meanwhile, population at villages in East Java and North Sulawesi are decreasing.

Among first three provinces mentioned above, West Nusa Tenggara showed the highest increasing population that is about 17.07 percent, while Lampung and South Sulawesi is about 8.95 percent and 12.40 percent respectively.

Proportion of male to female population in each village is indicated by sex ratio. If the sex ratio less than one then male population less than female and oppositely (Table 2.3). Most of sex ratios across villages are less than one. In other words, female population is higher than male, even though some villages showed the opposite figure. However, there is no significant change in sex ratio between 1994 and 1997. Comparison made between these two periods indicated that the changes in population in 1997 are very small and varied across villages.

Based on type of job, most of people in PATANAS villages are working in agricultural sector. This job includes landowners that cultivate their own land, sharecropper, fisherman, fishing vessel worker, livestock rising, or landless labor. Meanwhile, in non-agricultural sector, the job includes government officer, trader, services, construction worker, etc. (Table 2.4). Proportion of people working in agricultural sector is around 55-99 percent. This figure varied across PATANAS villages. For example, at Terung Kulon village in East Java, the proportion is relatively lower that is about 35.66 percent compared to people working in non-agricultural sector that reach 64.34 percent. This is due to the location of Terung Kulon village is very close to nearby town and accessibility is also high so that more people left their village and working in non-agricultural sector.

If comparison is also made between 1994 and 1997 for other provinces, then proportion of people at sample villages in West Nusa Tenggara and North Sulawesi working in agricultural sector is increasing in 1997. That is about 3.67 percent and 16.60 percent respectively. Meanwhile, in Lampung, Central Java, and South Sulawesi provinces the proportion is decreasing at about 8.07 percent, 5.77 percent, and 3.93 percent respectively.

Table 2.3. People based on type of job and level of education, PATANAS 1994.

N O.	Village	Popula- tion	Sex ratio (m/f)	Type of job (%)		Level of education (%)			
				Agricu- lture	Non- agric.	Element- ary school	Second -ary school	High school	Univ./ Academy
A.	Lampung:								
	1. Gunung rejo	6.122	-	86,8	13,2	-	-	-	-
	2. Air Nainingan	6.689	-	89,3	10,7	-	-	-	-
	3. Sumberrejo	2.699	-	86,3	13,7	-	-	-	-
	4. Kom. Putih	6.472	-	90,8	9,2	-	-	-	-
	5. Kotanapal	3.240	-	96,8	3,2	-	-	-	-
	6. Beringin	955	-	97,0	3,0	-	-	-	-
B.	Central Java:								
	1. Cepogo	6.441	0,97	91,0	9,0	83,1	11,0	5,0	0,9
	2. Karang Tengah	4.130	0,97	92,3	7,7	89,0	5,2	5,7	0,1
	3. Larangan	19.325	0,98	78,8	21,2	71,9	19,9	5,9	2,3
	4. Kr. Wungu	2.449	0,99	63,0	37,0	46,7	25,6	21,3	6,4
	5. Kr. Moncol	7.624	0,92	90,7	9,3	90,2	4,4	3,7	1,7
	6. Kw. Gunung	1.908	0,96	95,1	4,9	93,5	4,8	1,6	0,1
	7. Wn. Kulon	5.237	0,90	62,7	37,3	87,0	7,5	4,8	0,7
	8. Mojoagung	4.250	0,99	94,6	5,4	86,4	8,0	4,2	1,4
C.	West Nusa Tenggara:								
	1. Gerunung	6.975	d.n.a	2,6	71,5	28,5	88,4	4,0	d.n.a
	2. Sengkol	16.591	0,98	3,9	76,4	23,6	d.n.a	d.n.a	d.n.a
	3. Kr. Baru	15.472	0,96	2,7	90,4	9,6	71,4	13,6	d.n.a
	4. Plampang	5.199	1,01	1,2	89,3	10,7	d.n.a	d.n.a	d.n.a
	5. Sukadamai	3.269	0,71	3,1	25,7	24,3	67,0	6,1	d.n.a
D.	North Sulawesi:								
	1. Karegesan	1.372	1,03	37,30	62,70	25,71	23,80	42,50	7,99
	2. R. Atas	2.528	1,11	74,40	25,60	58,10	9,60	25,80	6,50
	3. Pakuweru	2.004	0,96	77,20	22,80	41,66	18,40	17,47	22,47
	4. Wailan	1.988	1,12	71,40	28,60	64,33	19,69	15,05	0,93
	5. Mogoyunggung	2.177	1,11	82,70	17,30	71,90	14,80	11,40	2,10
E.	South Sulawesi:								
	1. Margolembo	1.720	d.n.a	85,60	14,40	75,73	16,58	7,69	d.n.a
	2. Selli	4.009	d.n.a	93,77	6,23	62,51	17,10	20,39	d.n.a
	3. Rumbio	4.261	d.n.a	94,70	5,30	79,98	10,90	9,12	d.n.a
	4. Ka'do	2.216	d.n.a	82,50	17,50	74,37	9,28	16,35	d.n.a
	5. Baroko	3.125	d.n.a	92,60	7,40	86,47	11,47	2,06	d.n.a
	6. Batupanga	3.621	d.n.a	93,40	6,60	88,55	8,75	2,70	d.n.a

Source: Monography of villages, PATANAS.

Note: d.n.a = data not available

Table 2.3 also presents the proportion of population by education in each sample village. In general, the proportion of people graduated of at least experienced study at elementary school is the highest among other education level. In Lampung, Central Java, and North Sulawesi, for example, the proportion is around 40-94 percent and 25-85 percent in East Java, West Nusa Tenggara, and South Sulawesi. In addition, among six provinces, the proportion at villages in South Sulawesi is the lowest that is ranging from 12 to 48 percent compared with other provinces.

Within three years, the population based on level of education in 1997 has changed in all provinces except Lampung and East Java, where the proportion of population with elementarily educated is decreasing and for higher level is increasing.

Tabel 2.4. People based on type of job and level of education, PATANAS, 1997

No	Village	Popula- tion	Sex ratio (L/P)	Type of job (%)		Level of education (%)			
				Agricu- lture	Non- agric.	Elemen- tary school	Secon- dary school	High school	Univ./ Academ y
A.	Lampung:								
	1. Gunung rejo	5.344	0,93	86,00	14,00	94,00	3,60	2,00	0,06
	2. Air Naningan	6.566	1,07	83,00	17,00	48,00	29,80	51,54	0,66
	3. Sumberrejo	2.706	1,05	76,90	23,10	74,90	24,90	0,20	0,67
	4. Kom. Putih	5.244	0,91	74,00	26,00	61,00	23,00	15,00	0,55
	5. Kotanapal	3.220	1,00	89,00	11,00	78,00	17,00	3,00	1,50
6. Beringin	946	0,99	89,70	10,30	67,20	16,10	16,10	0,60	
B.	Central Java:								
	1. Cepogo	6.765	0,98	72,99	27,01	84,26	10,46	4,62	0,65
	2. Krang Tengah	4.316	0,98	95,35	4,65	82,05	12,60	5,00	0,35
	3. Larangan	20.199	0,91	87,20	12,80	42,97	39,12	14,62	3,29
	4. Kr. Wungu	2.574	0,88	54,58	45,42	42,19	28,37	26,30	3,13
	5. Kr. Moncol	7.624	0,92	75,58	24,42	84,22	11,69	2,76	1,33
	6. Kw. Gunung	2.013	0,98	94,03	5,97	85,11	8,51	4,88	1,51
	7. Wn. Kulon	5.458	0,99	73,92	26,08	79,41	11,40	8,20	0,99
8. Mojoagung	4.301	0,96	68,46	31,54	86,44	8,05	4,22	1,30	
C.	East Java:								
	1. Wiyurejo	4.279	1,06	83,16	16,84	54,29	37,78	7,87	0,06
	2. Sumbr Kalong	3.171	0,94	96,31	3,69	54,00	30,00	16,00	0,00
	3. S. Legowo	5.066	0,99	89,19	10,81	41,56	29,21	27,65	1,59
	4. Brondong	9.272	0,92	84,15	15,85	38,54	32,09	28,53	0,84
	5. Tr. Kulon	3.339	0,85	35,66	64,34	81,40	13,06	4,86	0,68
	6. Selosari	4.115	1,07	70,86	29,14	46,79	33,73	18,90	0,58
7. Gerih	13.292	0,98	73,75	26,25	42,07	35,19	20,76	1,99	
D.	West Nusa Tenggara								
	1. Gerunung	7.381	0,63	76,00	24,00	24,46	42,39	21,74	11,41
	2. Sengkol	8.912	0,97	92,20	7,80	39,24	32,25	26,94	1,57
	3. Kr. Baru	15.506	0,96	92,20	7,80	58,24	20,60	20,94	0,22
	4. Plampang	5.998	1,02	84,83	15,17	82,64	13,26	3,80	0,29
5. Sukadamai	2.783	0,87	76,40	23,60	64,63	27,23	8,14	0,00	
E.	North Sulawesi:								
	1. Karegesan	1.383	0,96	85,00	15,00	39,70	33,47	24,75	2,07
	2. R. Atas	6.566	1,07	85,00	15,00	70,50	14,64	13,00	1,22
	3. Pakuweru	2.706	1,05	85,00	15,00	65,00	18,64	14,22	1,22
	4. Wailan	5.244	0,91	85,00	15,00	65,26	18,64	14,22	1,22
5. Mogoyunggung	3.220	1,00	86,00	14,00	68,50	18,44	11,82	1,22	
F.	South Sulawesi:								
	1. Margolembo	2.404	0,84	81,0	19,0	30,0	15,0	9,0	0,50
	2. Selli	3.693	0,65	86,0	14,0	12,0	9,0	5,0	0,10
	3. Rumbio	2.624	0,58	83,0	17,0	35,0	17,0	7,0	0,30
	4. Ka'do	2.828	0,60	95,0	5,0	22,0	16,0	8,0	0,10
	5. Baroko	2.825	0,43	94,0	6,0	48,0	29,0	18,0	2,00
6. Batupanga	2.487	0,90	80,0	20,0	27,0	16,0	4,0	0,70	

Source: Monografy of villages, PATANAS.

Note: d.n.a = data not available



## 2.4. Land holding and Labor Structure

The descriptions of land holding and labor structure, source of income and rural household's mobility are taken from the PATANAS Census Data in 1994 and 1998. The comparison is then made between these two data set to evaluate the changing after 5 year 5 period by agroecosystem. However the data only available five provinces, namely: Lampung, Central Java, West Nusa Tenggara, North Sumatera, and South Sulawesi. East Java is the only province of 1999 PATANAS re-survey that is not belong to the census.

In general, the land holding structure showed that the average wet land ownership in Java is lower than in Off-Java but the trend is declining in all provinces except South Sulawesi which has increased from 0.74 in 1994 to 0.76 ha in 1998 ha. In Central Java for example, the wet land ownership declined from 0.39 ha to 0,35 in the same period. Meanwhile, in Off Java (Lampung, NTB, and North Sulawesi) has declined from 0.60 ha to 0,55 ha in Lampung, 0,78 to 0.68 in NTB and 0.73 ha to 0.68 ha in North Sulawesi. However, other land type such as dry land and estate land has increased except dry land ownership in South Sulawesi, which has declined from 0.66 ha to 0.44 ha (Table 2.5).

On the other hand, average wet land holding has declined in almost all provinces except South Sulawesi that remain constant. However, average dry land holding has increased. In addition, the estate land holding in Lampung and Central Java has decreased in 1998 compared with 1994. The trend of land holding in Lampung is almost similar to Java since it is very close between the two provinces. However average size of estate land holding in NTB and Sulawesi has increased. In North Sumatera for example, the average size increased from 1.61 ha to 1.82 ha (Table 2.6).

Table 2.7 showed the Gini Index of wet land ownership at wet land and dry land dominated villages. In general, land distribution is getting worst in 1998 compared with 1994 except in South Sulawesi. Land ownership distribution of dry land in Lampung, Central Java and NTB is better compared with wet land. However, in North Sulawesi the distribution is quite different where wet land distribution is better than dry land. South Sulawesi showed the best land distribution among five provinces either land ownership as well as land holding with Gini Index 0.30 to 0.37.

Table 2.5. Average land ownership change based on land type, PATANAS 1994-1998 (ha)

Province/ Land Type	Village dominant agroecosystem				Aggregate	
	Wet land		Dry Land		1994	1998
	1994	1998	1994	1998		
<b>Lampung</b>						
- Wet land	1,09	0,98	0,32	0,30	0,60	0,55
- Dry Land	0,88	0,58	1,40	1,50	1,34	1,43
- Estate land	2,62	2,04	1,40	1,41	1,41	1,42
<b>Central Java</b>						
- Wet land	0,39	0,35	-	-	0,39	0,35
- Dry Land	0,68	0,99	0,46	0,42	0,47	0,47
- Estate land	0,28	0,26	0,09	0,08	0,21	0,22
<b>West Nusa Tenggara (NTB)</b>						
- Wet land	0,47	0,39	0,90	0,99	0,78	0,68
- Dry Land	-	0,50	1,05	1,15	1,05	1,11
- Estate land	0,33	0,28	0,98	1,13	0,93	0,93
<b>North Sulawesi</b>						
- Wet land	0,89	0,50	0,64	0,59	0,73	0,68
- Dry Land	0,71	-	0,62	0,88	0,64	0,88
- Estate land	0,94	0,35	1,91	2,09	1,82	2,08
<b>South Sulawesi</b>						
- Wet land	0,85	0,85	0,29	0,41	0,74	0,76
- Dry Land	0,50	0,50	0,71	0,42	0,66	0,44
- Estate land	0,74	0,65	0,73	0,87	0,73	0,83

Source: PATANAS Census 1994, 1998.

## 2.5. Source of Income and Rural Households Mobility

Within the period of 1995-1998, there is a common trend that the number of land less labor has increased. Land less in Lampung has increased from 10.8% in 1994 to 13.05 in 1998. This trend is then followed by the decline in number of households that depend on agriculture as their main job (farm households) from 80.2% to 71.7%. On the other hand, the number of non-agriculture main job households increased from 9.0% to 15.3%. This phenomenon is also occurring in NTB and South Sulawesi either at wet land as well as dry land agroecosystems (Table 2.8).

**Table 2.6. Average land holding change based on land type, PATANAS 1994-1998 (ha)**

Province/ Land Type	Village dominant agroecosystem				Aggregate	
	Wet land		Dry Land		1994	1998
	1994	1998	1994	1998		
<b>Lampung</b>						
- Wet land	1,17	0,97	0,31	0,29	0,60	0,52
- Dry Land	0,70	0,53	1,37	1,49	1,30	1,43
- Estate land	1,36	1,06	1,35	1,30	1,35	1,30
<b>Central Java</b>						
- Wet land	0,37	0,30	-	-	0,37	0,30
- Dry Land	0,94	0,99	0,48	0,48	0,50	0,52
- Estate land	0,81	0,23	0,09	0,08	0,43	0,19
<b>West Nusa Tenggara (NTB)</b>						
- Wet land	0,45	0,48	1,00	0,99	0,76	0,74
- Dry Land	-	0,70	1,05	1,03	1,05	1,02
- Estate land	0,38	0,23	0,91	1,09	0,87	0,92
<b>North Sulawesi</b>						
- Wet land	0,84	0,79	0,47	0,49	0,63	0,58
- Dry Land	0,67	1,20	0,66	0,80	0,66	0,84
- Estate land	0,93	1,06	1,65	1,88	1,61	1,82
<b>South Sulawesi</b>						
- Wet land	0,87	0,84	0,29	0,40	0,75	0,75
- Dry Land	0,50	0,48	0,68	0,40	0,65	0,42
- Estate land	0,76	0,63	0,73	0,86	0,73	0,81

Source: PATANAS Census 1994, 1998.

In the same period, land less labor has increased to 18.5% in 1998 from 16.5% in 1994, while, number of farm households declined from 71.6% to 64.0%. In addition, number of non-farm households from 19.9% to 17.5%. Meanwhile, even though the number of land less labor relatively very small in South Sulawesi but the trend is also increasing from 1.1% to 4.31% with in the same period. This trend followed by a decline in number of farm-households from 90.4% to 79.6% and non-agriculture households increased from 8.5% to 16.09%. Furthermore, the number of land less labor in Central Java increased from 31.4% to 26.5% but the number of non-farm households remain the same during this period, that is about 46.0%. In addition non-farm households has increased from 22.6% in 1994 to 27.2% in 1998. Lastly, in North Sulawesi the number of land less labor has declined to 5.2% in 1998 from 7.7% in 1994, and number of farm households declined from 62.5% to 47.4%, but non-farm households increased from 29.8% to 47.4% (Table 2.8).

Table 2.7. Gini Index of wet and dry land distribution in five PATANAS provinces 1994-1998

Province	Gini Index			
	Wet land		Dry land	
	1994	1998	1994	1998
Lampung:				
- Land ownership	0,61	0,59	0,55	0,55
- Land holding	0,56	0,53	0,47	0,46
Central Java:				
- Land ownership	0,82	0,83	0,78	0,74
- Land holding	0,79	0,81	0,77	0,73
West Nusa Tenggara (NTB):				
- Land ownership	0,74	0,81	0,53	0,63
- Land holding	0,72	0,77	0,56	0,62
North Sulawesi:				
- Land ownership	0,68	0,69	0,71	0,72
- Land holding	0,61	0,63	0,69	0,73
South Sulawesi:				
- Land ownership	0,51	0,48	0,37	0,30
- Land holding	0,46	0,54	0,36	0,31

Source: PATANAS Census 1994, 1998.

## 2.6. Rural Households Source of Income

Table 2.9 presented the changes in rural household's income structure during the period of 1994-1998. During this four years period, agricultural sector as the main source of rural households income has increased from 73,3% to 76,8%, meanwhile, other source of income such as off-farm labor and non-agriculture has declined from 14.5% to 12.2% and 12,2% to 11,0% respectively. This trend is also found in three agroecosystems dominated villages. Similarly, in Central Java, agricultural income has increased from 41.1% to 49.9%, while off-farm income and non agricultural income has declined from 31.2% to 26.8% and from 27.7% to 23.3% in the same period respectively. Similar trend was also found for other dominated agroecosystem rural households.

In addition, during this period non-agricultural job based on labor allocation has increased in Lampung and Central Java in one hand (Table 2.8), on the other hand, non agricultural income declined (Table 2.9). This indicated that during economic crisis the productivity of non-agricultural job has declined but the productivity agricultural job

increased. Therefore, during the crisis agricultural based rural households seem to be more resilient.

Table 2.8. Rural households main job at PATANAS villages in five provinces, 1994-1998 (%)

Province	Village dominated agroecosystem						Aggregate	
	Wet land		Dry land		Coastal		1994	1998
	1994	1998	1994	1998	1994	1998		
Lampung:								
- Farmer/fisherman	80,6	77,9	80,1	69,9	-	-	80,2	71,7
- Land less labor	5,0	8,1	11,9	14,5	-	-	10,8	13,0
- Non-farm	14,4	14,0	8,0	15,6	-	-	9,0	15,3
Central Java:								
- Farmer/fisherman	31,0	24,1	75,3	70,5	11,9	-	46,0	46,3
- Land less labor	35,1	37,5	13,7	16,3	73,3	-	31,4	26,5
- Non-farm	33,9	38,4	11,0	13,2	14,8	-	22,6	27,2
West Nusa Tenggara (NTB):								
- Farmer/fisherman	61,0	52,9	80,3	73,5	66,1	20,0	71,6	64,0
- Land less labor	24,1	24,7	8,6	13,9	25,5	-	16,5	18,5
- Non-farm	14,9	22,4	11,1	12,6	8,4	80,0	11,9	17,5
North Sulawesi:								
- Farmer/fisherman	74,1	33,3	58,8	47,6	64,3	-	62,5	47,4
- Land less labor	5,9	66,7	6,6	4,1	13,2	-	7,7	5,2
- Non-farm	20,0	0,0	34,6	48,3	22,5	-	29,8	47,4
South Sulawesi:								
- Farmer/fisherman	88,1	75,0	91,3	84,8	93,7	71,4	90,4	79,6
- Land less labor	1,5	8,0	0,5	0,0	1,9	14,3	1,1	4,31
- Non-farm	10,4	17,0	8,2	15,2	4,4	14,3	8,5	16,1

Source: PATANAS Census 1994, 1998.

However, different trend is found in other three provinces such as NTB, North Sulawesi and South Sulawesi. In NTB for example, during the same period 1995-1998, agricultural income has declined 70,2% in 1994 to 60,1% in 1998, while off farm income declined from 15,5 % to 13,6% and non agricultural income increased from 14,0% to 26,3%. Similar trend is found in three agroecosystems based villages. Similar trend is also found in North Sulawesi and South Sulawesi.

If the comparison is made between income structure and labor structure in these three provinces, then the productivity of agricultural sector and non-agricultural sector in PATANAS villages relatively stable. This indicated that non-agricultural sector was not seriously affected by the economic crisis since most of non-agricultural activity are based

on agricultural product. In Addition, this phenomena is also indicated that the backward and forward linkage between these two sectors is relatively stronger compared with Lampung and Central Java. Therefore, development of agricultural based rural industry should be given higher priority to anticipate another economic crisis may come in the future.

Table 2.9. Rural household source of income in five provinces, PATANAS 1994-1998 (%)

Province	Village dominated agroecosystem						Aggregate	
	Wet land		Dry land		Coastal		1994	1998
	1994	1998	1994	1998	1994	1998		
Lampung:								
- Farmer/fisherman	79,5	82,2	72,1	75,7	-	-	73,3	76,8
- Land less labor	14,5	5,1	16,2	13,7	-	-	14,5	12,2
- Non-farm	6,0	12,7	11,7	10,6	-	-	12,2	11,0
Central Java:								
- Farmer/fisherman	28,5	38,4	68,2	72,0	10,0	27,5	41,1	49,9
- Land less labor	32,3	26,4	15,8	14,9	72,7	62,8	31,2	26,8
- Non-farm	39,2	35,2	16,0	13,1	17,3	9,7	27,7	23,3
West Nusa Tenggara (NTB):								
- Farmer/fisherman	60,8	51,9	79,0	64,0	62,4	64,7	70,2	60,1
- Land less labor	23,1	13,1	7,7	14,2	25,4	12,7	15,0	13,6
- Non-farm	16,1	35,0	13,3	21,8	12,2	22,6	14,0	26,3
North Sulawesi:								
- Farmer/fisherman	69,4	52,3	47,4	45,5	58,6	73,8	53,3	51,5
- Land less labor	8,2	31,3	7,7	2,9	13,1	3,05	8,8	6,8
- Non-farm	22,4	16,4	44,9	51,6	28,3	23,2	37,9	41,7
South Sulawesi:								
- Farmer/fisherman	86,1	84,5	91,2	92,5	93,8	90,6	89,6	89,4
- Land less labor	2,1	1,4	0,3	,3	1,9	1,7	1,2	0,9
- Non-farm	11,8	14,1	8,5	7,2	4,3	7,7	9,2	9,7

Source: PATANAS Census 1994, 1998.

## 2.7. Rural Labor Mobility

PATANAS 1994 census showed that household member participation rate in migration is ranging between 1,95% – 11,05% (Table 2.10). It is very clear that limited job opportunity is not only in rural Java but to some extents is also found in Off Java. Participation rate in North Sulawesi for example, is higher compared with Central Java and higher rate is also found in NTB. This condition is may due to lower agricultural

productivity in NTB and North Sulawesi than in Central Java so that people interested to migrate for better job and income. However, the rate of migration is slowing down in 1998 in Lampung, Central Java and North Sulawesi due to the decline in non-agricultural job opportunity at urban area during the crisis.

From the perspective of agroecosystem, participation rate in migration is dominated by wet land area especially in Lampung and South Sulawesi. In Central Java, migration out to the village is mostly found at coastal area at about 32,73%. Relatively low migration rate is found at dry land area because of relatively high cropping intensity (vegetables and tobacco) especially at PATANAS villages in Central Java. Migration participation rate at wet land as well as dry land area of NTB and North Sulawesi has increased in 1998 compared with 1994 but the rate has declined at coastal area.

Table 2.10. Households' member participation rate in migration, PATANAS 1994-1998 (%)

Province	Agroecosystem						Aggregate	
	Wet land		Dry land		Coastal		1994	1998
	1994	1998	1994	1998	1994	1998		
Lampung	17,86	3,51	7,71	6,49	-	-	9,36	6,00
Central Java	9,13	8,58	3,23	0,99	32,73	1,35	9,87	4,69
NTB	4,94	6,39	5,84	9,45	6,36	1,29	5,65	7,04
North Sulawesi	10,08	0,59	11,77	11,77	9,42	3,07	11,05	8,65
South Sulawesi	3,10	3,59	1,23	0,89	1,41	1,90	1,95	2,00

Source: PATANAS Census 1994, 1998.

Migration is mostly encouraging rural households to seek better income in non-agricultural sector at urban area. But in 1994, this phenomenon is different in Lampung where most of people at wet land area migrated for agricultural job (Table 2.11). Agricultural income in 1994 is still the main source of rural household income in wet land area in Lampung but not in 1998 where the common trend is also happen that is, migration is done for non-agricultural job.

Table 2.11. Households' member participation rate by type of job, PATANAS 1994-1998 (%)

Uraian	Wet land		Dry land		Coastal		Aggregate	
	1994	1998	1994	1998	1994	1998	1994	1998
<b>Lampung</b>								
- Farmer/fisherman	59,10	9,09	3,52	3,37	-	-	20,75	3,91
- Landless labor/fisherman	8,70	-	9,77	11,50	-	-	9,43	10,43
- Non-agriculture	32,20	90,91	86,71	85,13	-	-	69,82	85,66
<b>Central Java</b>								
- Farmer/fisherman	1,25	0,72	-	3,85	2,07	-	1,44	0,95
- Landless labor/fisherman	4,39	3,94	1,19	-	87,60	41,70	38,82	5,05
- Non-agriculture	94,36	95,34	98,81	96,15	10,33	58,30	59,74	94,00
<b>West Nusa Tenggara (NTB)</b>								
- Farmer/fisherman	-	2,60	0,85	1,76	2,27	12,50	0,88	2,35
- Landless labor/fisherman	21,20	19,50	40,70	54,70	9,09	-	28,95	42,35
- Non-agriculture	78,80	77,90	58,45	43,54	88,64	87,50	70,17	55,30
<b>North Sulawesi</b>								
- Farmer/fisherman	11,40	-	2,38	1,59	2,82	-	3,91	1,50
- Landless labor/fisherman	29,10	-	18,50	3,18	39,40	47,10	23,25	5,34
- Non-agriculture	59,50	100,00	79,12	95,23	57,78	51,90	72,84	93,16
<b>South Sulawesi</b>								
- Farmer/fisherman	26,20	21,00	9,68	-	11,10	15,40	19,80	15,63
- Landless labor/fisherman	4,92	3,23	3,23	19,00	11,10	15,40	4,95	8,33
- Non-agriculture	68,88	75,77	87,09	81,00	77,80	69,20	75,25	76,04

Source: PATANAS Census 1994, 1998.



### III. GENERAL INFORMATION AND GOVERNMENT POLICY COPING WITH THE CRISIS.

Government realized that the impact of economic crisis since 1997 has devastated all sector of economy and life of million of people particularly resource poor urban as well as in rural area. Purchasing power of these classes of people declining to one third before the crisis. Various aspects were seriously affected, among others are food security, farming capital, unemployment, input and output prices, etc. Bellow are discussed the general information and government policy coping with the crisis.

#### 3.1. The Impact of Economic Crisis to Unemployment

This sub-chapter describes a popular belief that economic crisis have adversely affected employment in Indonesia. The following part of discussion is focused on three selected classes of indicator that are conceivably sensitive in indicating changes in labor market, namely: unemployment, underemployment, and wages. The examination is focused on the situation during 16 months period starting from August 1997<sup>1)</sup>. The trend of changes in composition of working-age population (age 15 or above) within this time period is illustrated in Table 3.1.

**Table 3.1. Working-age population by economic activity (000)**

Activity	Period			% Rate of change	
	Aug. 1997	Aug. 1998	Dec. 1998	Aug. 97- Dec. 98	Aug .98- Dec 98
(1)	(2)	(3)	(4)	(5)	(6)
Labor force	89602.9	92734.9	90390.5	3.5	-2.5
• Employed	85405.5	87672.4	86708.7	2.7	-1.1
• Unemployed	4197.4	5062.5	3680.7	20.6	-27.3
Not in labor force	45467.5	45821.3	50615.8	0.8	10.5
• Schooling	10814.4	11273.7	10339.0	4.2	-8.3
• Housekeeping	25896.0	25266.9	30737.4	-2.4	21.7
• Others	8757.2	9280.7	9539.4	6.0	2.8
Total	135070.4	138556.2	141006.3	2.6	1.8
Unemployment rate	4.68	5.46	4.07	16.5	-25.4

Source: BPS 1998.

- 1) Economic crisis in Indonesia have been spurred by financial crisis that started from July 1997. Its effects on employment are assumed occurred through time lag that longer then one month.

Comparison between columns (2) and (3) of Table 3.1 suggests, among other things, the increase in two major points: First, labor force increase, quiet different with popular belief that increased by 3.5% during the period of August 1997 and August 1998. This belief is probably correct when the increase in labor force occurred in order to compensate for the income loss suffered by household. Second, the rate of increase in unemployment during the same period was 16.5%. The figure is comparatively high compared to that of 1994-1996 period that is 11.36% or 5.68% annually when unemployment rate was 4.4% and 4.9% respectively. This indicated the negative impact of economic crisis on employment. Need to be considered that figures in column (3) and (4) of Table 3.1 can not be compared directly. Accordingly, percentage changes in column (5) and (6) are misleading if they are compared literally. With regard to employment and unemployment, the structure of questionnaire of 1998 Sakernas, and 1998 Susenas type are different. For example, there are two questions related to unemployment in 1997 Sakernas type but only a single question in 1998 Sakernas and Susenas type. Based on this incomparable data gathered using different questionnaire structure, BPS then made reconciled analysis on data on employment and unemployment.

Table 3.2. Illustrated working-age population by economic activity after reconciliation.

Table 3.2. compares 1997 Sakernas and 1998 Susenas-type data or working-age population. The table shows that during 16 months period from August 1997 to December 1998 all categories of working-age population increased except for schooling. This is through for both males and females. During this period, total employment increased by 1.1% while total unemployment by about 14.7%. In total, labor force increased by 1.6% while not in labor force by 8.6%. Comparison between the rates of increase during the 16 months periods (Table 3.2) with that of August 1997-August 1998 (Table 3.1) implies that significant changes in the composition of working-age population have occurred during the last four months period starting from August 1998.

Unemployment rate is defined as the proportion as the proportion of labor forces that actively seeking work. However, this definition has been widely criticized on the

ground that it is unrealistic for a country like Indonesia where the labor market is largely unorganized and labor absorption is inadequate. In addition, labor force is largely self-employed and where there is no unemployment compensation. In such a situation, ILO

Table 3.2. Working-Age Population by Economic Activity

	Aug.1997 (Reconciled)	Dec.1998	Absolute change	% Change
(1)	(2)	(3)	(4)	(5)
<b>Both Sexes (000)</b>				
<b>Labor Force</b>	88.604.1	90.047.6	1.443.5	1.6
• Employed (*)	85.405.5	86.378.7	973.2	1.1
• Unemployed (*)	3.198.6	3.668.8	470.2	14.7
<b>Not in Labor Force</b>	46.466.3	50.448.7	3.982.4	8.6
• Schooling	11.000.8	10.298.6	-702.0	-6.4
• Housekeeping	27.536	30.647.1	3.110.6	11.3
• <b>Others</b>	7.929.0	9.503.0	1.574.0	19.9
<b>Total</b>	<b>135.070.3</b>	<b>140.496.3</b>	<b>5.425.0</b>	<b>4.0</b>
Unemployment Rate (**)	3.61	4.07	0.5	12.9
<b>Male (000)</b>				
<b>Labor Force</b>	54.825.0	56.200.2	1.375.2	2.5
• Employed (*)	53.005.5	53.780.1	774.6	1.5
• Unemployed (*)	1.819.5	2.420.1	600.6	33.0
<b>Not in Labor Force</b>	11.467.5	12.814.4	1.346.9	11.7
• Schooling	5.854.3	5.450.4	-403.9	-6.9
• Housekeeping	864.4	1.362.0	497.6	57.6
• <b>Others</b>	4.748.8	6.002.0	1.253.2	26.4
<b>Total</b>	<b>66.292.5</b>	<b>69.014.6</b>	<b>2.722.1</b>	<b>4.1</b>
Unemployment Rate (**)	3.32	4.31	1.0	29.8
<b>Female (000)</b>				
<b>Labor Force</b>	33.779.1	33.847.4	68.3	0.2
• Employed (*)	32.400.0	32.598.7	198.7	0.6
• Unemployed (*)	1.379.1	1.248.7	-130.4	-9.5
<b>Not in Labor Force</b>	34.998.8	37.634.3	2.635.5	7.5
• Schooling	5.146.5	4.848.2	-298.3	-5.8
• Housekeeping	26.672.1	29.285.1	2.613.0	9.8
• <b>Others</b>	3.180.2	3.501.0	320.8	10.1
<b>Total</b>	<b>68.777.9</b>	<b>71.481.7</b>	<b>2.703.8</b>	<b>3.9</b>
Unemployment Rate (**)	4.08	3.69	-0.4	-9.6

(\*) Reconciled figures of employed and unemployed has slightly different meaning With that of standard meaning. See text explanation.

(\*\*) Both figures can not interpreted to represent the actual level of unemployment as Conventionally understood. Both figures are useful only for comparison. See text for explanation.

then recommended using *relaxation* in defining unemployment by ignoring the criterion of seeking work. Following this definition leads to another type of unemployment called *disguised unemployment*, i.e., not seeking work but willing to accept job. BPS then proposed a refined definition of unemployment rate by accommodating both criteria *seeking work* and *willing to accept work*.

Table 3.3. Shows the trend in unemployment rate that follows the refined definition based on 1997 and 1998 Sakernas. The refined unemployment in 1997 was more than 12 million or 12.38% of the total labor force, almost three times than unemployment rate for the same period as conventionally defined that was 4.68% (Table 3.1). The table also shows that the refined unemployment rate increased by 14.6% to the next year level that was 14.19%. This indicated a serious negative impact of economic crisis during the period of 1997-1998 although it may be not as dramatic as popularly perceived. The increase occurred in both urban and rural areas and for male and females. Nonetheless, the increase in urban areas is comparatively striking.

Table 3.3. Refined unemployment rates (\*) and profile by gender and type of residence, 1997 and 1998

	August 1997	August 1998	Absolute Change	% Rate of Change
1. Employed (000)	85.405.5	87.672.4	2.266.9	2.6
2. Unemployed :				
a. Actively seeking work	4.197.3	5.062.5	865.2	20.6
b. Not-seeking work but willing to accept work	7.870.3	9.433.1	1.562.8	19.9
3. Refined Unemployment Rate :				
Total $(=(2a+2b) / (1+2a+2b))$	12.38	14.19	1.81	14.6
<b>Gender</b>				
• Male	5.64	6.12	0.48	8.5
• Female	19.54	21.53	1.99	10.2
Type of residence :				
• Urban	14	19.23	5.23	37.4
• Rural	10.18	11.26	1.08	10.6

Source: Primary data of 1997 Sakernas in BPS 1999

(\*) The proportion of labor forces whom seeking work or willing to accept work

Relaxation of the definition as previously discussed provides somewhat more realistic picture. Unemployment is conventionally measured by working hours. BPS defined that a person is usually categorized as underemployed if he or she worked less than 35 hours/week (an arbitrary norm). The following discussion is focused on trends of working hour. Table 3.4. Provides insight on the change in the pattern of working hours. At glance, the table suggests that no dramatic change in the pattern

that occurred during 1996-1998 period. This is generally true but a systematic change in the trend of low and high working hours had in fact occurred between pre-crisis and in crisis period. During pre-crisis (August 1996-August 1997), the proportion of employed person with low working hours, between 1-14 hours or less than 35 hours in a week declined or at least stable. In contrast, the proportion of those with overly working hours (45 hours or more in a week) declined during the same period. During the crisis period (August 1997 onward) the trends just reversed in both urban and rural areas. This reversed trend is probably a signal of increasing of invisible in employment, employment without any positive marginal utility, especially in rural areas.

The pattern is completely different with that of overly working hours. In contrast, to that of low working hours, trend in the percentage of overly working hours rose during pre-crisis period but then declined in crisis period. This negates the notion that people tend to extend their working hours to compensate decline in real earning, the notion that apparently true at normative level. The rise in low working and decline in overly working hours during in-crisis period certainly indicate a decline in overall working hours.

### **3.2. The Impact of Economic Crisis to Poverty**

The crisis squeezing the Indonesian economy in the mid of 1997, following the long drought during the year, and has been adversely affecting the overall macro economic condition, and most importantly people's welfare. The number of people living in poverty is believed to increase drastically. BPS reported that data from the result of the 1998 Susenas-type suggest a substantial increase in poverty incidence from the pre-crisis period (1996) to the end of 1998.

Table 3.4. Employed Persons by Working Hours and Residence (%), 1977-1998

Working Hours	Aug 1996	Aug 1997	Aug 1998	Dec 1996	Annual rate of change (%)		
					Aug 96- Aug 97	Aug 97- Aug 98	Aug 98- Dec 98
<b>A. Total</b>							
Percentage Distribution							
• 0	2.7	2.7	2.5	1.0	0.0	-7.4	-180.0
• 1-14	7.3	6.8	8.0	7.8	-6.8	17.6	-7.5
• 15-34	28.0	26.2	28.6	30.0	-6.4	9.2	14.7
• 35-44	25.5	24.9	24.9	24.5	-2.3	0.0	-10.8
• 45+	36.6	39.4	36.0	36.5	7.7	-8.6	4.2
Under normal (1-34)	35.3	33.0	36.6	37.8	-6.5	9.5	3.3
<b>B. Urban Areas :</b>							
Percentage Distribution							
• 0	1.7	1.6	2.0	1.0	-5.9	25.0	-50.0
• 1-14	3.7	4.1	4.3	5.2	10.8	4.9	20.9
• 15-34	15.6	15.2	17.7	18.1	-2.6	16.4	2.3
• 35-44	28.0	26.5	27.1	25.8	-5.3	2.3	-4.8
• 45+	51.1	52.7	48.8	49.3	3.1	-7.4	1.0
Under normal (1-34)	19.3	19.3	22.0	23.3	0.0	14.0	5.9
<b>C. Rural Areas :</b>							
Percentage Distribution							
• 0	3.1	3.3	2.7	1.0	6.5	-18.2	-63.0
• 1-14	9.1	8.3	9.9	9.4	-8.8	19.3	-5.1
• 15-34	34.1	32.1	34.4	36.8	-5.9	7.2	7.0
• 35-44	24.2	24.0	23.8	22.9	-0.8	-0.8	-3.8
• 45+	29.5	32.3	29.2	29.1	9.5	-9.6	-0.3
Under normal (1-34)	43.2	40.4	44.3	46.2	-6.5	9.7	4.3

Source : 1997 and 1998 Sakernas (February) and 1998 Susenas-type (December)

Table 3.5 presents the number and presents the number and percentage of population living bellow the designated poverty lines (head-count ratio) in both urban and rural areas from 1996 to 1998. The magnitude of poverty as measured by poverty incidence in 1998 is 24.23% (49.5 million). Out of this number, around 17.6 million live in urban area, and 31.9 million live in rural area. Poverty incidence in December 1998,

Table 3.5. Number and Percentage of Poor People in Indonesia By Urban – Rural Areas, 1976-1998

Year	% Poor People (Headcount Index)			Number of Poor People (in million)		
	Urban	Rural	Urban+Rural	Urban	Rural	Urban+Rural
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1996	9.71	12.30	11.34	7.2	15.3	22.5
1998 *)	21.92	25.72	24.23	17.6	31.9	49.5
1998 a)	15.35	17.64	16.74	12.3	21.9	34.2

Note : \*) December 1998, From the result of the 1998 of the 1998 Susenas -type 1998a): The 1998 Adjusted figures. Adjustment is made by applying the same fractions and non-food bundle as used in 1996.

Therefore, equals to 21.92% for urban and 25.72% for rural. The overall number of the poor in Indonesia sharply decreased from 54.2 million (40.08% to total population) in 1996 to 22.5 million people (16.74%) by 1996. However, the figure was estimated to rise to 34.2 million people (16.74%) by 1998, or an absolute change in the number of the poor by around 11.7 million as compared to 1996 figure. However, to really measure the crisis impact, one should compare the 1997 (estimate) figure with that of 1998. As the 1997 figure is believed to be lower than the 1996 poverty level, the crisis impact would be higher than 11.7 million. Provided the 1997 poverty level is 21.5 million (assuming the same annual rate of decline in the absolute poverty as happened from 1993 to 1996) as reported by BPS, this means around 12.7 million increases which really measures the crisis impact.

A substantial increase in absolute poverty line in fact was resulted from a drastic change in the designated poverty lines in both urban and rural areas (Table 3.6). As compared to 1996, the poverty in 1998 increased by about 154% and 165% in urban and rural areas respectively. Meanwhile, the adjusted 1998 poverty line, as compared to 1996, increased by 128.06% and 138.22% for urban and rural

respectively. The extent of the increase in poverty line was apparently consistent to the skyrocketing prices, especially food commodities, during the same period. From February 1996 to December 1998, the inflation rate for food was recorded at around 148.6% (BPS, monthly series economic indicators).



Table 3.6. Poverty Line and Their Change in Indonesia, by Urban-Rural Areas, 1976-1998 (Rupiah/capita/month)

Year	Poverty Line		Absolute Change in Poverty Line		Percentage changes in Poverty Line	
	Urban	Rural	Urban	Rural	Urban	Rural
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1996	38.246	27.413	10.521	9.169	37.70	50.26
1998 *)	96.959	72.780	58.713	45.367	153.51	165.49
1998 a)	87.226	65.304	48.980	37.891	128.06	138.22

Note : \*) December 1998, From the result of the 1998 of the 1998 Susenas-type 1998a): The 1998 Adjusted figures. Adjustment is made by applying the same fractions and non-food bundle as used in 1996.

### 3.3. Government Policy Coping with the Crisis

The following discussion is focused on the government policy coping with the crisis that related to agricultural sector and rural development. Among other thing two major government policy are discussed bellow that include food security, and agricultural input and output. Social safety net is one of the immediate government programs that started in 1998. Free rice for 10-12 months and low price of rice (50% of the market price) are belongs to food security.

#### 3.3.1. Food Security

Food prices, which have been held at 50 to 60 percent of world market levels for last three decades, rose rapidly during July and August of 1998 and are now above world market levels. This condition has fueled concerns over Government's ability to maintain food at reasonable prices. In the first year of the economic crisis, the main approach to food security was to increase food imports and use trade and market intervention to keep domestic prices well bellow world market levels. Heavy credit

and fertilizer subsidies were used to keep prices of essential agro-inputs within of small-scale food producers.

Low prices food policy was costly, hard to administer and had little apparent effect on food production or food security. Most of benefits from general food subsidies went to middle and upper income families, rather than to the poorer consumers. This food prices policy acted to:

(1) discourage food production, (2) fueled illegal smuggling essential foodstuffs out of the country, and (3) discourage farmers to produce more food for commercial purposes. Rural credit programs came to a near half because farmers had few incentives to borrow to produce crops that paid such meager returns. The low food price policy was causing farmers to produce food more for subsistence than for commercial purposes.

In recognition of the devastating impact of the crisis, the government policy for agricultural sector then change from low prices and extensive agro-input subsidies to competitive provision of imported foodstuffs, targeted distribution of basic foodstuff to the poorest families, and heavy credit has allocated to keep the food production affordable for the small scale producers. It is anticipated that these policies will inspire farmers to produce more basic foodstuffs and enable Indonesia to reduce its dependence on high imported foodstuffs. By targeting food relief to nutritionally vulnerable groups, the Government can augment assistance provided by families and the community to stave off the most adverse effects of food security.

In line with this more market-friendly approach to rebuilding food security, general consumer price subsidies for sugar, soybean, soybean meal, wheat flour, dairy products and fish meal were eliminated in September 1998. In the case of rice, modest price subsidies remain provided, but these are targeted primarily to meet the consumption needs of the poorest groups. General price subsidies for rice will be phased down, as domestic rice prices gradually converge to world market levels. This proposed reform of general price policy for rice is based on condition that the difference in price between medium quality rice at retail and market-operations, of the same quality rice is less than in April 1998 and does not exceed of 20 percent differential.

To ensure that domestic food price remains competitive in the world market, the private sector has been provided the authority to import basic foodstuffs. Government has no intention of restoring import monopoly right to BULOG or to any other government agency. In fact to enhance competition, the government intends to provide authority to general importers to import foodstuffs. This is expected to boost

private participation in the international food trade and will ensure that domestic food prices remain competitive with world market prices.

Starting in July 1998, government has introduced a targeted food subsidy called food relief effort program. Under this program, eligible households are allowed to purchase 10 kg of rice per month at a price of Rp 1000/kg, a price that is approximately 40 percent of the prevailing market price. Poverty estimates provided by the Family Planning Agency are used to identify the numbers of beneficiaries. Local governments use these poverty estimates as starting points and identify needy beneficiaries based on their local understanding of food insecurity.

The food ration program was designed to provide only a very small and temporary source of income support to the food insecure. Overtime, it is expected that the poor will obtain productive employment to earn the income needed to afford an adequate diet. But the immediate economic crisis is reducing opportunities for the food insecure, particularly in urban areas. For many groups, maybe very little other than the special operations food relief programs to survive on. For the poorest groups, the government plans to increase the amount of the ration that these groups can purchase. This will be phased in gradually in 1999. This food relief program is expanded that ensure the poor urban migrant families can participate in the program. Increased coverage and provision of higher rations for the poorest groups means that the special operations program will become a larger and more complicated element of the social safety net. A monitoring system is introduced to ensure the program does reach the appropriate beneficiaries and is delivered cost-effectively. Government also invited active participation of NGOs in the planning, distribution and monitoring of the targeted food program to help ensure that government is truly accountable to those who require assistance the most.

### 3.3.2. Agricultural Inputs

The economic crisis has also revealed underlying structural flaws in the operation of agro-input markets. The fertilizer and food seed market is dominated by public sector companies, which serve as agents of development. Strategic parastatal enterprises, which operate according to public sector decrees and guidelines dominate these sub-sectors. The lack of competition or commercial orientation within the fertilizer and improved food seeds industry, rises the cost of providing essential agro-inputs and reduces the responsiveness of the agro-input producers to farmer demands. Technological innovation is stifled and growth is far less that what it could be.

Government has maintained heavy subsidies for urea, TSP, ZA, and most recently KCL. At present levels, close two-thirds of the sales price of fertilizer is accounted for by direct budgetary subsidy. In addition, the domestic fertilizer factories are provided natural gas at subsidized prices. And even at these prices, fertilizer factories have accumulated payment arrears with natural gas producers.

Low fertilizer price policy was designed to ensure that the ratio of fertilizer prices to rice and other food crops output prices remained favorable to food crops producer. In fact, in early 1998, this ratio was the most favorable it has ever been in last three decades. Still, fertilizer utilization rates continued to decline. One of the factors that have contributed to the decline is the effect that very low fertilizer retail prices have on the incentives of fertilizer producers and distributors to actually provide farmers with appropriate fertilizers. At these very low prices it was far more profitable to divert fertilizer supply to the estate crops which were not subsidized, to illegally export fertilizer and to stockpile fertilizer as a hedge against inflationary price pressures. The combination of deepening rural poverty and adverse incentives in the fertilizer sector resulted in a situation in which very little fertilizer was actually made available to food crops producer. Even in some of Indonesia's best rice producing regions, yield have fallen by 1-2 ton/ha in the face of environmental stress and lower fertilizer applications.

Government intends to stimulate competition and market orientation in the fertilizer industry. This must be done gradually because of the limited purchasing power of the farm community, the lack of access and high cost of credit, the highly distorted price structure and the depressed state of global fertilizer markets. As a start, the difference between price subsidies for food crops and sale of fertilizer market prices for estate crops has been eliminated. This should help to reduce the diversion of fertilizer intended for food producers into the estates. At the same time, fertilizer subsidies will be gradually removed. This will include direct budgetary subsidies as well as the indirect natural gas subsidy provided to the fertilizer factories. Government intends to remove these subsidies over a period of no more than three years. Some analysis suggest that higher fertilizer prices will not have an adverse effect on food crops production, since the effect of higher output prices outweigh the effect of higher agro-input prices. On the contrary, higher fertilizer prices are expected to inspire fertilizer producers and distributors to sell more fertilizer to food crops producer.

Lower distribution costs could be achieved if fertilizer manufacturers were allowed to distribute their products directly to farmers or through whatever channels are found to be the most efficient. To lower fertilizer marketing costs, government

deregulates the domestic distribution of fertilizer, and allows the factories to establish their own marketing arrangement. When each fertilizer company is selling its product to the farm community, this will create competition among firms for market share. The benefits of low distribution costs will be passed on the farm community as long as there is competition in these markets. As a result, fertilizer is likely to be sold for a lower price in regions where distribution costs are low. In spite of prevent farmers from enjoying these saving, government intends to phase out pan-territorial requirements for fertilizer products. In addition, government also eliminated the fertilizer holding company that established in 1997 since in practice, it appears that the holding company had acted to impede competition and has complicated relations between the firms. Government therefore allows these firms to compete against one another.

Once fertilizer subsidies are removed, government intends to remove fertilizer export and import restrictions. Indonesia has historically been a competitive producer of urea for export and restrictions on export sales retard development of this industry. Competitive imports of phosphoric fertilizers will keep domestic prices low and ease availability constraints in remote markets.

Indonesia will continue to require a strong vibrant fertilizer industry to serve the needs of the nation's millions of agricultural producers. New investment will be needed to expand fertilizer production capacity and to modernize the industry. At the same time, deregulation of the fertilizer industry will make this industry attractive to the private sector. Government will prepare a strategy for the medium term privatization of the fertilizer industry to ensure that this strategic industry does receive the investment and professional management that required competing in a more deregulated domestic and international market environment.

## IV. IDENTIFICATION OF THE VULNERABLE RURAL HOUSEHOLDS

The following discussion is focused on the identification of the vulnerable rural households at PATANAS villages. The discussion is based on various indicators such as: (1) land occupation, (2) vulnerability to price shock, (3) vulnerability to off-farm employment, and (4) vulnerability to labor migration. This is aimed to evaluate the impact of economic crisis in term of prices, employment, family labor allocation, and availability of credit to the household income, expenditure etc.

### 4.1. Land Occupation

Economic development policy and programs are the driving factors for national economic growth. Todaro (1983) stated that agricultural development should be integrated with rural development. Meanwhile, Johnston and Kilby (1975) offer a set of strategies for rural development that includes (a) institution development programs, (b) public infrastructure (physical, social, economic) development, (c) programs aim to enhance agriculture input and output market, and (d) price and tax policy and agrarian reform. Refer to these arguments; understanding of land occupation structure is one of strategic issues of agricultural and rural development. The terms of land occupation include land ownership and land holding.

#### 4.1.1. Profile of land use

Agriculture and rural development is tightly related to the type of agroecosystem. It implies that the structure of land use should be considered in the following discussion on the dynamic of rural economy. There are four types of popular agricultural land use in Indonesia: (a) wet land, (b) dry land, (c) garden and home yard (*kebun and pekarangan*), and (d) prawn.

Table 4.1 presents land ownership structure by land use pattern and agroecosystem in Java and Off-Java. More than 50 percent of land use in wetland villages was for wetland paddy (*sawah*), which is about 58% in Java and 56% in Off Java. The cropping index however, is very much depending on the quality and availability of irrigation water. More than 55% of wetland in Java was grown twice rice annually, while wetland with twice rice and only one rice a year in Off-Java almost balance that it about 28.1% and 28.4% respectively.

Table 4.1. Composition of land ownership by type of land use and ecosystem of sample villages in Java and Off Java, PATANAS 1995 and 1999

Land use	Java			Off Java		
	Wetland	Dryland_A	Coastal	Wetland	Dry land_A	Dryland_B
Wetland	58.45	6.39	2.22	56.47	25.59	5.47
• 2 x rice / year	55.12	6.39	.	28.11	7.17	4.66
• 1 x rice/ year	3.33	.	2.22	28.36	18.42	0.81
Dry land	29.23	90.99	1.92	10.05	60.36	11.69
Garden & home yard	12.31	2.62	0.52	33.47	14.05	82.78
Prawn	.	.	95.34	.	.	0.07
Total	100.00	100.00	100.00	100.00	100.00	100.00

Related to other agroecosystems, garden and home yard was the major land use at dryland\_B villages. Some major estate crops were planted in Off-Java that include coffee, cocoa, pepper, coconut, clove, and other spices crops. Prawn fish culture is a common practice at coastal area. More than 95% of land use in this area was for shrimp and milkfish prawn.

#### 4.1.2. Distribution of Land Ownership and Land Holding

Land distribution was very importance subject in the context of welfare of rural households. Theoretically, as long as rural economy is dominated by agricultural sector then the distribution of land ownership as well as land holding could affects significantly the income distribution.

Due to limited data of land registration, in this research, the definition of land ownership was not only based on the status of land as written on the land certificate, but also includes occupation by de facto. For example, the land has been cultivated for many years and de facto and was absolutely occupied by the farmers and no one could clime the land then this was also defined as land that owned by the respondent.

The approach developed for investigating the distribution of land ownership and land holdings are as follows:

- (a) Grouping the population by class of land ownership
- (b) Compute a measurement reflects the skewness of land distribution using an index such Gini index.

Based on the distribution of sample and refer to classification developed by BPS, the classification of land ownership used is presented in Table 4.2. There are

ten classes of land but the range is different between Java and Off-Java. In addition, average size of land ownership higher in Off-Java than in Java.

Table 4.2. Land ownership classification

Class / Group	Size of land owned (Ha)	
	<b>Java</b>	<b>Off Java</b>
0	Landless	Landless
1	0.001 - 0.250	0.001 - 0.500
2	0.251 - 0.500	0.501 - 1.000
3	0.501 - 0.750	1.001 - 1.500
4	0.751 - 1.000	1.501 - 2.000
5	1.001 - 1.500	2.001 - 3.000
6	1.501 - 2.000	3.001 - 5.000
7	2.001 - 3.000	5.001 - 7.500
8	3.001 - 5.000	7.501 - 10.000
9	5.001 - 10.000	10.001 - 15.000
10	> 10.000	> 15.000

Distribution of samples by group of land ownership at each agroecosystem areas in Java as well as in Of-Java in 1995 and 1999 are shown in Figure 4.1– 4.6. These figures signal some important issues related to land ownership pattern. *Firstly*, the distribution of land ownership at wet land and coastal vilages in Java dominated by landless. *Second*, distribution of land ownership in dry land villages both in Java and Off Java relatively better than in wet land or coastal villages. *Third*, the structure of land ownership during the period of 1995 – 1999 has changed. The trend land ownership structure are as follows: (1) landless households has increased both in Java and Off Java, (2) at wet land villages, especially in Java landless and housholds with land size less then 0.25 ha has substantially increased, and (3) the trend was relatively local specific in nature.



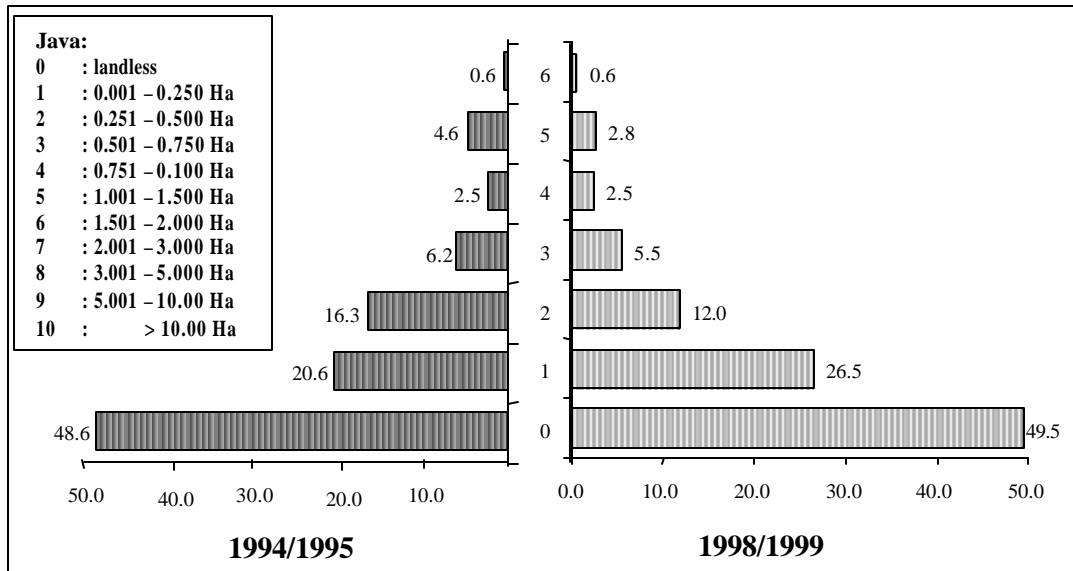


Fig. 4.1. Distribution of household by group of land ownership at wet land villages in Java, 1995 and 1999.

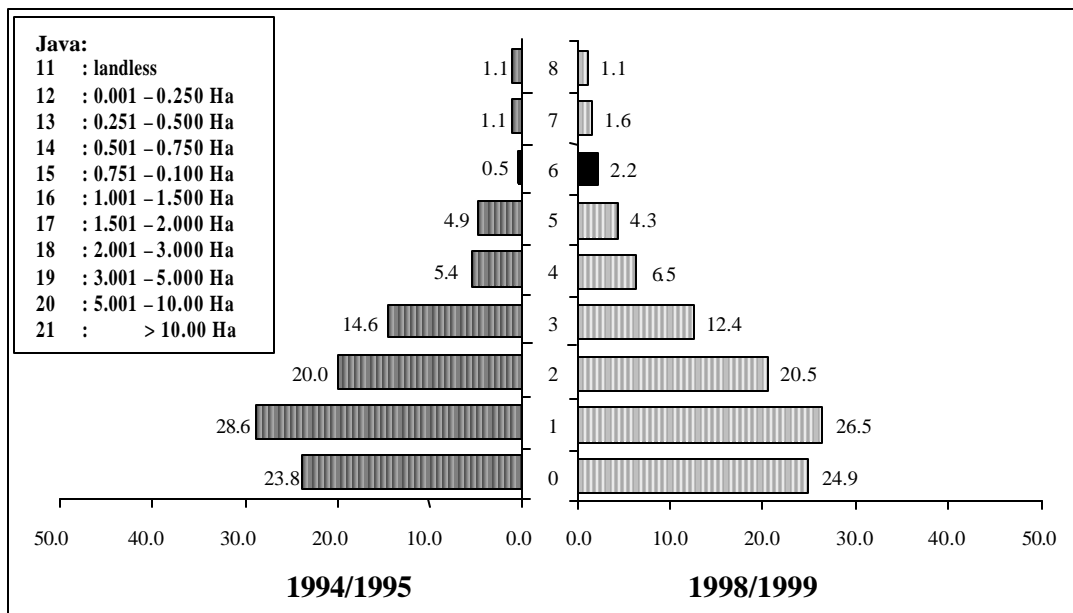


Fig. 4.2. Distribution of household by group of land ownership at dry land\_A villages in Java, 1995 and 1999.

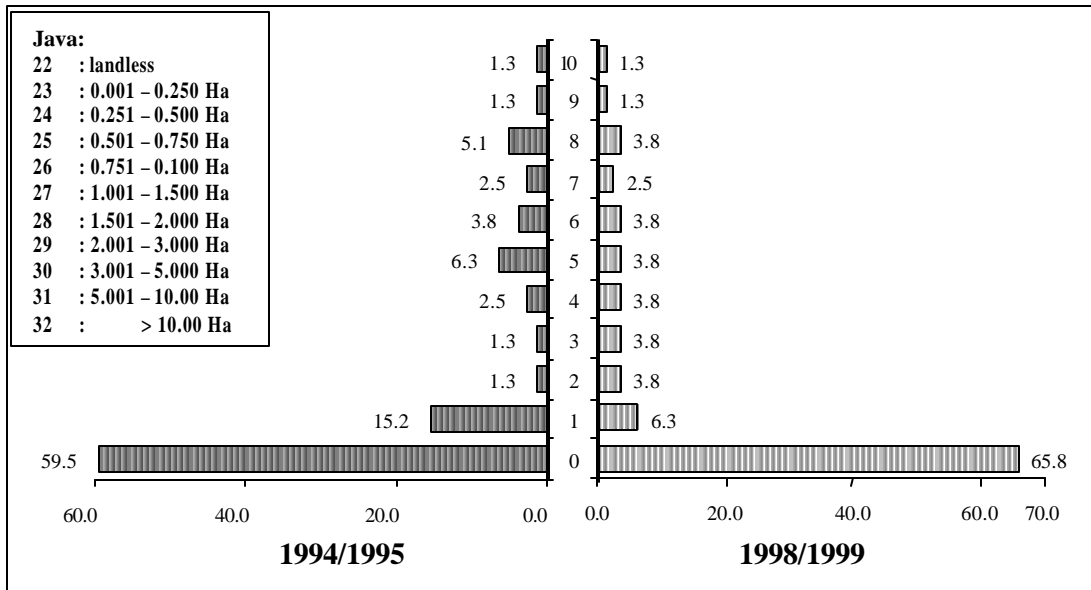


Fig. 4.3. Distribution of household by group of land ownership at coastal villages in Java, PATANAS 1995 and 1999.

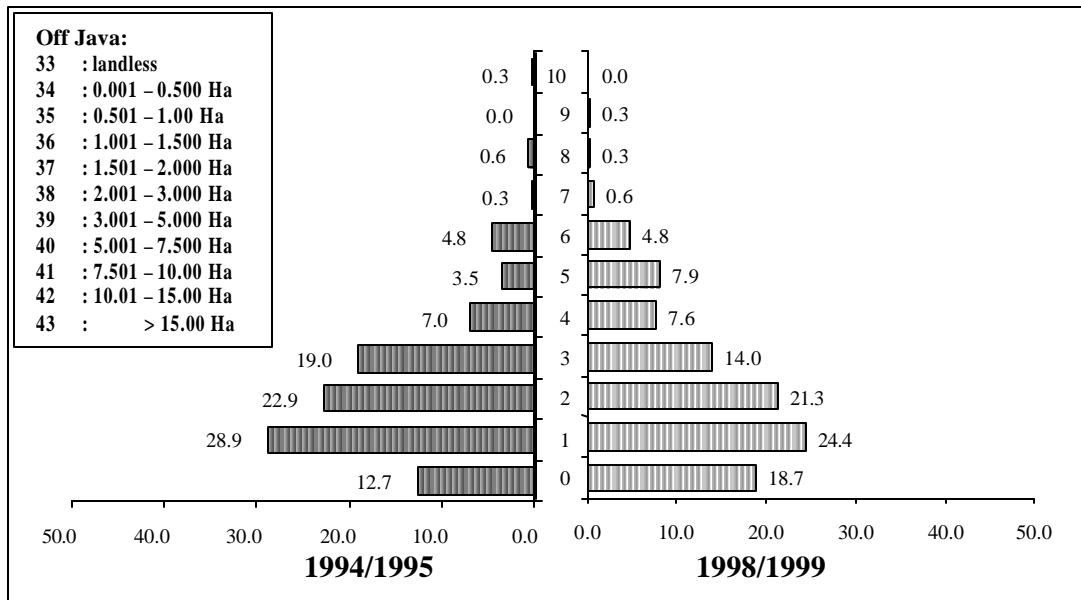


Fig. 4.4. Distribution of household by group of land ownership at wet land villages in Off Java, PATANAS 1995 and 1999.

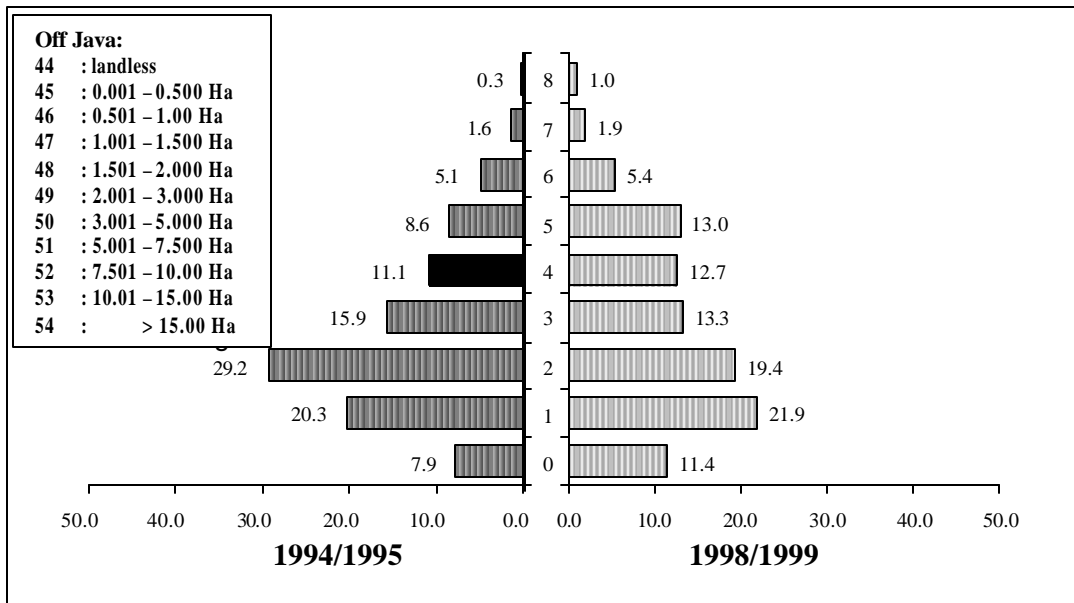


Fig. 4.5. Distribution of household by group of land ownership at dry land\_A villages in Off Java, PATANAS 1995 and 1999

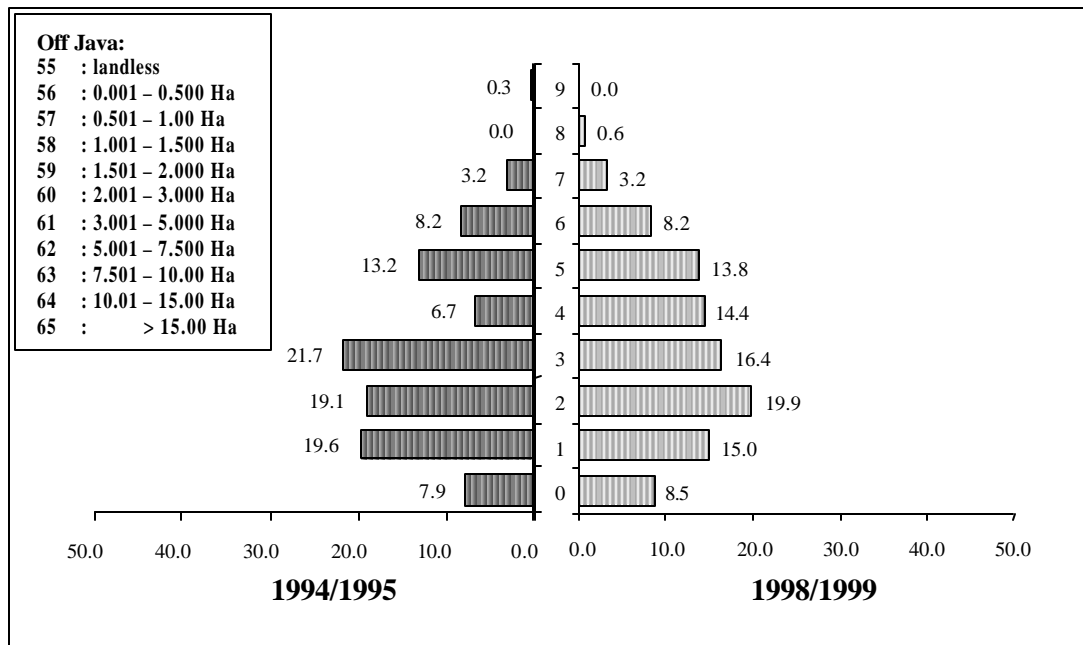


Fig. 4.6. Distribution of household by group of land ownership at dry land\_B villages in Off Java, PATANAS 1995 and 1999.

Table 4.3 presents the distribution of land ownership both in 1995 and 1999 or during the economic crisis. Gini index could reflect properly the skewness of the land distribution and a criterion that developed by Oshima (1976)<sup>1</sup> is properly applicable for performing the land distribution's skewness. These indexes signals that the distribution of land ownership at each agroecosystem in Java and Off-Java has more skewed during the period of 1995-1999, except at dry land\_B area in Off Java with Gini index of 0.4858.

Table 4.3. Gini index of land ownership by agroecosystem and region, PATANAS 1995 and 1999.

	Java		Off Java	
	1995	1999	1995	1999
Wet land	0.7182	0.7500	0.5626	0.5745
Dryland_A	0.5853	0.5899	0.4868	0.5113
Dryland_B	ns	ns	0.5152	0.4858
Coastal	0.8341	0.8323	ns	ns
Aggregate	0.7243	0.7483	0.5272	0.5375

Furthermore, average size of land ownership and land holding in the period of 1995 and 1999 is shown in Table 4.4 – 4.9. In average, size of land holding is larger than land ownership. This is possible sine a farmer could cultivate multi commodities or grow crops along the year so that the annual land holding per household could higher than his own land. In aggregate, average size of land ownership at wetland area decreased from 0.232 ha in 1995 to 0.190 ha in 1999 but land holding slightly increased from 0.379 ha to 0.411 ha in the same period.

Meanwhile, table 4.5 presents the average size of land ownership and land holding at dryland\_A in Java. In this area, either land ownership or land holding, the size substantially increased in the same period. Land ownership for example, the size increased from 0.378 ha in 1995 to 0.435 ha in 1999, while land holding increased from 0.910 ha to 1.143 ha in the same period. Number of landless tends to increase but small land holding decreased. This indicated that probably some of smallholder has become landless during this period. In addition, average size of land ownership at coastal area relatively stable but land holding size has substantially increased from 0.525 ha in 1995 to about 1.134 ha in 1999 (Table 4.6). However,

<sup>1</sup> Refer to Oshima (1976):  
 $G \leq 0.4$  : slightly skewed  
 $0.4 < G \leq 0.5$ : moderate  
 $G > 0.5$  : highly skewed

the number of landless in this area is the highest compared to other agroecosystem areas and substantially increased.

Table 4.4. Average size of land ownership and land holding (ha) by class of land ownership at wet land villages in Java, PATANAS 1995 and 1999.

Class	1995			1999		
	Freq.	Ownership	Holding	Freq.	Ownership	Holding
0	158	0.000	0.064	161	0.000	0.264
1	67	0.130	0.269	86	0.105	0.216
2	53	0.360	0.578	39	0.365	0.481
3	20	0.602	1.051	18	0.630	1.074
4	8	0.852	0.572	8	0.874	1.046
5	15	1.210	1.896	9	1.223	1.494
6	2	1.725	0.800	2	1.690	2.720
7	.	.	.	2	2.950	3.630
8	2	3.535	4.375	.	.	.
Aggregate	325	0.232	0.379	325	0.190	0.411

Table 4.5. Average size of land ownership and land holding (ha) by class of land ownership at dry land\_A in Java, PATANAS 1995 and 1999.

Class	1995			1999		
	Freq.	Ownership	Holding	Freq.	Ownership	Holding
0	44	0.000	0.000	46	0.000	0.389
1	53	0.151	0.392	49	0.159	0.572
2	37	0.342	0.827	38	0.396	0.955
3	27	0.587	1.419	23	0.667	1.166
4	10	0.842	1.937	12	0.903	2.043
5	9	1.183	2.702	8	1.213	3.020
6	1	1.627	3.255	4	1.638	4.513
7	2	2.087	5.217	3	2.437	5.480
8	2	4.324	10.615	2	3.950	9.650
Aggregate	185	0.378	0.910	185	0.435	1.143

Table 4.6. Average size of land ownership and land holding by class of land ownership at coastal villages in Java, PATANAS 1995 and 1999.

Class	1995			1999		
	Freq.	Ownership	Holding	Freq.	Ownership	Holding
0	47	0.000	0.000	52	0.000	0.015
1	12	0.024	0.165	5	0.090	1.500
2	1	0.264	0.000	3	0.387	0.763
3	1	0.610	0.610	3	0.700	0.503
4	2	0.786	0.001	3	0.893	1.250
5	5	1.183	0.101	3	1.373	4.967
6	3	1.660	0.169	3	1.823	1.333
7	2	2.288	2.288	2	3.000	6.000
8	4	3.758	2.997	3	3.933	3.933
9	1	6.532	6.086	1	6.690	12.070
10	1	10.143	15.214	1	12.000	19.000
Aggregate	79	0.632	0.525	79	0.664	1.134

The average size of land ownership and land holding at wetland area in Off-Java is higher almost four times than in Java. During the crisis the land ownership size was not change significantly, however land holding has increased substantially that is from 1.212 ha to 1.685 in the period of 1995-1999 (Table 4.7). Surprisingly, the number of landless farmers has increased significantly from 44 to 59 in the same period.

Substantial increase of land ownership and land holding size was identified at dryland-A villages in Off-Java. Land holding for example, the size increased from 1.348 ha to 2.106 ha in the same period (Table 4.8). Most of the land ownership concentrated in the small-medium land size.

Table 4.7. Average size of land ownership and land holding by class of land ownership at wet land villages in Off Java, PATANAS 1995 and 1999.

Class	1995			1999		
	Freq.	Ownership	Holding	Freq.	Ownership	Holding
0	40	0.000	0.323	59	0.000	0.775
1	91	0.231	0.505	77	0.213	0.747
2	72	0.632	1.075	67	0.770	1.459
3	60	1.184	1.512	44	1.212	2.018
4	22	1.704	2.147	24	1.642	2.726
5	11	2.386	2.290	25	2.502	2.948
6	15	3.561	3.155	15	3.479	4.052
7	1	6.134	6.086	2	5.905	8.800
8	2	8.817	6.292	1	9.390	10.390
9	.	.	.	1	13.000	13.000
10	1	16.419	16.229	.	.	.
Aggregate	315	0.936	1.212	315	0.983	1.685

Table 4.8. Average size of land ownership and land holding by class of land ownership at dry land\_A in Off Java, PATANAS 1995 and 1999.

Class	1995			1999		
	Freq.	Ownership	Holding	Freq.	Ownership	Holding
0	25	0.000	0.212	36	0.000	0.490
1	64	0.248	0.577	69	0.254	0.895
2	92	0.691	1.122	61	0.725	1.733
3	50	1.189	1.455	42	1.245	2.529
4	35	1.688	2.097	40	1.823	3.784
5	27	2.346	2.187	41	2.480	4.119
6	16	3.785	3.808	17	3.531	6.080
7	5	6.074	5.813	6	5.423	5.057
8	1	7.805	7.930	3	8.193	9.443
Aggregate	315	1.143	1.424	315	1.288	2.456

Average size of land ownership and land holding at dryland\_B villages in Off-Java is the highest compared to other agroecosystem villages either in Java or in Off-Java. In previous discussion has mentioned that estate crops were the main commodities grown in this area. Both land ownership and land holding size has increased during the crisis. Land holding form example, the size has significantly increased from 1.348 ha to 2.106 ha in the period of 1995-1999.

Land occupation structure across agroecosystem area as discussed above one can concludes that during the economic crisis the intensity of land cultivation has increased due to the economic value and opportunity cost of land has increased. This argument is supported by a popular believe that agriculture is the only sector that experienced positive growth during the crisis. No one can object that the role of agriculture during the crisis was very significant either at macro level as well as micro level. In order to increase the contribution of agricultural sector to the GDP, one may suggest that agricultural sector in Indonesia should not let the added value taken out by other countries. Therefore, strengthen rural based agro-industry that has been proven the most resilient sector should be in high priority in formulating the government development program.

Table 4.9. Average size of land ownership and land holding by class of land ownership at dry land\_B in Off Java, PATANAS 1995 and 1999.

Class	1995			1999		
	Freq.	Ownership	Holding	Freq.	Ownership	Holding
0	27	0.000	0.299	29	0.000	1.152
1	67	0.159	0.564	51	0.192	1.305
2	65	0.630	0.914	68	0.737	1.315
3	74	1.124	1.114	56	1.178	1.568
4	23	1.637	1.489	49	1.770	2.409
5	45	2.237	1.837	47	2.395	2.908
6	28	3.515	3.252	28	3.913	4.024
7	11	5.748	4.820	11	5.937	4.641
8	.	.	.	2	7.990	11.370
9	1	10.584	10.802	.	.	.
Aggregate	341	1.306	1.348	341	1.513	2.106

## 4.2. Vulnerability to the Price Shocks

Rural households' vulnerability to the price shocks is analyzed based on various indicator such as: (1) income structure, (2) per capita consumption, (3) modern input use especially for rice farming, (4) net position in rice and other commodity, and (5) land by type. Price shocks mostly found on highly imported component of product due to land-sliding devaluation of Indonesia currency. Indirectly, price shock is also found for locally produced product with out any imported material.

### 4.2.1. Household Income Structure

Indonesia's macro economic performance provides a figure that the real GDP of 1998 has declined about 14%. Almost all sectors experienced negative growth except agricultural sector, which is grew at 0.2%. The main contributor of this positive growth was estate crops and fisheries sub-sector that grew at about 6.0% and 4.1% respectively (BPS 1999). Meanwhile livestock sub-sector slightly decreased by 1.0%, but food crops sub-sector experienced quite significant negative growth that is about 6.4%. However, the condition at micro level or rural economy was not in line with that macro level performance. The result of micro level study such as PATANAS showed that most of rural household's real income as well as per capita income in rice equivalent in average increased. If exchange rate is used as a deflator, then the rural household's income will significantly declined. However we avoid using this deflator since rural households were not very much depending upon imported products and exchange rate.



Households' income structure is grouped into four classes by land holding such as: (1) landless household, (2) small land holding, (3) medium land holding and (4) large land holding. The construction of this land holding groups is following the procedure presented at Chapter I as follow.

(1) Landless: Household with out any piece of farmland

(2) Small land holding group:  $Z \leq \mu - 0.5 Sd$

(3) Medium land holding group:  $\mu - 0.5 Sd < Z \leq \mu + 0.5 Sd$

(4) Large land holding group:  $Z > \mu + 0.5 Sd$

Where  $Z$  = average land holding

$Sd$  = standard deviation

Income structure is also grouped by region such as Java, Off-Java, and Java & Off-Java (aggregate). Lastly, land grouping is also based on agroecosystem such as (1) wet lend area, (2) dryland\_A (excluded estate crops) area, (3) dryland\_B (included estate crops) area and (4) coastal area. In addition, source of households' income is computed based on agricultural income and non-agricultural income. Agricultural income comprised of on-farm income (rice farming, non-rice farming) and off-farm income (agricultural labor). Meanwhile, non-agricultural income included entrepreneur, non-agricultural labor, professional, and others income. Lastly, classification of rural households' income of PATANAS villages is also done according to agroecosystem areas.

Nonetheless, the non-agricultural entrepreneur income is generated from activity that comprised of rural industry, trading, and others entrepreneur. Meanwhile, non-agricultural labor income includes five activities such as labor industry, construction, transportation, worker for trading, and others service. In addition, professional and others source of income such as hunting, remittent, etc are among other non-agricultural income of rural households. The detail contribution of each of income sources by size of land holding is presented in Annex 4.1 to Annex 4.22.

It is very important to have some notes in this study related to households' income structure such as (1) income structure is constructed for rural households as a whole, (2) farm household as well as rice based household is only a part of rural households, (3) any discussion on rice based households should be focused at wet land area where rice is the main commodity and (4) the discussion mainly based on 35 PATANAS villages survey conducted in 1995 and 1999.

In general, rural households' agricultural income is increasing as size of land holding increases. Meanwhile, reversed trend is found for non-agricultural income, which is declining as land size increases. Similar trend with agricultural income is rice farming and non-rice farming income that is in line with the size of land holding. In addition, agricultural labor income is declining as land size increases. This trend is very similar in either in Java or Off-Java. However, there is no common trend in non-agricultural income across regions, which is fluctuated as land size increases (see Annexes).

Table 4.10 shows rural household's income structure by size of land holding in 1995 and 1999. In aggregate, real income of rural household in rice equivalent increased during the period of 1995-1999 either in Java or in Off-Java. In Java for example, household's income at PATANAS villages increased from 2974.04 kg rice in 1995 to 4163.00 kg in 1999 and 2516.29 kg to 4499.00 kg in Off-Java in the same period. The contribution of agricultural income to the total rural households income is relatively dominant compared to non-agricultural income. On-farm income was the main source of agricultural income that is more than 50%.

Table 4.10. Income structure of rural households by size of land holding, PATANAS  
1995 and 1999.

Source of Income	Java		Off Java		Aggregate	
	1995	1999	1995	1999	1995	1999
A. Agriculture	1817.98	2417.00	1609.65	2780.00	1688.31	2643.00
Share (%)	61.13	58.06	63.97	61.80	62.78	60.45
1. On-Farm	1509.04	2176.00	1443.92	2498.00	1468.51	2376.00
Share (%)	50.74	52.28	57.38	55.52	54.61	54.35
2. Off-Farm	308.94	241.00	165.72	283.00	219.79	267.00
Share (%)	10.39	5.78	6.59	6.28	8.17	6.10
B. Non Agriculture	1156.06	1746.00	906.64	1719.00	1000.81	1729.00
Share (%)	38.87	41.94	36.03	38.20	37.22	39.55
1. Non Agric. Entrepreneur	462.33	789.00	358.04	677.00	397.42	719.00
Share (%)	15.55	18.95	14.23	15.04	14.78	16.44
2. Non Agric. Labor	365.16	426.00	207.33	358.00	266.92	384.00
Share (%)	12.28	10.24	8.24	7.96	9.93	8.78
3. Professional	212.82	162.00	256.41	293.00	239.95	244.00
Share (%)	7.16	3.88	10.19	6.52	8.92	5.57
4. Others	115.75	367.00	84.86	389.00	96.52	381.00
Share (%)	3.89	8.81	3.37	8.66	3.59	8.71
Total Income	2974.04	4163.00	2516.29	4499.00	2689.12	4372.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00

However, contribution of agricultural income to the total household's income has slightly decreased either in Java or in Off-Java. For example, its contribution to the total household's income declined from 61.13% in 1995 to 58.06% in 1999 in Java and from 63.97% to 61.80% in Off-Java. Reversibly, the contribution of non-agricultural income to total income increased from 38.87% to 41.94% and from 36.03% to 38.20% in Java and Off-Java respectively. Non-agricultural entrepreneur and non-agricultural labor income were the dominant contributor to the non-agricultural income.

The following discussion is focused on household's income structure at each agroecosystem area in Java and Off-Java that include wetland, dry land-A (excluded estate crops), dry land-B (included estate crops), and coastal areas. Table 4.11

shows household's income structure at wetland area that comprise of 14 villages distributed 7 villages in Java and 6 villages in Off-Java.

Table 4.11. Income structure of rural households by size of land holding at wet land villages, PATANAS 1995 and 1999.

Source Income	Java		Off Java		Aggregate	
	1995	1999	1995	1999	1995	1999
1. Agriculture	1048.02	2075.00	1364.80	2421.00	1203.94	2245.00
Share (%)	42.96	50.79	62.49	63.63	52.03	56.88
a. Rice Farming	198.55	557.00	613.06	806.00	402.57	680.00
Share (%)	8.14	13.64	28.07	21.18	17.40	17.22
b. Non Rice Farming	584.75	1304.00	622.03	1349.00	603.10	1326.00
Share (%)	23.97	31.93	28.48	35.45	26.07	33.60
c. Agricultural Labor	264.72	213.00	129.72	266.00	198.27	239.00
Share (%)	10.85	5.22	5.94	7.00	8.57	6.07
2. Non Agriculture	1391.35	2010.00	819.38	1384.00	1109.83	1702.00
Share (%)	57.04	49.21	37.51	36.37	47.97	43.12
A. Non Agric. Entrepreneur	424.12	678.00	303.91	418.00	364.95	550.00
Share (%)	17.39	16.59	13.91	10.98	15.77	13.93
B. Non Agric. Labor	485.51	618.00	213.96	405.00	351.86	513.00
Share (%)	19.90	15.12	9.80	10.65	15.21	13.00
C. Professional	334.88	199.00	237.49	277.00	286.95	237.00
Share (%)	13.73	4.88	10.87	7.27	12.40	6.01
D. Others	146.84	512.00	64.02	284.00	106.08	400.00
Share (%)	6.02	12.54	2.93	7.47	4.58	10.13
Total Income	2439.38	4085.00	2184.17	3805.00	2313.77	3947.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00

The total household's income in Java was slightly higher than in Off-Java either in 1995 or in 1999. For example in Java, household's income was about 2439.38 kg, while in Off-Java 2184.17 kg equivalent rice in 1995. These figure then increased to 4085.00 kg and 3805.00 kg in 1999 in Java and Off-Java respectively. Similarly, the contribution of agricultural income to the total household's income still dominant at wetland area except in 1995, which is only 42.96% in Java then increased to 50.79% in 1999. The contribution of agricultural income to total household's income is higher in Off-Java than in Java and increased from 62.49% in 1995 to 63.63% in 1999. This condition signals the crucial role of agricultural sector in Off-Java during the crisis despite of similar role in Java. In more specific, role of rice on-farm income to the agricultural income was not the dominant source at

wetland area compared to non-rice farming especially in Java, which is about 8.14% in 1995 then increased to 13.64% in 1999. However the share is relatively high in Off-Java that is about 28.07% in 1995 then declined to 21.18% in 1999.

Meanwhile, the contribution of non-agricultural income to total household's income decreased either in Java or Off-Java. The figure decreased from 57.04% to 49.21% in Java and from 37.51% to 36.37% in Off-Java during the period of 1995-1999. The share of non-agricultural entrepreneur and non-agricultural labor relatively increased in Java but slightly declined in Off-Java (Table 4.11).

Nonetheless, very dominant contribution of agricultural income to the total household's income was identified at dryland\_A (excluded estate crops) either in Java or in Off-Java. However, its share to the total income has significantly decreased in both regions. The figure declined from 84.50% to 73.52% in Java and from 76.26% to 66.94% in Off-Java during the period of 1995-1999. Non-rice on-farm income is the main source of agricultural income, however its share to the agricultural income also decreased both in Java and Off-Java. In contrast, the contribution of non-agricultural income to the rural household's income at this area relatively small but tend to increase. In Java for example, the figure increased from 15.50% to 26.48% in Java and 23.74% to 33.06% in Off-Java in the same period (Table 4.12).

Furthermore, table 4.13 shows rural household's income structure at dryland\_B (included estate crops) in Off-Java and coastal area in Java. Real total household's income at dryland\_B in Off-Java has significantly increased from 2506.81 kg equivalent rice in 1995 to 4958.00 kg in 1999. This impressive increase of household's income is mainly due to booming price of export oriented estate crops. However, this is just under abnormal condition during the economic crisis. When the economy back to normal, the increase of rural household's income may not that impressive. Similar to other agroecosystems, the contribution of agricultural income to the total rural income in this area still dominant and its share increased from 52.21% in 1995 to 56.00% in 1999. Non-rice on-farm income is the main contributor of agricultural income.

Table 4.12. Income structure of rural household by size of land holding at dry land\_A villages, PATANAS 1995 and 1999.

Source Income	Java		Off Java		Agregate	
	1995	1999	1995	1999	1995	1999
1. Agriculture	3240.96	3166.00	2180.09	3144.00	2572.61	3152.00
Share (%)	84.50	73.52	76.26	66.94	79.89	69.25
a. Rice Farming	2.82	3.00	268.15	368.00	169.98	233.00
Share (%)	0.07	0.07	9.38	7.84	5.28	5.12
b. Non Rice Farming	2896.34	2947.00	1713.84	2422.00	2151.37	2616.00
Share (%)	75.52	68.44	59.95	51.56	66.81	57.47
c. Agricultural Labor	341.81	216.00	198.10	354.00	251.27	303.00
Share (%)	8.91	5.01	6.93	7.54	7.80	6.65
2. Non Agriculture	594.42	1140.00	678.57	1553.00	647.43	1400.00
Share (%)	15.50	26.48	23.74	33.06	20.11	30.75
A. Non Agric. Entrepreneur	364.12	744.00	288.91	749.00	316.74	747.00
Share (%)	9.49	17.29	10.11	15.94	9.84	16.41
B. Non Agric. Labor	131.33	162.00	184.71	343.00	164.96	276.00
Share (%)	3.42	3.76	6.46	7.30	5.12	6.07
C. Professional	69.64	104.00	164.69	200.00	129.52	165.00
Share (%)	1.82	2.43	5.76	4.27	4.02	3.62
D. Others	29.33	127.00	40.26	260.00	36.22	211.00
Share (%)	0.76	2.94	1.41	5.54	1.12	4.63
Total Income	3835.38	4306.00	2858.66	4697.00	3220.05	4552.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00

In addition, there is also impressive increase of total household's income at coastal area that is from 3156.56 kg equivalent rice in 1995 to 4148.00 kg in 1999. Non-rice on-farm income especially fisheries is the dominant contributor of agricultural income, however its share is quiet stable at about 39.03% in 1995 and 39.63% in 1999. The share of non-agricultural income to the rural household income slightly increased from 47.63% in 1995 to 50.10% in 1999 (Table 4.13).

Table 4.13. Income structure of rural household by size of land holding at estate crops village (dryland\_B) and Coastal Village, PATANAS 1995 and 1999.

Source of Income	Off-Java Estate Crop (dryland_B)		Java (Coastal)	
	1995	1999	1995	1999
1. Agriculture	1308.88	2777.00	1653.24	2070.00
Share (%)	52.21	56.00	52.37	49.90
a. Rice Farming	133.30	246.00	7.63	14.00
Share (%)	5.32	4.97	0.24	0.35
b. Non Rice Farming	1006.51	2298.00	1231.72	1644.00
Share (%)	40.15	46.36	39.02	39.63
c. Agricultural Labor	169.08	232.00	413.88	412.00
Share (%)	6.74	4.68	13.11	9.92
2. Non Agriculture	1197.92	2181.00	1503.32	2078.00
Share (%)	47.79	44.00	47.63	50.10
A. Non Agric. Entrepreneur	471.91	849.00	849.50	1350.00
Share (%)	18.83	17.12	26.91	32.55
B. Non Agric. Labor	222.08	329.00	417.61	259.00
Share (%)	8.86	6.63	13.23	6.25
C. Professional	358.63	395.00	45.98	140.00
Share (%)	14.31	7.96	1.46	3.38
D. Others	145.30	606.00	190.23	329.00
Share (%)	5.80	12.22	6.03	7.93
Total Income	2506.81	4958.00	3156.56	4148.00
Share (%)	100.00	100.00	100.00	100.00

In overall household's income figures, there is different trend of the impact of economic crisis at macro and micro level especially at rural areas. The significant decline of agricultural sector's contribution to GDP since last three decades and impressive increase of non-agricultural sectors has made the economy grow more than 5% annually. However that impressive increase of non-agricultural sector such as industry, construction, services, banking, etc mostly concentrated at urban area. Less priority has been given to agriculture including small scale agro-industry has further reduced the contribution of agricultural sector. When crisis started in August 1997, these foot loose industries with weak backward linkage are the first sector badly affected by the crisis.

Agriculture sector is relatively survived from the negative impact of economic crisis despite negative growth of food crops and livestock sub-sector. Therefore, the popular believe that the impact of economic crisis at macro will transmitted to the micro level particularly at rural area may not always true. This thesis can be further

explained by looking in more detail the impact of crisis in each village of 35 PATANAS villages (see Annex 4.23).

There were 32 villages out of 35 PATANAS villages in Java and Off-Java has experienced income increase. The only three villages with income decline are located at dry land area, namely Kwadungan Gunung and Karang Tengah in Java and Baroko in South Sulawesi. Rural household's income in these PATANAS villages declined at about -71.7%, -41.3%, and -10.9% respectively in period of 1995-1999. The most impressive rural household's income increase was at Batupanga village with dominant crop is cacao. Rural household's income, which are mostly cacao farmers increased from 1933.3 kg equivalent rice in 1995 to 8444.5 kg in 1999. This increase was not surprising since the price of cacao increase from Rp 1600/kg in 1995 to about Rp 9000/kg. For detail information of each village, ecosystem, dominant crop and income trend see Annex 4.23.

In relative, in the period of 1995-1999, rural household's income at PATANAS villages has increased but not in line with its distribution. Income gap has increased as indicated by the Gini index (Table 4.14). This distribution gap is mainly occurring in villages in Java either at wetland, dryland, or coastal area. However, this income distribution gap on identified at dryland area with dominant estate crops but not in other agroecosystem areas such as wetland and food crops based dryland area, which is experienced better income distribution. Following criteria used by Oshima (1996), the income gap is in normal to worst distribution. In aggregate, income distribution in Java was in higher gap compared to Off-Java. This condition in Java is a part of the impact of economic crisis particularly at non-rice food crops based dryland and coastal area. This gap is triggered by increasing role of non-agricultural sector in rural area. In coastal area for example, income gap is determined by productive asset ownership, which mostly occupied by medium to large-scale entrepreneur, while small class working as hard labor. In addition, fishery sub-sector is also experienced output price booming so that medium and high-income class become richer and significant income improvement for the low-income class. This condition in fact is similar to estate crops based dryland area, however this area has better income distribution compared to coastal area.



Table 4.14. Gini index of rural households income distribution, PATANAS 1995 and 1999.

Region	Year	Agroecosystem Area				
		Wetland	Dryland_A	Dryland_B	Coastal	Aggregate
Java	1995	0.5046	0.5090	ns	0.5429	0.5214
	1999	0.5401	0.5997	ns	0.6227	0.5746
Off-Java	1995	0.4857	0.4547	0.4777	ns	0.4762
	1999	0.4767	0.4479	0.4989	ns	0.4803
All	1995	0.4979	0.4834	0.4777	0.5429	0.4960
	1999	0.5128	0.5118	0.4989	0.6227	0.5179

In comparison, economic crisis in Indonesia is a part of Asian crisis that also affected other countries such as Thailand, Philippines, Malaysia, etc. The unique condition among these countries is that agricultural sector was the only survived sector even provided positive growth to each country. Under growth with equity (GEM) program in Mindanao, Philippines for example, Luice Berger Inc reported that 17,000 rural households' income increased 168% - 264% for an average of 216% during a period of 1995-1999. More than 32,000 direct employment for rural community was available during the same period. Export oriented commodity such as estate crops, fisheries, and horticulture were the main agricultural sub-sectors that provided higher income for rural households in this island. However, the condition in Indonesia was not as impressive as in Mindanao. In 35 PATANAS villages for example, only 32 villages experienced an increasing income ranging 2.0%-190% for an average of 96% in the same period, while three villages showed decreasing income.

#### 4.2.2. Household Expenditure Structure

Income class that includes low, medium, and high class groups rural households expenditure structure. The household's expenditure itself includes food expenditure and non-food expenditure. Food expenditure comprised of expenditure for carbohydrate, protein, vitamin, and others food. Meanwhile, non-food expenditure included health, education, clothing, electricity, water and body maintenance, transportation, recreation, social activity, and others non-food expenditure. Grouping household's expenditure by income class is also following the procedure developed in Chapter I that based on mean of households and its standard deviation.

Households are divided also by region, that is Java, Off Java, Java and Off-Java. Data on household's expenditure of 1997 PATANAS were available for 9 villages. Comparison between 1997 and 1999 expenditure structure was made

based on 9 villages in rice equivalent (kg). Sampled villages are distributed in Central Java, East Java and South Sulawesi with three villages in each province. The total samples were 415 households that include 136 HH in Central Java, 147 HH in East Java, and 132 HH in South Sulawesi. Among 9 villages, 8 villages are belong to wet land agroecosystem that distributed 6 villages in Central and East Java, 2 villages in South Sulawesi included 1 dry land village. The following discussion is focused on household's expenditure structure by region, income class and agroecosystems.

Table 4.15 shows that in aggregate, the household's expenditure in equivalent rice at wetland villages in aggregate increased from about 2207.59 kg in 1997 to 2640 kg 1999. Food expenditure as well as non-food expenditure is increasing as income increases and this is happening in 1997 and 1999. This indicated that most of the rural households in PATANAS villages are still subsistence. In addition, most of the household's income is allocated for food expenditure with share to the total expenditure about 62.52% in 1997 and slightly declined to 61.14% in 1999. Meanwhile, smaller portion of household's income is allocated for no-food consumption or about 37.48% in 1997 and 38.86% in 1999.

Similarly, that food expenditure increases as household's income increases and this is also correct in wetland villages in Java or in Off-Java. Table 4.16 shows that household's expenditure at wetland villages in Java was relatively stable, that is about 2114.76 kg in 1997 and 2124.00 kg in 1999. However, the absolute food expenditure decreased from 1364.89 kg in 1997 to 1304.00 kg in 1999.

Similarly, its share to total expenditure also decreased to 61.40% in 1999 from 64.54% in 1997. Share of household's expenditure on carbohydrate is still the highest among food components and relatively stable during 1997-1999. In contrast, the share of non-food expenditure to total household's expenditure slightly increased that is, 35.46% in 1997 to 38.60% in 1999.

Meanwhile, Table 4.17 shows the rural household's expenditure structure at wet land in Off-Java particularly South Sulawesi. Total household's expenditure has significantly increased from 2398.72 kg in 1997 to 3745.00 kg or an increase about 1346.3 kg. This is probably due to various factors such as (1) significant increase of output price at suitable crop season, (2) when December policy on agricultural input and output of 1998 has started in April 1999, farmers still pay input price at pre-December 1998 policy but they receive new price of output. The significant increase of household's expenditure in 1999 also in line with the increase in income.

Table 4.15. Household expenditure by income class in aggregate (9 villages), PATANAS 1997 and 1999 (Rice eq., kg).

TYPE OF EXPENDITURE	1997				1999			
	Low	Medium	High	Average	Low	Medium	High	Average
1. FOODS	1076.77	1458.69	1779.04	1380.12	1080.00	1646.00	2423.00	1614.00
Share (%)	68.68	63.79	53.55	62.52	70.04	64.23	49.17	61.14
a. Carbohydrate	432.84	551.12	560.72	512.56	425.00	585.00	665.00	556.00
Share (%)	27.61	24.10	16.88	23.22	27.54	22.83	13.49	21.07
b. Protein	317.98	432.75	603.39	420.95	264.00	432.00	913.00	457.00
Share (%)	20.28	18.92	18.16	19.07	17.10	16.85	18.53	17.33
c. Vitamin	82.08	121.57	151.83	112.99	118.00	167.00	213.00	161.00
Share (%)	5.24	5.32	4.57	5.12	7.57	6.45	4.33	6.06
d. Others	243.87	353.25	463.10	333.62	275.00	464.00	632.00	440.00
Share (%)	15.55	15.45	13.94	15.11	17.85	18.10	12.82	16.68
2. NON-FOODS	491.06	828.15	1543.38	827.47	462.00	917.00	2505.00	1026.00
Share (%)	31.32	36.21	46.45	37.48	29.96	35.77	50.83	38.86
a. Health	38.39	53.15	94.72	54.75	37.00	66.00	121.00	66.00
Share (%)	2.45	2.32	2.85	2.48	2.37	2.58	2.45	2.51
b. Education	70.72	152.64	257.01	141.45	34.00	101.00	191.00	97.00
Share (%)	4.51	6.67	7.74	6.41	2.19	3.94	3.88	3.67
c. Clothes	91.05	153.58	240.69	146.22	81.00	159.00	291.00	158.00
Share (%)	5.81	6.72	7.24	6.62	5.22	6.22	5.90	5.99
d. Electricity etc.	97.56	155.97	272.53	154.68	58.00	102.00	236.00	110.00
Share (%)	6.22	6.82	8.20	7.01	3.75	3.97	4.78	4.15
e. Water, body maint.	67.00	75.09	119.35	79.37	58.00	89.00	149.00	90.00
Share (%)	4.27	3.28	3.59	3.60	3.75	3.49	3.03	3.41
f. Transportation	19.93	46.91	109.19	47.66	27.00	66.00	140.00	67.00
Share (%)	1.27	2.05	3.29	2.16	1.77	2.58	2.84	2.53
g. Recreation	3.82	13.14	77.39	20.18	0.00	5.00	12.00	5.00
Share (%)	0.24	0.57	2.33	0.91	0.01	0.21	0.24	0.19
h. Social Activity	128.39	198.13	317.91	193.51	82.00	132.00	368.00	152.00
Share (%)	8.19	8.66	9.57	8.77	5.29	5.14	7.48	5.77
i. Others	12.59	32.70	149.31	44.40	86.00	196.00	997.00	281.00
Share (%)	0.80	1.43	4.49	2.01	5.60	7.65	20.23	10.63
TOTAL	1567.83	2286.84	3322.42	2207.59	1542.00	2562.00	4928.00	2640.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 4.16. Household's expenditure structure by income class at wetland villages in Java, PATANAS 1997 and 1999 (Rice eq., kg per year).

TYPE OF EXPENDITURE	1997				1999			
	Low	Medium	High	Average	Low	Medium	High	Average
1. FOODS	1051.34	1477.73	1641.67	1364.89	960.00	1340.00	1771.00	1304.00
Share (%)	68.94	67.28	56.72	64.54	67.15	62.37	54.39	61.40
a. Carbohydrate	427.46	535.46	471.44	483.84	409.00	507.00	541.00	486.00
Share (%)	28.03	24.38	16.29	22.88	28.59	23.59	16.60	22.88
b. Protein	308.15	407.22	552.63	404.43	232.00	374.00	657.00	379.00
Share (%)	20.21	18.54	19.09	19.12	16.22	17.39	20.19	17.82
c. Vitamin	95.09	132.76	158.99	125.36	88.00	111.00	171.00	114.00
Share (%)	6.24	6.04	5.49	5.93	6.09	5.12	5.27	5.32
d. Others	220.64	402.29	458.61	351.26	232.00	349.00	401.00	327.00
Share (%)	14.47	18.32	15.84	16.61	16.26	16.27	12.32	15.37
2. NON-FOODS	473.58	718.69	1252.85	749.87	469.00	808.00	1485.00	820.00
Share (%)	31.06	32.72	43.28	35.46	32.85	37.63	45.61	38.60
a. Health	39.10	30.05	76.97	43.45	36.00	51.00	84.00	52.00
Share (%)	2.56	1.37	2.66	2.05	2.50	2.39	2.59	2.45
b. Education	89.82	144.54	265.22	151.81	36.00	83.00	180.00	85.00
Share (%)	5.89	6.58	9.16	7.18	2.52	3.87	5.54	4.01
c. Clothes	71.38	108.82	146.08	103.91	84.00	140.00	180.00	132.00
Share (%)	4.68	4.95	5.05	4.91	5.87	6.54	5.53	6.19
d. Electricity etc.	107.29	160.52	300.27	172.48	60.00	100.00	213.00	106.00
Share (%)	7.04	7.31	10.37	8.16	4.19	4.67	6.55	5.01
e. Water, body maint.	56.45	60.65	99.64	67.70	56.00	77.00	112.00	77.00
Share (%)	3.70	2.76	3.44	3.20	3.94	3.59	3.44	3.62
f. Transportation	9.13	26.81	43.98	24.40	26.00	35.00	109.00	44.00
Share (%)	0.60	1.22	1.52	1.15	1.83	1.64	3.35	2.06
g. Recreation	4.29	4.20	17.57	7.15	0.00	5.00	17.00	5.00
Share (%)	0.28	0.19	0.61	0.34	0.01	0.23	0.53	0.26
h. Social Activity	126.04	185.09	223.92	172.98	81.00	122.00	157.00	117.00
Share (%)	8.27	8.43	7.74	8.18	5.68	5.69	4.83	5.49
i. Others	9.17	28.05	156.17	49.44	90.00	194.00	432.00	202.00
Share (%)	0.60	1.28	5.40	2.34	6.32	9.01	13.27	9.50
TOTAL	1524.92	2196.42	2894.52	2114.76	1429.00	2148.00	3256.00	2124.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 4.17. Household's expenditure structure by income class at wetland villages in Off-Java, PATANAS 1997 and 1999 (Rice eq., kg per year)

TYPE OF EXPENDITURE	1997				1999			
	Low	Medium	High	Average	Low	Medium	High	Average
1. FOODS	1111.89	1390.90	2201.42	1411.51	1594.00	2203.00	3717.00	2278.00
Share (%)	67.37	59.81	49.41	58.84	76.56	66.50	44.67	60.83
a. Carbohydrate	436.39	597.69	790.81	571.68	564.00	712.00	917.00	707.00
Share (%)	26.44	25.70	17.75	23.83	27.11	21.49	11.02	18.88
b. Protein	333.06	457.83	732.58	454.97	376.00	544.00	1388.00	626.00
Share (%)	20.18	19.69	16.44	18.97	18.06	16.43	16.68	16.73
c. Vitamin	52.08	92.27	153.13	87.54	222.00	270.00	307.00	264.00
Share (%)	3.16	3.97	3.44	3.65	10.32	8.04	3.69	6.95
d. Others	290.36	243.11	524.90	297.32	439.00	680.00	1104.00	685.00
Share (%)	17.59	10.45	11.78	12.39	21.07	20.53	13.27	18.28
2. NON-FOODS	538.52	934.80	2254.02	987.21	488.00	1110.00	4605.00	1467.00
Share (%)	32.63	40.19	50.59	41.16	23.44	33.50	55.33	39.17
a. Health	37.66	81.08	161.57	78.00	37.00	101.00	179.00	97.00
Share (%)	2.28	3.49	3.63	3.25	1.76	3.04	2.15	2.59
b. Education	27.13	141.75	256.23	120.13	21.00	129.00	257.00	122.00
Share (%)	1.64	6.09	5.75	5.01	0.99	3.90	3.09	3.26
c. Clothes	136.47	228.58	481.01	233.30	95.00	196.00	495.00	215.00
Share (%)	8.27	9.83	10.80	9.73	4.58	5.91	5.94	5.75
d. Electricity etc.	79.00	100.74	278.09	118.07	46.00	98.00	309.00	116.00
Share (%)	4.79	4.33	6.24	4.92	2.20	2.96	3.72	3.10
e. Water, body maint.	92.06	95.44	161.24	103.40	82.00	107.00	225.00	118.00
Share (%)	5.58	4.10	3.62	4.31	3.96	3.22	2.70	3.15
f. Transportation	43.26	85.07	259.99	95.52	69.00	93.00	290.00	116.00
Share (%)	2.62	3.66	5.84	3.98	3.32	2.82	3.48	3.09
g. Recreation	2.68	28.48	224.03	46.99	0.00	2.00	20.00	4.00
Share (%)	0.16	1.22	5.03	1.96	0.00	0.06	0.24	0.11
h. Social Activity	137.67	217.01	541.19	235.77	84.00	153.00	791.00	229.00
Share (%)	8.34	9.33	12.15	9.83	4.03	4.63	9.51	6.11
i. Others	20.25	37.72	52.24	34.02	54.00	231.00	2040.00	450.00
Share (%)	1.23	1.62	1.17	1.42	2.61	6.96	24.51	12.01
TOTAL	1650.41	2325.69	4455.44	2398.72	2081.00	3313.00	8322.00	3745.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Due to significant increase in income, rural households at wetland villages in Off-Java consumed higher quality of foods. This signal is clearly transmitted to the food expenditure that significantly increased from about 1411.51 kg in 1997 to 2278.00 kg in 1999 or an increase of about 866.3 kg. However, in relative term its share to the total income is just slightly increased that is 58.84% to 60.83% in the same period respectively. In contrast, even though the absolute non-food expenditure increased in the same period from 987.21 kg to 1467.00 kg equivalent rice but the share slightly decreased 41.16% in 1997 to 39.17% in 1999. The impressive increase among non-food component was on other expenditure that mostly include electronic. Due to blessing in disguise of significant increase of outputs price, many rural households particularly in Off-Java such as South Sulawesi experienced income booming.

Nonetheless, PATANAS-type data of 1997 also included 1 dry land village in Sulawesi so that the data of 1999 have to follow the structure of data in 1997. Following discussion is focused on expenditure structure at dry land village with dominant crop is secondary crops (*palawija*). Table 4.18 shows that total household's expenditure structure at dry land in South Sulawesi also increased as income increases. In absolute term, household's expenditure increased from 2673.22 kg in 1997 to 3736.00 kg equivalent rice in 1999 or an increase about 1062.78 kg during two years period. Meanwhile, food expenditure also increased either in absolute or in term of share to the total expenditure. The figure increased to 2530.00 kg in 1999 from about 1785.90 kg in 1997 and from 66.81% to 67.73% in the same period. Reversed figure occurs for non-food expenditure that slightly declined from 33.19% in 1997 to 32.27% in 1999. This probably due to the actual condition that this area is mostly poorer compared to other agroecosystems. Subsistent farmers mostly occupy this area so that when their income increased to some reasons then a bigger portion of income is spent for food. Expenditure on carbohydrate either in equivalent rice (kg) or its share to the food expenditure was the highest among food components. The reversed figure however, is shown by the protein's expenditure that decreased from 22.06% in 1997 to 16.91% in 1999 despite of increasing figure of 589.73 kg in 1997 to 632.00 kg in 1999. Nonetheless, the share of non-food components to the non-food expenditure was relatively small or less than 10% except expenditure on other non-food items, which is about 11.18% in average. Similar to wet land villages in South Sulawesi, rural households in this area were also experienced a better price of output at a lower price of input due to lag implementation of December 1998 government policy.

Table 4.18. Household's expenditure structure by income class at dry land\_B village (excluded estate crop) in Off-Java, PATANAS 1997 and 1999.

TYPE OF EXPENDITURE	1997				1999			
	Low	Medium	High	Average	Low	Medium	High	Average
1. FOODS	1313.37	1935.59	2798.48	1785.90	1759.00	2702.00	3243.00	2530.00
Share (%)	74.58	68.71	52.85	66.81	81.44	73.79	52.44	67.73
a. Carbohydrate	458.96	807.94	881.57	679.39	643.00	924.00	892.00	832.00
Share (%)	26.06	28.68	16.65	25.41	29.76	25.24	14.42	22.28
b. Protein	364.65	681.31	978.80	589.73	391.00	609.00	1033.00	632.00
Share (%)	20.71	24.18	18.49	22.06	18.11	16.63	16.70	16.91
c. Vitamin	47.04	119.18	211.04	100.93	250.00	294.00	318.00	286.00
Share (%)	2.67	4.23	3.99	3.78	11.58	8.02	5.14	7.64
d. Others	442.72	327.16	727.07	415.85	475.00	875.00	1001.00	780.00
Share (%)	25.14	11.61	13.73	15.56	21.98	23.90	16.18	20.89
2. NON-FOODS	447.59	881.65	2496.39	887.32	401.00	960.00	2942.00	1206.00
Share (%)	25.42	31.29	47.15	33.19	18.56	26.21	47.56	32.27
a. Health	29.35	43.96	43.68	38.21	17.00	49.00	112.00	52.00
Share (%)	1.67	1.56	0.82	1.43	0.78	1.33	1.81	1.40
b. Education	22.09	41.08	85.89	38.52	16.00	99.00	123.00	79.00
Share (%)	1.25	1.46	1.62	1.44	0.73	2.69	1.99	2.11
c. Clothes	116.22	293.41	564.42	253.53	97.00	187.00	402.00	205.00
Share (%)	6.60	10.41	10.66	9.48	4.51	5.10	6.51	5.48
d. Electricity etc.	86.26	130.42	256.51	126.85	24.00	50.00	178.00	69.00
Share (%)	4.90	4.63	4.84	4.75	1.11	1.36	2.88	1.84
e. Water, body maint.	82.84	95.86	189.45	100.93	70.00	91.00	132.00	94.00
Share (%)	4.70	3.40	3.58	3.78	3.24	2.50	2.14	2.50
f. Transportation	24.79	48.41	754.60	115.92	66.00	110.00	191.00	113.00
Share (%)	1.41	1.72	14.25	4.34	3.03	3.01	3.08	3.04
g. Recreation	0.00	1.07	17.18	2.40	0.00	5.00	0.00	2.00
Share (%)	0.00	0.04	0.32	0.09	0.01	0.13	0.00	0.06
h. Social Activity	107.02	238.86	552.15	221.33	67.00	158.00	364.00	174.00
Share (%)	6.08	8.48	10.43	8.28	3.09	4.33	5.89	4.65
i. Others	8.38	32.55	76.20	27.84	44.00	211.00	1439.00	418.00
Share (%)	0.48	1.16	1.44	1.04	2.06	5.76	23.26	11.18
TOTAL	1760.95	2817.24	5294.87	2673.22	2159.00	3662.00	6185.00	3736.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

#### 4.2.3. Per capita Food Consumption

Data of PATANAS-type survey in 1999 at 35 villages were used to analyze the structure of per capita food consumption that will be discussed below. Food consumption is grouped into three categories namely: carbohydrate, protein, and others by income class such as low, medium and high. Income class is constructed based on the distribution of income following the procedure as follow:

Low income group:	$I \leq - 0.5 Sd,$
Medium income group:	$- 0.5 Sd < I \leq + 0.5 Sd,$
High income group:	$I > + 0.5 Sd,$

where  $I$  = average households income  
 $Sd$  = standard deviation

Grouping is also employed based on location such as Java, Off-Java, and aggregate (Java & Off-Java). Central Java and East Java represent Java, while Lampung, West Nusa Tenggara (NTB), North Sulawesi, and South Sulawesi represents Off-Java. Different group of households' income is used for different regions that depend on it respective value of mean ( $\mu$ ) and standard deviation ( $Sd$ ). This is exercised because of average per capita income in Off-Java is higher than in Java as well as income in aggregate. Therefore, more comprehensive information can be elaborated from this income structure to figure out the impact of economic crisis to the rural household dynamic.

Table 4.19 presents the per capita food consumption in rural area by income-class and region such as Java and Off-Java. To determine the impact of government social safety net program for low price of rice, subsidized rice consumption is then separated from the non-subsidized rice. Food security in the rural area is the main target of this program. Income insecurity may occur during economic crisis, government also launching labor-intensive program such as road maintenance, irrigation canal maintenance etc.

In aggregate, average per capita rice consumption is declining as income increasing and this trend is also true in Off-Java. However, per capita rice consumption in medium class of income in Java is the highest that is about 92.82 kg compared to low and high-income class. Average per capita rice consumption in Java is lower compared to Off-Java or in aggregate. The figure is about 90.75 kg in Java, 116.73 kg in Off-Java, and 106.92 kg per year in aggregate. The amount of subsidized rice consumed by rural household per capita per year during the crisis is very small. Unfortunately, the targeted groups of households were not well identified since many households that belong to medium and high income-class have received this subsidized rice. A target of 20 kg rice for every poor household that mostly affected by the economic crisis was not achieved. In the first two months, the distribution is quite fair but in the following month some problems occurred. In Java for example, the medium and high-income class have received about 5.16 kg and 3.60 kg in average respectively.



Similarly in Off Java, this income-class has also received about 5.04 kg and 4.50 kg per capita per year during the economic crisis. This condition at the field is mostly due to the social jealousy occur especially those households that were not belong to the targeted groups. To avoid further social conflict, the head of villages (*KaDes*) then distributed subsidized rice equally among households for last 10 months of the program.

The declining trend as income increases is also found for other source of carbohydrate such as: corn, cassava, and dried cassava although some of them are fluctuate in Off-Java. The interesting case is found for per capita instant noodle consumption, which is increasing as income increasing. Average per capita consumption of this noodle is about 29.14 packs in Java and 34.49 pack in Off-Java and about 32.47 in aggregate. In addition, per capita consumption of wheat flour and biscuit relatively low in all regions.

*Tofu* and *Tempe* are likely the main source of protein in rural households' diet followed by fresh fish and salted and dried fish. In general, the consumption of first three food items is increasing as income increases. But salted and dried fish consumption increases in Java but decreases in Off-Java as household's income increases. Per capita consumption of *tofu* and *tempe* is higher in Java compared to Off-Java, and this is well known since all income groups in Java are use *tempe* and *tofu* as their basic source of protein especially rural households. Consumption of other source of protein such as eggs, chicken meat and other are relatively low in all regions compared to national average. Average per capita for other food consumption especially cigarette or tobacco quite high in rural area in all regions that range from 36.59 – 63.12 packs per year in Java and 33.96 – 64.83 packs per year in Off Java (Table 4.19).

The analysis on food consumption is also exercised by agroecosystems areas, namely: (1) wet land, (2) dry land\_A (excluded estate crops), (3) dry land\_B (included estate crops), and (4) coastal. For the discussion on each agroecosystem, no dry land\_B area was selected in Java and no coastal areas in Off-Java. Decreasing trend of per capita rice consumption as income increases was found at wetland and dry land included estate crops area. However, rice consumption fluctuated as income increases at other agroecosystems such as dry land excluded estate crops and coastal.

Table 4.19. Per capita food consumption in rural areas by region, PATANAS 1999.

Type of Expenditure	Java				Off Java				Average			
	Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
I. CARBOHYDRATE :												
a. Rice (Kg) :	86.85	92.82	88.57	90.75	120.06	116.22	112.75	116.73	104.48	108.78	103.65	106.92
1. Non Subsidized Rice (Kg)	78.80	87.66	84.97	85.10	111.42	111.17	108.26	110.83	96.43	103.56	99.42	101.11
2. Subsidized Rice (Kg)	8.05	5.16	3.60	5.65	8.64	5.04	4.50	5.90	8.05	5.22	4.23	5.81
b. Corn (Kg)	36.34	14.00	13.53	19.43	6.14	7.84	8.44	7.48	18.27	9.71	10.15	11.99
c. Cassava (Kg)	16.25	8.30	12.43	10.84	7.69	9.38	8.02	8.75	11.12	8.80	9.72	9.54
d. Dried Cassava (Kg)	1.91	0.23	0.66	0.70	6.60	4.55	0.95	4.58	4.64	3.00	0.82	3.11
e. Noodle Pack	20.88	28.30	47.24	29.14	21.73	34.92	56.23	34.49	21.04	32.86	51.37	32.47
f. Wheat flour (Kg)	1.18	1.71	3.74	1.87	3.34	4.71	7.74	4.78	2.33	3.65	6.23	3.68
g. Biscuit Klg	1.93	1.80	3.69	2.10	1.28	3.74	4.14	3.15	1.58	2.95	4.05	2.76
II. PROTEIN :												
h. Fresh Fishes (Kg)	5.92	6.28	5.95	6.14	7.41	12.51	18.77	12.07	6.80	10.30	13.34	9.83
i. Salted and Dried Fish (Kg)	3.82	3.99	2.61	3.75	3.86	4.79	6.50	4.79	4.08	4.42	4.90	4.40
j. Tofu Piece	223.76	266.18	361.31	269.14	93.83	117.48	115.91	111.10	159.43	165.35	213.35	170.77
k. Tempe Slice	185.72	167.55	199.62	176.54	41.45	51.10	52.44	48.78	100.64	91.87	111.69	97.02
l. Eggs (Kg)	2.29	3.73	4.69	3.51	2.12	4.14	8.80	4.27	2.12	3.83	7.96	3.98
m. Chicken meat (Kg)	1.76	1.66	3.36	1.92	1.84	2.50	5.59	2.76	1.77	2.21	4.61	2.45
n. Other Meat (Kg)	0.41	0.65	1.08	0.65	0.91	2.49	4.80	2.40	0.62	1.86	3.26	1.74
o. Milk (Kg)	0.65	1.07	4.50	1.45	0.56	1.02	2.43	1.10	0.55	1.04	3.23	1.23
III. OTHERS :												
p. Fruits (Kg)	7.96	9.10	15.35	9.70	16.51	14.66	12.24	14.80	13.42	12.60	13.03	12.87
q. Cooking Oil (Kg)	7.49	7.57	8.38	7.67	7.66	8.90	9.75	8.70	7.41	8.47	9.26	8.31
r. Sugar (Kg)	8.38	9.27	11.21	9.32	8.26	10.18	11.43	9.85	8.13	9.90	11.39	9.65
s. Tea/Coffee Pack	34.81	30.30	29.56	31.31	14.23	16.27	15.72	15.66	22.41	21.03	22.26	21.57
t. Cigarette/Tobacco Pack	36.59	52.92	63.12	50.34	33.96	45.24	64.83	45.06	39.00	46.42	64.10	47.06

Table 4.20 shows the per capita food consumption at wetland area in Java as well as in Off-Java. At the wetland agroecosystem as a central area of rice production, the per capita rice consumption in Java is lower than in Off-Java or at about 101.10 kg and 121.62 kg and for an average of 111.20 kg per annum respectively. Per capita rice consumption of 121.62 kg per year at wetland area in Off-Java is the highest among agroecosystem. Meanwhile per capita subsidized rice consumption at this agroecosystem area relatively low, that is about 4.54 kg in Java, 4.91 kg in Off-Java and about 4.72 kg in aggregate.

Similarly, per capita consumption of *tofu* and *tempe* in Java is significantly higher compared to Off-Java. *Tofu* for example, per capita consumption in Java almost 2.5 times higher than Off Java and *tempe* even almost four times higher in Java. However, the consumption of other source of protein such as eggs, chicken meat and other meats is still very low. Similarly, consumption of cigarette at wetland area is also very high that ranging from 44.63 – 56.52 packs in Java and 34.06 – 61.68 packs in Off-Java (Table 4.20).

The lowest average per capita rice consumption is found at dryland\_A (excluded estate crops) area in Java at about 73.35 kg per year, while the rice consumption at the same agroecosystem area in Off-Java is about 112.87 kg per year in average. Meanwhile, average per capita subsidized rice consumption in this area was the highest among agroecosystem areas or about 9.09 kg in Java and 9.27 kg in Off-Java for an average of 9.20 kg in aggregate. (Table 4.21).

This indicated that rural household in this area has experienced the most price shocks so that government must distributed more subsidized rice. In fact, more poor households are located in this agroecosystem and their income mostly depends on secondary crops (*palawija*) farming such as corn, soybean, cassava, etc. Using subsidized rice consumption as one of the indicator, then the low-income group is the most affected by the price socks either in Java or in Off-Java. At dry land excluded estate crops area for example, the per capita consumption of subsidized rice within low income group is about 10.13 kg and 12.87 kg per capita in rural Java and Off-Java respectively.

In addition, per capita consumption of corn at dryland\_A is very high compared to that consumption at other agroecosystem areas. In Java for example, per capita corn consumption about 59.38 kg per year, the low-income groups even consumed about 97.44 kg per year. This is another indicator despite subsidized rice consumption and in fact, this area mostly occupied by resource poor households (Table 4.21).

Table 4.22 presents the per capita food consumption at dryland\_B (included estate crops) in Off-Java and at coastal area in Java. Average per capita rice consumption at

dryland\_B area is the second highest (115.78 kg/year) after dryland\_A (121.62 kg/year). Meanwhile, average per capita subsidized rice consumption very low, which is about 3.71 kg. Compared to other agroecosystems, per capita consumption of *tofu* and *tempe* at dryland-B area was the lowest, reversibly to the consumption of other source of protein, which relatively higher than other areas.

At coastal area in Java, *tofu* and *tempe* are still the main source of protein for rural households or about 305.32 pieces and 58.37 slices respectively. Consumption of other food items such as salted and dried fish, eggs, chicken meat at each are relatively low except fresh fish consumption, which is about 31.06 kg per capita per year and the highest among agroecosystems. However, per capita consumption of fresh fish declined as income increases (Table 4.22).

#### **4.2.4. Modern Input Use in Rice Farming**

Modern inputs use is limited on rice farming in the wetland area at 11 villages out of 35 PATANAS villages. The data are mainly from 1995 and 1999 study that comprise of 5 villages in Java and 6 villages in off Java. The sample household's distribution is presented Table 4.23. The total households at 11 villages are 523 households that include 323 rice based and 200 non-rice based household. The rice-based households are distributed 100 households in Java 223 households in Off-Java.

The modern inputs of rice farming, basically includes high yielding variety seed, fertilizer and pesticides. Physical amount of pesticides use were not available, the value of this input is use to measure the level of application. Fertilizer use comprised of Urea, TSP, KCl, and ZA. The level of application of each production input by land holding and region in 1995 and 1999 is presented in Table 4.24.

Table 4.20. Per capita food consumption at wet land villages by region, PATANAS 1999.

Type of Expenditure	Java				Off Java				Average			
	Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
I. CARBOHYDRATE :												
a. Rice (Kg) :	103.66	100.86	97.02	101.10	127.88	119.06	116.11	121.62	113.54	110.76	107.19	111.20
1. Non Subsidized Rice (Kg)	96.53	96.50	96.92	96.56	120.22	115.60	111.56	116.71	106.07	106.90	105.23	106.47
2. Subsidized Rice (Kg)	7.13	4.36	0.10	4.54	7.66	3.47	4.55	4.91	7.46	3.86	1.97	4.72
b. Corn (Kg)	2.57	0.99	1.07	1.37	2.62	8.51	2.76	6.09	2.16	4.82	1.72	3.69
c. Cassava (Kg)	15.94	6.52	5.51	8.64	2.70	5.60	2.47	4.38	8.36	6.06	4.21	6.54
d. Dried Cassava (Kg)	1.34	0.39	1.52	0.74	3.45	6.80	1.86	5.27	2.60	3.41	1.57	2.97
e. Noodle Pack	26.62	24.75	38.90	26.76	13.40	41.57	74.03	35.52	18.28	33.07	55.25	31.07
f. Wheat flour (Kg)	0.75	0.95	1.21	0.93	2.45	4.84	6.28	4.20	1.49	2.89	3.54	2.54
g. Biscuit Klg	2.29	1.54	0.90	1.65	1.05	3.18	3.19	2.50	1.47	2.33	2.22	2.07
II. PROTEIN :												
h. Fresh Fishes (Kg)	3.03	3.38	3.70	3.33	5.34	8.97	12.92	8.17	4.11	6.18	7.51	5.71
i. Salted and Dried Fish (Kg)	2.38	2.05	1.28	2.04	2.34	4.00	6.30	3.68	2.22	3.06	3.43	2.85
j. Tofu Piece	304.22	277.32	387.95	295.95	92.52	144.48	93.29	123.11	200.31	206.42	264.61	210.88
k. Tempe Slice	302.70	210.88	314.97	244.16	37.78	74.71	88.05	64.09	159.82	141.92	218.90	155.54
l. Eggs (Kg)	3.02	4.08	3.99	3.82	1.56	3.01	9.01	3.10	2.15	2.96	9.87	3.46
m. Chicken meat (Kg)	1.68	1.55	3.41	1.79	0.80	2.29	5.17	2.08	1.12	1.95	4.06	1.93
n. Other Meat (Kg)	0.38	0.63	0.80	0.59	0.66	1.85	5.14	1.77	0.45	1.26	2.67	1.17
o. Milk (Kg)	0.68	0.95	1.69	0.97	0.38	0.88	2.25	0.85	0.44	0.96	1.94	0.91
III. OTHERS :												
p. Fruits (Kg)	9.75	9.45	14.85	10.12	10.90	10.93	16.28	11.42	11.15	9.72	15.38	10.76
q. Cooking Oil (Kg)	8.00	7.48	8.02	7.66	6.21	8.40	9.17	7.77	6.87	7.92	8.91	7.71
r. Sugar (Kg)	8.66	8.69	10.75	8.91	7.25	9.84	11.38	9.15	8.06	9.12	11.18	9.03
s. Tea/Coffee Pack	48.91	33.00	35.99	37.10	13.22	16.17	16.75	15.27	28.96	24.22	31.02	26.36
t. Cigarette/Tobacco Pack	44.63	53.56	56.52	51.77	34.06	46.00	61.68	43.62	41.77	48.45	60.46	47.76

In average, the quality of technology application is slightly declined in 1999 compared to 1995 particularly the use of fertilizer. The application of urea in Java is higher than in Off-Java either in 1995 or in 1999. The level of application is still in the range of recommendation, which is between 200-250 kg/ha for wetland rice. Farmers that belong to small land holding group tend to be more intensive and use higher level of urea compared to larger land holding. This indicated that no significant impact of price shocks to the use of urea in rice farming. In average, the use of urea was about 310 kg/ha in 1995 then declined to about 253.06 kg/ha in 1999 in Java, while in Off-Java the rate of application declined from 205.91 kg/ha in 1995 to 196.56 kg/ha in 1999.

Table 4.21. Per capita food consumption at dry land\_A villages region, PATANAS 1999.

Type of Expenditure	Java				Off Java				Average			
	Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
I. CARBOHYDRATE :												
a. Rice Kg :	62.19	76.99	79.59	73.35	106.88	113.93	117.28	112.87	85.81	102.91	100.54	98.25
1. Non Subsidized Rice Kg	52.06	68.02	71.65	64.26	94.00	105.75	108.89	103.60	75.31	94.04	92.07	89.05
2. Subsidized Rice Kg	10.13	8.97	7.94	9.09	12.87	8.18	8.39	9.27	10.49	8.87	8.47	9.20
b. Corn Kg	97.44	50.36	29.31	59.38	14.91	11.89	14.34	12.96	55.16	22.09	21.22	30.14
c. Cassava Kg	19.18	15.43	22.01	17.80	7.73	9.10	13.82	9.54	13.65	10.56	17.70	12.60
d. Dried Cassava Kg	3.33	0.00	0.00	0.94	15.28	6.53	1.00	7.62	9.26	4.79	0.56	5.15
e. Noodle Pack	7.86	34.98	58.31	32.02	28.97	33.43	42.59	33.88	19.70	34.19	48.75	33.19
f. Wheat flour Kg	1.76	3.39	6.66	3.58	3.27	4.10	8.67	4.64	2.53	3.86	7.91	4.25
g. Biscuit Klg	1.05	2.38	5.47	2.63	2.03	2.98	5.01	3.09	1.98	2.62	5.18	2.92
II. PROTEIN :												
h. Fresh Fishes Kg	0.14	0.26	1.34	0.44	8.33	11.73	17.63	11.90	4.29	8.24	10.46	7.66
i. Salted and Dried Fishes Kg	6.72	10.03	4.45	7.98	6.22	5.66	7.13	6.02	7.56	6.65	5.93	6.75
j. Tofu Piece	88.21	214.65	352.12	206.60	135.74	116.98	135.81	124.20	127.67	143.28	229.11	154.69
k. Tempe Slice	49.58	130.72	132.20	108.21	64.73	52.44	26.66	51.12	55.63	78.53	75.11	72.24
l. Eggs Kg	0.95	2.75	5.62	2.82	2.59	3.25	3.18	3.09	1.82	3.10	4.27	2.99
m. Chicken meat Kg	1.11	1.70	3.34	1.86	2.81	2.25	4.97	2.81	2.14	2.06	4.18	2.46
n. Other Meat Kg	0.25	0.62	1.21	0.63	0.40	1.61	5.28	1.92	0.34	1.29	3.47	1.44
o. Milk Kg	0.53	0.65	7.68	2.02	0.56	0.89	2.05	1.00	0.47	0.85	4.35	1.38
III. OTHERS :												
p. Fruits Kg	3.46	7.10	9.32	6.52	21.71	17.43	12.04	17.54	13.11	14.49	10.64	13.46
q. Cooking Oil Kg	6.92	7.98	9.04	7.89	8.44	7.67	9.56	8.15	7.85	7.75	9.32	8.05
r. Sugar Kg	7.81	10.63	11.95	10.10	9.42	9.97	11.37	10.07	8.33	10.34	11.68	10.08
s. Tea/Coffee Pack	11.61	25.04	23.02	20.86	17.80	15.05	16.60	15.91	14.64	18.32	20.21	17.74
t. Cigarette/Tobacco Pack	24.55	49.61	72.41	47.12	35.05	41.27	59.87	42.82	39.94	40.03	64.76	44.41

Table 4.22. Per capita food consumption at dry land\_B (Off Java) and Coastal (Java), PATANAS 1998/1999.

Type of Expenditure	Off Java				Java			
	Low	Medium	High	Average	Low	Medium	High	Average
I. CARBOHYDRATE :								
a. Rice (Kg) :	121.85	115.82	107.18	115.78	86.09	89.32	91.41	88.93
1. Non Subsidized Rice (Kg)	115.72	112.33	106.06	112.07	80.36	87.83	91.24	86.75
2. Subsidized Rice (Kg)	6.14	3.48	1.12	3.71	5.73	1.5	0.17	2.19
b. Corn (Kg)	2.84	3.33	6.2	3.7	0.27	0.2	0	0.19
c. Cassava (Kg)	13.87	13.11	5.8	12.05	8.18	2.54	1.93	3.61
d. Dried Cassava (Kg)	2.93	0.58	0.45	1.12	0	0	0	0
e. Noodle Pack	25.79	30.26	59.1	34.1	35.59	30.38	36.33	32.19
f. Wheat flour (Kg)	4.5	5.17	7.66	5.43	1.37	1.69	2.08	1.68
g. Biscuit Klg	0.92	4.97	3.86	3.82	3.1	1.78	7.14	2.72
II. PROTEIN :								
h. Fresh Fishes (Kg)	9.18	16.51	22.68	15.82	38.65	28.76	31.09	31.06
i. Salted and Dried Fish (Kg)	3.69	4.68	6.05	4.68	1.3	0.8	0.61	0.87
j. Tofu Piece	58.73	93.22	110.08	87.9	277.06	314.96	299.45	305.32
k. Tempe Slice	25.64	28.2	56.86	32.47	65.22	60.94	33.82	58.37
l. Eggs (Kg)	2.41	6.02	13.54	6.44	3.09	4.09	3.77	3.85
m. Chicken meat (Kg)	2.28	2.94	6.33	3.36	4.21	2.05	3.28	2.64
n. Other Meat (Kg)	1.67	3.91	4.23	3.43	1.12	0.77	1.58	0.94
o. Milk (Kg)	0.78	1.27	2.85	1.42	0.83	2.3	2.86	2.07
III. OTHERS :								
p. Fruits (Kg)	18.95	15.42	10.39	15.4	13.94	11.3	39.48	15.4
q. Cooking Oil (Kg)	8.77	10.55	10.19	10.07	6.89	7.21	7.29	7.16
r. Sugar (Kg)	8.49	10.68	11.5	10.3	8.91	9.13	10.1	9.21
s. Tea/Coffee Pack	12.36	17.54	14.45	15.78	42.4	29.02	30.56	31.92
t. Cigarette/Tobacco Pack	32.87	48.36	70.67	48.47	37.05	56.38	52.52	51.98



**Table 4. 23. Households distribution in wet land 11 villages, PATANAS 1999.**

Household Characteristic	Java (5 villages)	Off Java (6 villages)	Total (11 villages)
Rice based household	100	223	323
Non-rice based household	141	59	200
Total	241	282	523

However, the use of other fertilizer particularly TSP and potassium (KCl) were significantly declined. The recommended rate of TSP application is ranging between 150-200 kg/ha. Meanwhile, the use of TSP drop less than 100 kg/ha in 1999 compared to the recommendation rate of about 100-150 kg/ha. For example, rate of application was about 67.23 kg/ha in Java and 74.24 kg/ha in Off-Java in 1999. In addition the application of KCl and ZA relatively low either in 1995 or 1999 in both in Java and Off-Java. However, the use of modern variety seed was higher in 1999 than in 1995.

The level of KCl application in rice farming is the most affected agricultural input by the price shock. On-farm application of this fertilizer is significantly decline either in Java or in Off-Java, which are only 11.75 kg/ha and 14.02 kg/ha in average respectively. This very low compared to the recommendation at about 75-100 kg/ha. On the other hand, the application of ZA fertilizer slightly increased in Java or about 43.68 kg/ha in 1995 to 76.20 kg/ha in 1999.

These figures reflecting that fertilizer that heavily depend on imported raw material such as TSP and Potassium were significantly affecting rice farmers because of rocketing price increase. The price of these two fertilizers is almost triple during the economic crisis compared to before crisis. On the other hand, farmers were not very much depend on this fertilizer especially Potassium. ZA is commonly used for vegetable, it application in rice is just for additional microelement especially Sulfur in the soil. Therefore the use of this fertilizer in rice farming was not as intensive as in vegetable production.

The use of modern rice seed is quite high compared to the recommendation at range of 30-35 kg/ha. High use of seed is may be due some farmers are growing rice using direct seeding rice technique that need seed at 60-80 kg/ha. In addition, farmers are believe that more seed will yield higher plant population and produce more yields per hectare. All farmers in each land holding groups are using pesticides as their effort to control rice insect and pest in an integrated pest management (IPM) perspective.

Farmers believe that during the economic crisis their rice yield has declined between 0.5 -1.0 ton/ha due to lower quality of rice intensification program. This is also indicated that the quality of rice production technology has also decline during the crisis despite of the negative impact *El Nino and La Nina*. The national average of rice yield per hectare is about 4.68 kg/ha.

Due to a decrease in quality of technology application the rice yield in Java slightly declined from 4267.55 kg/ha in 1995 to 4124.4 kg/ha in 1999 in average. Meanwhile, rice yield was significantly dropped in Off-Java from about 3954.89 kg/ha to 2857.3 kg/ha during the period of 1995-1999. This was due to insect pest attack during the crop year 1997/1999 particularly in Lampung and South Sulawesi (Table 4.24).

#### **4.2.5. Cost Structure of Rice Farming**

Cost structure of rice farming in 11 PATANAS villages comprised of chemical inputs such as fertilizer and pesticide, seed, and labor. As discussed briefly in previous chapter that there was land-sliding declines of fertilizer use particularly TSP and Potassium (KCl) due to rocketing price of those fertilizers. Hyper-devaluation of Rupiah to world major currency (US \$) has made price of fertilizer during the economic crisis that almost triple compared to before the crisis. It is very clear the impact of this price shocks that farmer has reduced the use of these fertilizer significantly. Potassium for example, the rate of application was very low, either in Java or Off-Java.

In aggregate, the total cost of rice production is about 505.65 kg equivalent rice per hectare in 1995 then increased to 762.67 kg/ha in 1999 in average across the regions. The cost of rice production in medium size of land holding household was the most inefficient class with cost about 795.84 kg/ha in 1999, while reversibly in 1995 where this land holding class was the most efficient.

In aggregate, among cost components, total of human labor cost and machinery was the highest, which is about 13.59% and 18.58% in 1995 and 1999 respectively. Meanwhile, fertilizer cost was the second highest component during the same period. Other cost components such as pesticide and farm machinery are relatively low. Rice farming net revenue excluded land rent is about 1098.74 kg 1995 and increased to 1679.12 kg eq., rice in 1999 or about 64.18% and 68.77% of the total revenue respectively (Table 4.25).

Table 4.24. Average yield and input use of rice farming in wet land villages, PATANAS 1995 and 1999.

	Java				Off-Java				Aggregate			
	Small	Medium	Large	Average	Small	Medium	Large	Average	Small	Medium	Large	Average
<b>1995</b>												
Yield(Kg GKG/ha)	4347.83	4764.61	3745.77	4267.55	3722.74	3998.93	3936.12	3854.89	3936.06	4173.56	3888.53	3974.38
Hired labor (Man Hours)	937.93	670.42	630.37	813.65	673.77	571.17	381.05	558.55	763.92	593.81	443.38	632.42
Machinery (Eq. Rice, Kg)	88.60	63.10	62.43	77.55	57.49	73.50	108.50	77.12	68.11	71.13	96.98	77.25
Seed (Kg)	49.70	33.73	43.91	45.46	46.31	42.83	40.36	43.63	47.47	40.75	41.25	44.16
Urea (Kg)	324.63	297.54	288.59	310.80	222.39	212.31	176.95	205.91	257.28	231.75	204.86	236.28
Tsp (Kg)	118.82	131.66	112.95	119.56	103.58	109.53	121.58	110.58	108.78	114.58	119.42	113.18
KCL (Kg)	28.63	47.28	0.00	24.61	19.82	14.09	25.17	20.11	22.83	21.66	18.88	21.41
Za (Kg)	43.72	43.88	43.44	43.68	14.80	39.21	29.06	25.05	24.67	40.27	32.65	30.45
Pesticide (Rp)	43.54	35.17	27.03	37.91	17.43	16.00	23.31	18.91	26.34	20.37	24.24	24.41
Others (Rp 000)	8.51	11.30	14.11	10.41	47.42	37.59	47.31	45.04	34.14	31.60	39.01	35.01
<b>1999</b>												
Yield (Kg GKG/ha)	4083.5	4375	4017	4124.4	3028.1	2695.4	2656.2	2857.3	3599.9	2961.5	2765.8	3232.3
Hired labor (Man Hours)	560.89	902.5	706.02	662.67	631.63	511.85	534.56	579.58	634.57	634.9	516.67	604.17
Machinery (Eq. Rice, Kg)	80.38	88.31	95.7	85.63	62.02	77.44	64.25	66.09	68.19	85.41	66.58	71.87
Seed (Kg)	65.72	58.86	44.11	59.17	57.63	54.62	52.57	55.65	59.97	54.6	52.25	56.69
Urea (Kg)	261.6	262.83	225.25	253.06	215.53	199.77	155.42	196.56	237.67	219.82	159.76	213.28
Tsp (Kg)	70.52	76.54	52.02	67.23	68.96	84.48	75.8	74.24	70.17	70.32	77.73	72.16
KCL (Kg)	12.9	13.37	7.76	11.75	8.6	16.62	22.64	14.02	9.83	10.96	22.39	13.35
Za (Kg)	54.52	69.82	131.96	76.2	16.07	22.22	16.31	17.53	35.59	38.2	30.48	34.89
Pesticide (Rp 000)	46.59	33.58	34	41.01	30.71	33.8	37.93	33.26	35.27	38.03	33.83	35.55
Others (Rp 000)	26.3	19.08	20.16	23.41	41.86	32.17	34.83	37.86	35.54	32.19	31.05	33.58

Table 4.25. Cost structure of rice farming at wet land villages, PATANAS 1995 and 1999 (Eq. Rice, Kg). \*)

	1995				1999			
	Small	Medium	Large	Average	Small	Medium	Large	Average
A. Revenue (eq. Rice Kg)	1677.61	1828.94	1681.23	1711.98	2788.71	2166.04	2020.21	2441.8
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
B. Total Costs (eq. Rice Kg.)	502.95	490.92	521.18	505.65	774.47	795.84	709.16	762.67
Share (%)	29.98	26.84	31.00	29.54	27.77	36.74	35.10	31.23
b1. Human Hire Labor (eq. Rice Kg)	154.39	168.80	169.11	161.88	372.41	409.25	374.76	381.79
Share (%)	9.20	9.23	10.06	9.46	13.35	18.89	18.55	15.64
b2. Machinery/Equipment (eq. Rice Kg )	68.11	71.13	96.98	77.25	68.19	85.41	66.58	71.87
Share (%)	4.06	3.89	5.77	4.51	2.45	3.94	3.30	2.94
b3. Seed : - Value(eq. Rice Kg)	39.80	28.73	31.37	34.89	71.92	66.45	56.67	66.68
Share (%)	2.37	1.57	1.87	2.04	2.58	3.07	2.81	2.73
b4. Urea : - Value(eq. Rice Kg)	99.27	81.42	74.34	88.02	120.25	97.54	66.95	101.07
Share (%)	5.92	4.45	4.42	5.14	4.31	4.50	3.31	4.14
b5. T SP - Value(eq. Rice Kg)	58.13	62.53	63.16	60.58	43.78	39.33	47.3	43.63
Share (%)	3.47	3.42	3.76	3.54	1.57	1.82	2.34	1.79
b6. KCL : - value(eq. Rice Kg)	12.98	11.72	10.19	11.88	8.67	10.46	19.74	11.96
Share (%)	0.77	0.64	0.61	0.69	0.31	0.48	0.98	0.49
b7. ZA : - value(eq. Rice Kg)	9.79	14.63	12.79	11.74	18.45	17.17	12.28	16.55
Share (%)	0.58	0.80	0.76	0.69	0.66	0.79	0.61	0.68
b8. Pesticide Value(eq. Rice Kg)	26.34	20.37	24.24	24.41	35.27	38.03	33.83	35.55
Share (%)	1.57	1.11	1.44	1.43	1.26	1.76	1.67	1.46
b9. Other Cost	34.14	31.60	39.01	35.01	35.54	32.19	31.05	33.58
Share (%)	2.04	1.73	2.32	2.05	1.27	1.49	1.54	1.38
C. Net Revenue (eq. Rice Kg.)	1113.09	1082.87	1086.86	1098.74	2014.25	1370.21	1311.04	1679.12
Share (%)	66.35	59.21	64.65	64.18	72.23	63.26	64.90	68.77
g. Rent for land (eq. Rice Kg./ha/season	361.49	357.06	357.11	359.23	310.27	269.19	248.68	284.57
Share (%)	21.55	19.52	21.24	20.98	11.13	12.43	12.31	11.65
D. Profit (eq. Rice Kg.)	751.60	725.81	729.75	739.51	1703.97	1101.01	1062.37	1394.55
Share (%)	44.80	39.68	43.41	43.20	61.10	50.83	52.59	57.11

\*) Share: refer to total revenue

Table 4.26 presents the cost structure of rice farming at wetland area in Java in crops year of 1995 and 1999. The total cost of rice production has substantially increased from about 617.39 kg in 1995 to 850.71 kg eq., rice in 1999. With total revenue of 1674.09 kg and 3494.60 kg eq., rice then the net revenue of rice farming in Java is accounted for about 1158.84 kg and 2643.9 kg eq., rice per hectare or about 69.22% and 75.66% of total revenue respectively. If average land rent included in cost structure, the profit then declined 723.90 kg eq., rice in 1995 and about 2256.99 kg eq. rice in 1999. Impressive increase of net revenue or profit of rice farming in Java may due to various suitable factors. Firstly, farmers received new price of paddy (*gabah*) but they still pay low price of inputs in KUT credit scheme. Second, good crop season of 1998 or early harvests of 1998/1999-crop season as an impact of La Nina in 1998 where water almost available along the year. Third, some farmers could grow rice three times a year in line with government program of 300% CI of rice farming.

Meanwhile, total cost of rice farming at wetland area in Off-Java slightly lower compared to the same agroecosystem in Java. In 1995 for example, the total cost is about 460.10 kg then increased to 725.68 eq., rice kg in 1999. Net revenue is accounted for about 1074.84 kg in 1995 then substantially increased to 1273.64 kg in 1999. This net revenue was about 62.19% and 63.70% of total revenue respectively. By including land rent, the profit of rice farming in Off-Java is about 745.88 kg (43.18%) in 1995 and 1032.08 kg (51.62%) in 1999 (Table 4.27). The increase of net revenue or profit of rice farming in Off-Java was not as impressive as in Java. Despite of insect-pest attack especially during crops season of 1998, most of the paddy fields were in late harvest and low yield per hectare.

### **4.3. Vulnerability to On-Farm and Off-Farm Employment**

Rural household labor allocation during the economic crisis is grouped into agricultural sector and non-agricultural sector by size of land holding such as landless, small, medium, and large. Household labor allocation in agricultural sector by activity includes rice farming, non-rice farming and off-farm labor. Meanwhile for non-agricultural sector the activity includes entrepreneur, non-agricultural labor, professional, and others work. The following discussion is focused on labor allocation for on-farm, off-farm, and non-agricultural activity in each agroecosystem. More detail information of household labor allocation especially for different class of land holding and each activity in agriculture and non-agricultural sector are presented in Annex 4.24 to Annex 4.35.

Table 4.26. Cost structure of rice farming at wet land villages in Java , PATANAS 1995 and 1999 (Eq. Rice, Kg). \*)

	1995				1999			
	Small	Medium	Large	Average	Small	Medium	Large	Average
A. Revenue (eq. Rice Kg)	1818.96	1955.77	1153.50	1674.09	3470.84	3927.84	3199.33	3494.6
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
B. Total Costs (eq. Rice Kg.)	629.88	558.45	629.45	617.39	779.47	979.54	912.63	850.71
Share (%)	34.63	28.55	54.57	36.88	22.46	24.94	28.53	24.34
b1. Human Hire Labor (eq. Rice Kg)	216.81	181.46	286.29	228.29	318.46	498.32	458.38	387.38
Share (%)	11.92	9.28	24.82	13.64	9.18	12.69	14.33	11.09
b2. Machinery/Equipment (eq. Rice Kg )	88.60	63.10	62.43	77.55	80.38	88.31	95.7	85.63
Share (%)	4.87	3.23	5.41	4.63	2.32	2.25	2.99	2.45
b3. Seed : - Value(eq. Rice Kg)	46.78	38.52	44.99	44.89	77.69	75	55.71	71.86
Share (%)	2.57	1.97	3.90	2.68	2.24	1.91	1.74	2.06
b4. Urea : - Value(eq. Rice Kg)	131.16	118.93	116.57	125.34	143.62	162.3	137.65	145.83
Share (%)	7.21	6.08	10.11	7.49	4.14	4.13	4.30	4.17
b5. TSP - Value(eq. Rice Kg)	62.43	69.46	61.53	63.42	46.13	56.72	34.94	45.5
Share (%)	3.43	3.55	5.33	3.79	1.33	1.44	1.09	1.30
b6. KCL : - value(eq. Rice Kg)	15.14	24.61	0.00	12.94	10.61	10.55	6.5	9.61
Share (%)	0.83	1.26	0.00	0.77	0.31	0.27	0.20	0.27
b7. ZA : - value(eq. Rice Kg)	16.91	15.91	16.51	16.64	29.69	35.67	69.59	40.49
Share (%)	0.93	0.81	1.43	0.99	0.86	0.91	2.18	1.16
b8. Pesticide Value(eq. Rice Kg)	43.54	35.17	27.03	37.91	46.59	33.58	34	41.01
Share (%)	2.39	1.80	2.34	2.26	1.34	0.85	1.06	1.17
b9. Other Cost	8.51	11.30	14.11	10.41	26.3	19.08	20.16	23.41
Share (%)	0.47	0.58	1.22	0.62	0.76	0.49	0.63	0.67
C. Net Revenue (eq. Rice Kg.)	1286.20	1043.46	949.55	1158.84	2691.37	2948.3	2286.7	2643.9
Share (%)	70.71	53.35	82.32	69.22	77.54	75.06	71.47	75.66
g. Rent for land (eq. Rice Kg./ha/season	424.22	456.99	444.11	434.94	379.37	398.48	395.15	386.91
Share (%)	23.32	23.37	38.50	25.98	10.93	10.15	12.35	11.07
D. Profit (eq. Rice Kg.)	861.98	586.46	505.44	723.90	2312	2549.83	1891.55	2256.99
Share (%)	47.39	29.99	43.82	43.24	66.61	64.92	59.12	64.59

\*) Share: refer to total revenue

Table 4.27. Cost structure of rice farming at wet land villages in Off-Java , PATANAS 1995 and 1999 (Eq. Rice, Kg ). \*)

	1995				1999			
	Smal	Medium	Large	Average	Smal	Medium	Large	Average
A. Revenue (eq. Rice Kg)	1604.38	1791.47	1857.14	1727.42	2074.32	1909.08	1927.91	1999.31
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
B. Total Costs (eq. Rice Kg.)	437.18	470.97	485.09	460.10	738.58	705.5	717.51	725.68
Share (%)	27.25	26.29	26.12	26.64	35.61	36.95	37.22	36.30
b1. Human Hire Labor (eq. Rice Kg)	122.04	165.06	130.05	134.81	390.23	343.46	389.56	379.44
Share (%)	7.61	9.21	7.00	7.80	18.81	17.99	20.21	18.98
b2. Machinery/Equipment (eq. Rice Kg )	57.49	73.50	108.50	77.12	62.02	77.44	64.25	66.09
Share (%)	3.58	4.10	5.84	4.46	2.99	4.06	3.33	3.31
b3. Seed : - Value(eq. Rice Kg)	36.19	25.84	26.83	30.81	69.41	62	56.79	64.5
Share (%)	2.26	1.44	1.44	1.78	3.35	3.25	2.95	3.23
b4. Urea : - Value(eq. Rice Kg)	82.74	70.33	60.26	72.81	92.25	80.62	63.51	82.25
Share (%)	5.16	3.93	3.24	4.22	4.45	4.22	3.29	4.11
b5. TSP - Value(eq. Rice Kg)	55.90	60.49	63.70	59.41	37.42	52.76	45.02	42.85
Share (%)	3.48	3.38	3.43	3.44	1.80	2.76	2.34	2.14
b6. KCL : - value(eq. Rice Kg)	11.87	7.91	13.58	11.45	8.57	13.93	20.9	12.94
Share (%)	0.74	0.44	0.73	0.66	0.41	0.73	1.08	0.65
b7. ZA : - value(eq. Rice Kg)	6.10	14.25	11.55	9.74	6.12	9.32	4.71	6.49
Share (%)	0.38	0.80	0.62	0.56	0.30	0.49	0.24	0.32
b8. Pesticide Value(eq. Rice Kg)	17.43	16.00	23.31	18.91	30.71	33.8	37.93	33.26
Share (%)	1.09	0.89	1.26	1.09	1.48	1.77	1.97	1.66
b9. Other Cost	47.42	37.59	47.31	45.04	41.86	32.17	34.83	37.86
Share (%)	2.96	2.10	2.55	2.61	2.02	1.69	1.81	1.89
C. Net Revenue (eq. Rice Kg.)	1023.41	1094.52	1132.63	1074.25	1335.73	1203.59	1210.4	1273.64
Share (%)	63.79	61.10	60.99	62.19	64.39	63.05	62.78	63.70
g. Rent for land (eq. Rice Kg./ha/season)	328.99	327.53	328.11	328.37	247.09	243.14	228.98	241.56
Share (%)	20.51	18.28	17.67	19.01	11.91	12.74	11.88	12.08
D. Profit (eq. Rice Kg.)	694.42	766.98	804.52	745.88	1088.64	960.45	981.42	1032.08
Share (%)	43.28	42.81	43.32	43.18	52.48	50.31	50.91	51.62

\*) Share: refer to total revenue

Rural household's income structure is directly affected by availability of job opportunity and family labor allocation. Two important aspects related to labor allocation and participation rate are household's labor structure before and during the crisis, and relationship between job opportunity and rural household's income structure.

In aggregate, rural households labor allocation increased from 1671.83 MH/year in 1995 to 2510.5 MH/year 1999. Participation rate of household's labor in Java relatively higher compared to Off-Java. On-farm activity is one of the main factors that contribute to this increasing figure. However, households labor allocation and participation rate is different across region and agroecosystems (Table 4.28).

In average, the percentage of labor allocation to agricultural sector in Java is lower than in Off-Java, which is about 47.79% and 53.75% in 1995 and about 44.83% and 63.84% in 1999. Labor allocation for on-farm activities in Java is about 22.39% and 28.37% in 1995 and 1999 respectively. Meanwhile in Off-Java the share to total allocation to agricultural sector is about 33.95% and 48.75% in the same period respectively.

More household labor was allocated for on-farm activity in Off-Java compared to Java, and this is due to larger land holding in Off-Java. In contrast, labor allocation for off-farm works relatively either higher in Java than in Off-Java. In addition, labor allocation for off-farm activities in small land holding household is higher than landless household. This indicated that rural households with land holding less than 0.5 ha need additional off-farm or non-agriculture job for additional income. In other words, there was in fact no significant different between the landless household than small land holding household in labor allocation for various activity.

The dynamic of households labor allocation in wetland area shows similar trend with the aggregate figure. In Java for example, labor allocation in agricultural sector declined in contrast to non-agricultural sector that increased during period of 1995-1999. In 1995, contribution agriculture in rural households labor allocation was about 35.41% then declined to 31.68% in 1999. Increasing trend of non-agricultural labor in Java mostly due to higher labor allocation in non-agricultural labor job, while participation in agricultural entrepreneur decreased. In contrast, labor participation in agriculture significantly increased from 53.49% in 1995 to 61.91% in 1999. Rice farming in wetland Off-Java is the main factor this increasing trend since non-rice farming and agricultural labor participation decreased consistently (Table 4.29)



Table 4.28. Household's labor allocation, PATANAS 1995 and 1999 (Man Hour/Year).

Activities	Java		Off Java		Aggregate	
	1995	1999	1995	1999	1995	1999
1. Agriculture	1084.5	1044.8	685.9	1672.3	836.56	1435.3
Share (%)	47.79	44.83	53.75	63.84	50.04	57.17
a. On-farm	508.1	661.2	433.2	1277.2	461.53	1044.6
Share (%)	22.39	28.37	33.95	48.75	27.61	41.61
b. Off-farm	576.3	383.6	252.7	395.1	375.03	390.7
Share (%)	25.40	16.46	19.80	15.08	22.43	15.56
2. Non Agriculture	1184.7	1285.7	590	947.4	835.27	1075.2
Share (%)	52.21	55.17	46.24	36.16	49.96	42.83
A. Non Agric. Entrepreneur	455.4	484.6	223.1	387.8	331.37	424.3
Share (%)	20.07	20.79	17.48	14.80	19.82	16.90
B. Non Agric. Labor	455.5	630.3	118.7	301.3	246.02	425.5
Share (%)	20.07	27.05	9.30	11.50	14.72	16.95
C. Professional	237.4	140	243.5	221.9	241.21	191
Share (%)	10.46	6.01	19.08	8.47	14.43	7.61
D. Others	36.4	30.9	4.7	36.5	16.67	34.4
Share (%)	1.60	1.33	0.37	1.39	1.00	1.37
Total	2269.2	2330.4	1276	2619.7	1671.83	2510.5
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Meanwhile, Table 4.30 presents households labor structure in dry land area where food crops (upland rice and *palawija*) are the dominant commodities. Agricultural sector was dominantly provided job opportunity for rural households labor in Java as well as in Off-Java. In Java for example, percentage of households labor allocated to agriculture increased from 70.63% in 1995 to 72.11% in 1999. Similarly, in Off-Java the figure increased from 63.26% to 67.81% in the same period. Substantial increase of labor allocation in rice farming was not in line with labor allocation in non-rice farming, which is significantly declined. This indicated, that more households during the crisis try to grow upland rice for food security. The dominant role of agriculture sector in rural labor market at dry land area is mostly due to decreasing contribution of non-agriculture. In Java for example, the figure slightly decreased to 27.89% in 1999 from about 29.37% in 1995. Similar households labor structure was also identified Off-Java.

Table 4.29. Household's labor allocation at wet land, PATANAS, 1995 and 1999  
(Man Hour/Year).

Activities	Java		Off Java		Aggregate	
	1995	1999	1995	1999	1995	1999
1. Agriculture	719.7	676.68	685.9	1419.82	703.1	1042.44
Share (%)	35.41	31.68	53.49	61.91	42.26	47.10
a. Rice Farming	83	219.36	240.4	800.95	160.4	505.61
Share (%)	4.08	10.27	18.75	34.92	9.64	22.84
b. Non Rice Farming	95.3	112.04	226	259.35	159.5	184.55
Share (%)	4.69	5.25	17.63	11.31	9.59	8.34
c. Agricultural Labor	541.3	345.27	219.6	359.53	383.2	352.29
Share (%)	26.63	16.16	17.13	15.68	23.03	15.92
2. Non Agriculture	1312.9	1459.29	596.3	873.53	960.7	1170.99
Share (%)	64.60	68.32	46.51	38.09	57.74	52.90
A. Non Agric. Entrepreneur	428.5	405.98	194	292.59	313.2	350.17
Share (%)	21.08	19.01	15.13	12.76	18.82	15.82
B. Non Agric. Labor	578.4	881.02	141	304.63	363.4	597.33
Share (%)	28.46	41.25	11.00	13.28	21.84	26.99
C. Professional	277	151.19	253.3	221.26	265.4	185.68
Share (%)	13.63	7.08	19.76	9.65	15.95	8.39
D. Others	29	21.11	8	55.05	18.7	37.81
Share (%)	1.43	0.99	0.62	2.40	1.12	1.71
Total	2032.5	2135.97	1282.2	2293.36	1663.8	2213.43
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Total households labor allocation in the estate crop based dryland\_B area in Off-Java increased from 1510.6 MH/year in 1995 to 2609.4 MH/year in 1999. Agricultural sector was dominantly absorbed rural households labor. The figure increased from 45.59% to 61.24% in the same period. Household's labor for non-rice farming that dominated by estate crop was the main sub-sector determined this impressive figure that substantially increased from 26.78% to 45.04% in the period of 1995-1999. Booming price of estate crops was the main factor that fostered rural households to allocate more labor to earn higher income (Table 4.31).

Meanwhile, households labor structure at coastal area in Java quite different compared to other agroecosystem areas. The role of agricultural sector in households labor allocation relatively small that is about 9.14% in 1995 then increased to 15.58% in 1999. In contrast, the contributions of non-agricultural sector especially entrepreneur and non-agricultural

labor activities to the total labor allocation were very dominant. In 1995 for example, the contribution was about 44.28% and 32.71% respectively. However, in 1999 the contribution of entrepreneur increased to 50.58% but non-agricultural labor decreased to 21.25% (Table 4.31).

Table 4.30. Households labor allocation at dryland\_A, PATANAS 1995 and 1999 (Man Hour/Year).

Activities	Java		Off Java		Aggregate	
	1995	1999	1995	1999	1995	1999
1. Agriculture	2125.5	1997.8	683.0	2005.2	1216.7	2002.5
Share (%)	70.63	72.11	63.26	67.81	67.84	69.34
a. Rice Farming	5.0	1084.9	105.7	1033.4	68.4	1052.5
Share (%)	0.17	39.16	9.79	34.95	3.82	36.44
b. Non Rice Farming	1294.6	363.2	232.7	434.4	625.6	408.0
Share (%)	43.02	13.11	21.56	14.69	34.88	14.13
c. Agricultural Labor	825.9	549.7	344.6	537.4	522.7	542.0
Share (%)	27.45	19.84	31.92	18.17	29.14	18.77
2. Non Agriculture	883.9	772.5	396.6	952.0	576.9	885.6
Share (%)	29.37	27.89	36.74	32.19	32.16	30.66
A. Non Agric. Entrepreneur	446.9	376.0	120.7	383.8	241.4	381.0
Share (%)	14.85	13.57	11.18	12.98	13.46	13.19
B. Non Agric. Labor	201.4	268.3	77.0	329.8	123.0	307.0
Share (%)	6.69	9.68	7.13	11.15	6.86	10.63
C. Professional	189.6	71.8	193.3	210.5	191.9	159.2
Share (%)	6.30	2.59	17.91	7.12	10.70	5.51
D. Others	46.0	56.4	5.6	27.9	20.5	38.4
Share (%)	1.53	2.04	0.52	0.94	1.15	1.33
Total	3009.4	2770.3	1079.6	2957.2	1793.6	2888.0
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

#### 4.4. Labor Migration

The following discussion is focused to the impact of economic crisis to the labor migration back to the villages. The migration is evaluated based on land holding and income class. Level of migration back to the village (migrate-in) in Off-Java relatively higher compared to Java that is about 56.0% and 44.0% of the total migration (N = 396) respectively. This condition signal that in Off-Java where the contribution of agriculture to

the job opportunity during the crisis is more attractive than in Java so that more people are willing to come back to the village. Evaluation made across agroecosystem such as wetland, dry land and coastal showed that level of participation relatively balance in aggregate. However, the condition in each region (Java vs Off-Java) is quite different. In Java for example, level of participation in migration at wetland and coastal areas relatively higher than at dry land area. Based on size of land holding, migrate-in quite high in small land holding both in Java and Off-Java that is about 41.7% and 37.0% (Table 4.32).

If evaluation is according to the origin than table 4.33 presents that migration back to village most of them coming from the same district or about 81.3%. Other origin such as other province, provincial capital, Jakarta, and abroad, level of participation in migrate-in is relatively low. However, from Jakarta for example, the migration participation relatively higher in Java compared to Off-Java since they have closer distance back to the villages. Migration from other provinces is found more dominant in Of-Java than in Java.

Table 4.31. Household's labor allocation by size of land holding at estate crops villages and coastal villages, PATANAS 1995 and 1999 (Man Hour/Year).

Activities	Dryland_B (Estate crop)		Coastal	
	1995	1999	1995	1999
1. Agriculture	688.6	1597.9	151.9	327.2
Share (%)	45.59	61.24	9.14	15.58
a. Rice Farming	85.6	1170.0	11.3	35.8
Share (%)	5.67	4.84	0.68	1.71
b. Non Rice Farming	404.6	131.5	4.4	139.2
Share (%)	26.78	45.04	0.26	6.63
c. Agricultural Labor	198.5	296.4	136.3	152.2
Share (%)	13.14	11.36	8.20	7.24
2. Non Agriculture	821.9	1011.5	1510.1	1773.2
Share (%)	54.41	38.76	90.86	84.42
A. Non Agric. Entrepreneur	403.6	479.3	736.0	1062.4
Share (%)	26.72	18.37	44.28	50.58
B. Non Agric. Labor	136.7	271.7	543.7	446.3
Share (%)	9.05	10.41	32.71	21.25
C. Professional	280.8	233.0	186.1	253.3
Share (%)	18.59	8.93	11.20	12.06
D. Others	0.8	27.4	44.3	11.2
Share (%)	0.05	1.05	2.67	0.53
Total	1510.6	2609.4	1662.0	2100.4
	(100.00)	(100.00)	(100.00)	(100.00)

Nonetheless, according to income class that migration is mostly occur within medium class that is about 61.6% in aggregate. Meanwhile the level of participation within low-income and high-income class is quite balance. Similar figure was found according to region both Java and Off-Java where high participation in migration occur with medium-income class. In Java for example, the rate was about 68.0%, which is higher compared to Off-Java of about 60.6% of the total migrants in each region. A According to agroecosystem either at wetland or dryland areas, high participation is within medium-income class (Table 4.34).

In general, migration back to the villages due to some reasons such as (1) looking for new job in the rural area (0.7%), (2) lost job in urban area (3.2%), (3) married (23.8%), and (4) other reasons. The popular believe developed in community that migration to the villages, as an impact of economic crisis increased was not in line to this finding (Table 4.35).

Table 4.32. Urban to rural migration by agroecosystem and size of land holding, PATANAS 1999.

	Wet land and Coastal		Dry Land		All	
	N	Percent	N	Percent	N	Percent
<b>Java</b>						
Land less	58	40.85	5	15.15	63	36.00
Small	52	36.62	13	39.39	65	37.14
Medium	23	16.20	9	27.27	32	18.29
Large	9	6.33	6	18.18	15	8.57
<i>All</i>	<i>142</i>	<i>100</i>	<i>33</i>	<i>100</i>	<i>175</i>	<i>100</i>
<b>Off Java</b>						
Land less	4	7.27	9	5.42	13	5.88
Small	26	47.27	58	34.94	84	38.02
Medium	10	18.18	48	28.92	58	26.24
Large	15	27.27	51	30.72	66	29.86
<i>All</i>	<i>55</i>	<i>100</i>	<i>166</i>	<i>100</i>	<i>221</i>	<i>100</i>
<b>Aggregate</b>						
Land less	62	31.47	14	7.04	76	19.19
Small	98	49.75	67	33.67	165	41.67
Medium	10	5.08	37	18.59	47	11.87
Large	27	13.70	81	40.70	108	27.27
<i>All</i>	<i>197</i>	<i>100</i>	<i>199</i>	<i>100</i>	<i>396</i>	<i>100</i>

Table 4.33. Urban to rural migration by agroecosystem and size of land holding, PATANAS 1999.

	Wet land and Coastal		Dry Land		All	
	N	Percent	N	Percent	N	Percent
<b>Java</b>						
Low	21	14.79	11	33.33	32	18.29
Medium	105	73.94	14	42.42	119	68.00
High	16	11.27	8	24.25	24	13.71
<i>All</i>	<i>142</i>	<i>100</i>	<i>33</i>	<i>100</i>	<i>175</i>	<i>100</i>
<b>Off Java</b>						
Low	14	25.45	24	14.46	38	17.20
Medium	35	63.64	102	61.44	134	60.63
High	9	16.36	40	24.10	49	22.17
<i>All</i>	<i>55</i>	<i>100</i>	<i>166</i>	<i>100</i>	<i>221</i>	<i>100</i>
<b>Aggregate</b>						
Low	53	26.90	27	12.33	80	20.20
Medium	118	59.90	126	57.53	244	61.62
High	26	13.20	66	30.14	72	18.18
<i>All</i>	<i>197</i>	<i>100</i>	<i>219</i>	<i>100</i>	<i>396</i>	<i>100</i>

Table 4.34. Urban to rural migration by region of origin, PATANAS 1999.

	Java		Off Java		Aggregate	
	N	Percent	N	Percent	N	Percent
<b>Wet land and coastal</b>						
- Within district	104	73.24	43	78.18	147	74.62
- Provincial capital	12	8.45	4	7.27	16	8.12
- Other province	12	8.45	6	10.91	18	9.14
- Jakarta	11	7.75	1	1.82	12	6.09
- Overseas	3	2.11	1	1.82	4	2.03
<i>All</i>	<i>142</i>	<i>100</i>	<i>55</i>	<i>100</i>	<i>197</i>	<i>100</i>
<b>Dry land</b>						
- Within district	32	96.97	143	86.14	175	87.94
- Provincial capital	-	-	3	1.81	3	1.51
- Other province	-	-	15	9.04	15	7.54
- Jakarta	1	3.03	5	3.01	6	3.01
- Overseas	-	-	-	-	-	-
<i>All</i>	<i>33</i>	<i>100</i>	<i>166</i>	<i>100</i>	<i>199</i>	<i>100</i>
- Within district	136	77.71	186	84.16	322	81.31
- Provincial capital	12	6.86	7	3.17	19	4.80
- Other province	12	6.86	21	9.50	33	8.33
- Jakarta	12	6.86	6	2.71	18	4.55
- Overseas	3	1.71	1	0.46	4	0.01
<i>All</i>	<i>175</i>	<i>100</i>	<i>221</i>	<i>100</i>	<i>396</i>	<i>100</i>

Table 4.35. Urban to rural migration by agroecosystem and reason of migration, PATANAS, 1999.

	Java		Off Java		Aggregate	
	N	Percent	N	Percent	N	Percent
<b>Wet land and coastal</b>						
- Working	1	0.44	1	0.87	2	0.58
- Lost Job	8	3.51	9	7.83	17	4.96
- Married	34	14.91	25	21.74	59	17.20
- Others	185	81.14	80	69.57	265	77.26
<i>All</i>	228	100	115	100	343	100
<b>Dry Land</b>						
- Working	-	-	3	0.95	3	0.81
- Lost Job	-	-	6	1.90	6	1.62
- Married	34	60.71	77	24.44	111	29.92
- Others	22	39.29	229	72.70	251	67.65
<i>All</i>	56	100	315	100	371	100
- Working	1	0.35	4	0.93	5	0.70
- Lost Job	8	2.82	15	3.49	23	3.22
- Married	68	23.94	102	23.72	170	23.81
- Others	207	72.89	309	71.86	516	72.27
<i>All</i>	284	100	430	100	714	100

## V. RESPOND TO CRISIS IN THE RURAL AREA

Price shocks as one of the impacts of economic crisis has been responded by rural the household in different ways and actions. Food security is one of the most affected sectors in rural area, since agriculture especially food crops sub sector is the heaviest sector where rural households are mostly belong to. This Chapter discussed in more detail household's responds to the economic crisis in the rural sector.

### 5.1. Remittance

Within last two decades, opportunity to work in non-agricultural sector particularly as labor industry, construction services in big cities either in Indonesia or abroad has increased. Higher wages and income security were among main factors that invited higher labor participation in this sector. This was becoming new labor market segment for rural household's labor. Regional income earning from this labor market is quite attractive in term of remittance that can stimulate rural economy growth and equity. Despite of risk and individual security especially female labor working abroad this labor market still attractive for new comer to compete for job.

Table 5.1 presents percentage of rural households receiving remittance from families or friend in the big cities or other places outside village. During the period of 1997-1999, rate of participation of rural households in remittance businesses tends to increase. In aggregate, participation rate was about 13.8% in 1996/1997 then increased to 23.6% in 1998/1999. The increasing trend occurred in all agro-ecosystem areas either in Java or Off-Java. Among agroecosystem areas, participation rate of households receiving remittance relatively higher at wetland area in Java followed by estate crops based dryland area in Off-Java and coastal area in Java compared to other areas. However, the structure is different across agroecosystems. At estate crops based rural area, percentage of households receiving remittance increased at higher income class, while reversed trend was identified at other agroecosystem areas. Rate of participation is higher at lower income-class and decreased at higher income-class.

Above condition is determined by the origin of the migrant and type of job the are engage with. The highest proportion of the origin of remittance was Jakarta followed by remittance from abroad (Table 5.2). In addition, most of households labor at wetland food crops based dryland and coastal villages in Java are working as helper and hard worker in industry with low level of education. Meanwhile households labor that working outside the village are mostly skilled labor and accept job based on their skill.



The magnitude of remittance is mostly non-regular or there is no specific pattern in receiving the remittance. To some households, there is remittance for every 2-3 months from relative or friend (Table 5.3). In line with the rate of participation, value of remittance in period of 1996/1997–1998/1999 tend to increase in average. The highest nominal value of remittance was identified as estate crops based village followed by while wetland villages (Table 5.4).

In contrast, even though participation rate in the remittance activities decreased in higher income-class but the amount of money or value of remittance they receive increased at higher income-class. This indicated quite significant role of remittance to the rural households income. During the crisis the value of remittance impressively increased especially from abroad in Rupiah due to land-sliding devaluation of rupiah with respect to other international currencies. This condition occurred almost at all agroecosystem villages. In real term, the value of remittance also increased in all income-class either in Java or Off-Java as well as in aggregate during the period of 1997-1999. Except at coastal area, real value of remittance also increased in other agroecosystem areas. However real value of remittance at wet land area was the highest compared to other agroecosystem areas (Table 5.5). At wet land area in Java for example, the value increased from 40.14 kg equivalent rice in July 1996 – July 1997 to 287.3 kg in March 1998 – March 1999, while in Off-Java the figure increased from 21.26 kg to 27.82 kg

Table 5.1 Participation rate of remittance receiver by class of income (%), PATANAS 1997-1999.

Ecosystem	Period	Java				Java				Aggregate			
		Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
Wet Land	March 98-99	35.1	33.5	27.8	33.2	17.8	21.1	6.9	18.7	28.4	26.5	17.4	26.1
	March 97-98	24.7	22.6	19.4	22.8	11.9	15.7	3.4	13.3	20.0	18.4	11.6	18.1
	July 96-97	22.1	17.0	16.7	18.2	8.9	11.4	3.4	9.8	16.3	13.6	10.1	14.1
Dry Land	March 98-99	19.2	9.4	2.7	10.8	19.7	21.6	20.0	21.0	16.9	18.8	12.4	17.2
Excluded Estate	March 97-98	7.7	7.3	2.7	6.5	12.7	15.5	12.0	14.3	8.9	13.6	7.9	11.4
	July 96-97	7.7	6.3	0.0	5.4	11.3	10.3	10.0	10.5	9.7	9.1	5.6	8.6
Dry Land	March 98-99					27.2	32.2	32.8	31.1	26.9	32.1	32.1	31.1
Included Estate	March 97-98					16.0	27.2	29.3	24.9	16.4	26.6	28.6	24.9
	July 96-97					13.6	24.3	29.3	22.6	13.4	23.9	28.6	22.6
Coastal	March 98-99	25.0	7.5	10.0	11.4					16.7	9.3	8.3	11.4
	March 97-98	25.0	7.5	0.0	10.1					20.8	7.0	0.0	10.1
	July 96-97	18.8	5.7	0.0	7.6					16.7	4.7	0.0	7.6
ALL	March 98-99	28.3	23.3	14.5	23.3	21.3	25.1	22.6	23.8	24.0	24.7	18.6	23.6
	March 97-98	18.6	16.3	9.6	16.0	13.4	19.6	17.5	17.7	16.0	18.3	13.7	17.1
	July 96-97	16.6	12.5	7.2	12.7	11.1	15.5	16.8	14.5	13.8	14.2	12.4	13.8

Table 5.2. Remittance by origin/location (Rp.000), PATANAS 1997-1999.

Ecosystem	Original Location	Java		Off Java		Aggregate	
		N	Rp.000	N	Rp.000	N	Rp.000
Wet Land	District	52	611.01	22	658.38	74	625.09
	Provincial Capital	8	1316.9	8	426.98	16	871.96
	Java	4	962.5	6	1866.7	10	1505
	Off Java	7	3203.6	10	1635.2	17	2281
	Jakarta	25	1028.6	3	73.33	28	926.25
	Overseas	14	12783	15	2986	29	7715.8
Dry Land excluded Estate	District	14	171.86	28	992.82	42	719.17
	Provincial Capital	.	.	12	1357	12	1357
	Java	2	2250	3	1803.3	5	1982
	Off Java	.	.	8	4994.8	8	4994.8
	Jakarta	3	2166.7	6	400	9	988.89
	Overseas	.	.	10	3838	10	3838
Dry Land included Estate	District	.	.	39	1318	39	1318
	Provincial Capital	.	.	3	3058.3	3	3058.3
	Java	.	.	11	7328.1	11	7328.1
	Off Java	.	.	15	3269.2	15	3269.2
	Jakarta	.	.	19	2406.8	19	2406.8
	Overseas	.	.	19	21180	19	21180
Coastal	District	6	200.97	.	.	6	200.97
	Java	1	300	.	.	1	300
	Off Java	1	700	.	.	1	700
	Overseas	2	9000	.	.	2	9000
ALL	District	72	491.45	89	1052.7	161	801.68
	Provincial Capital	8	1316.9	23	1255.4	31	1271.3
	Java	7	1235.7	20	4861	27	3921.1
	Off Java	8	2890.6	33	3192.3	41	3133.5
	Jakarta	28	1150.5	28	1726.8	56	1438.7
	Overseas	16	12310	44	11036	60	11376

Table 5.3. Remittance by Frequency, PATANAS 1999

Ecosystem	Frequency	Java		Off Java		Aggregate	
		N	Rp.000	N	Rp.000	N	Rp.000
Wet Land	Routine Monthly	18	2385	7	1253.4	25	2068.1
	Routine Non Monthly	26	1082.9	13	1318.2	39	1161.3
	Non Regular	66	3063.3	44	1467.1	110	2424.8
Dry Land excluded Estate	Routine Monthly	1	6000	14	4093.4	15	4220.5
	Routine Non Monthly	3	1270	15	1913.2	18	1806
	Non Regular	15	239.73	38	1163.8	53	902.3
Dry Land included Estate	Routine Monthly	.	.	18	24877	18	24877
	Routine Non Monthly	.	.	25	2964.7	25	2964.7
	Non Regular	.	.	63	1848.7	63	1848.7
Coastal	Routine Monthly	2	9000	.	.	2	9000
	Non Regular	10	915.58	.	.	10	915.58
ALL	Routine Monthly	21	3187.1	39	13176	60	9679.9
	Routine Non Monthly	29	1102.2	53	2263.2	82	1852.6
	Non Regular	91	2361.9	145	1553.4	236	1865.2

Table 5.4. Nominal remittance by class of income (Rp.000), PATANAS 1997-1999.

Agroecosystem	Time Period	Java				Off Java				Aggregate			
		Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
Wet Land	March 98-99	88.84	389.39	2532.8	555.61	65.47	193.48	55.17	139.7	93.2	299.45	1344.7	350.91
	March 97-98	52.09	149.51	896.53	209.17	47.95	141.55	41.38	102.32	55.19	147.64	485.14	156.58
	July 96-97	29.71	75.1	200	78.18	43.41	68.33	41.38	57.86	38.63	73.22	121.74	68.18
Dryland_A	March 98-99	40.1	53.34	2.03	39.35	54.99	163.08	595.98	207.43	40.52	131.44	335.66	145.24
(excluded estate crop)	March 97-98	3.15	35.45	1.62	19.61	41.82	97.91	314.98	119.72	18.41	81	177.63	82.68
	July 96-97	2.85	24.54	0	13.53	30.77	104.4	267.4	113.68	18.81	78.77	150.22	76.62
Dryland_B	March 98-99	.	.	.	.	133.86	384.93	2597.8	701.67	96.74	385.74	2655.3	701.67
(included estate)	March 97-98	.	.	.	.	57.13	357.58	2492.3	649.3	57.41	339.84	2562.1	649.3
	July 96-97	.	.	.	.	45.85	272.99	2081.6	526.67	43.77	261.46	2136.8	526.67
Coastal	March 98-99	108.81	43.68	5	51.97	.	.	.	.	72.54	53.83	4.17	51.97
	March 97-98	306.25	138.68	0	155.06	.	.	.	.	208.33	168.6	0	155.06
	July 96-97	193.75	145.28	0	136.71	.	.	.	.	154.17	165.12	0	136.71
ALL	March 98-99	73.56	249.27	1100.1	325.91	84.42	249.89	1329	359.03	76.43	256.42	1200.9	346.52
	March 97-98	62.59	117.59	389.58	142.37	49.17	202.08	1178.8	300.05	53.37	173.12	852.93	240.52
	July 96-97	38.18	71.96	86.75	65.73	40.64	151.53	987.63	240.6	40.26	123.36	625.8	174.58

Table 5.5. Real remittance by class of income (rice eq., kg), PATANAS 1997-1999.

Ecosystem	Time Period	Java				Off Java				Aggregate			
		Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
Wet Land	March 98-99	52.42	158.76	1217.3	287.3	41.82	90.57	27.82	69.58	45.26	129.51	753.85	180.14
	March 97-98	29.75	70.94	391.7	107.82	39.1	64.62	21.26	52.63	27.91	72.63	247.37	80.66
	July 96-97	12.87	35.33	104.45	40.14	32.74	28.99	21.26	29.41	20.24	34.48	72.04	34.86
Dry Land excluded Estate	March 98-99	13.33	21.79	1.22	15.25	25.49	98.27	177.12	95.33	17.76	76.53	111.97	65.7
	March 97-98	1.87	14.39	0.97	7.48	18.09	46.93	140.86	55.91	8.71	37.96	89.05	37.99
	July 96-97	1.76	9.7	0	5.12	19.78	44.47	136.93	54.11	8.85	35.12	86.21	35.99
Dry Land included Estate	March 98-99	.	.	.	.	66.73	190.5	1209.1	336.98	44.73	190.76	1209.1	336.98
	March 97-98	.	.	.	.	33.12	173.23	1165.8	311.27	26.94	167.34	1165.8	311.27
	July 96-97	.	.	.	.	27.47	130.81	972.21	251.54	21.13	127.05	972.21	251.54
Coastal	March 98-99	21.71	17.21	0	16.73	.	.	.	.	16.6	21.03	0	16.73
	March 97-98	61.56	52.62	0	49.57	.	.	.	.	47.08	64.31	0	49.57
	July 96-97	45.86	51.46	0	43.75	.	.	.	.	35.07	62.9	0	43.75
ALL	March 98-99	31.75	104.93	665.67	165.56	45.59	127.38	580.04	171.84	33.92	123.26	612.63	169.47
	March 97-98	23.18	54.03	214.41	68.49	31.33	95.88	547.17	144.53	22.99	83.86	420.55	115.82
	July 96-97	13.34	30.9	57.08	29.63	27.43	69.06	464.15	115.43	17.83	57.54	309.25	83.04

## 5.2. Saving and Other Investment

Household saving and other investment are evaluated in two periods that is July 1997 to March 1998 and current saving. Meanwhile, rice stock as well as non-agricultural production stock is also evaluated from July 1997 to March 1998 and March 1999. Saving and investment also grouped by income class and by region. In general, the value of household saving in Off-Java was slightly higher than in Java in the period of July 1997 to March 1998. Nominally, average value of saving in Java from July 1997 to March 1998 and current period (March 1999) was increasing. However, the value of saving of March 1999 in Off-Java has slightly declined to Rp 2.76 million from Rp 3.06 million in previous years (March 1998) (Table 5.6).

There were 281 households in Java that had current saving (March 1999) with value about Rp 1.57 million in average. Meanwhile 416 households in Off-Java were recorded that also have saving in the same period with value about Rp 2.76 million. In addition, 192 households and 174 households in Java had saving with value about Rp 2.38 million and Rp 1.74 million in March 1998 and July 1997 in average respectively. In the same period, 346 and 287 households in Off-Java had also saving with value about Rp 3.06 million and Rp 2.24 million in average respectively.

Furthermore, number of households in Java having rice stock as part of their food security was increasing in the same period, that is from 120 households in July 1997 to 151 households in March 1998 and then increase 196 households in March 1999. Similarly, the number of households in Off-Java also increased from 383 households to 240 households and further increase to 492 households in the same period. On the other hand, only a few numbers of households had non-agricultural stocks as their savings in the same period.

Household saving, rice stock, and non-agricultural stock in the same period were also evaluated at different agroecosystem areas such as wet land, dry land, and coastal area. The detail information about those type of saving and stock in each agroecosystem area in Java, Off-Java or across regions are presented in Table 5.7 and Table 5.8.

In the wet land area, the number of households that had saving in Java in March 1998 was declining to 97 households from previous year (March 1997) but in March 1999 increased to 168 households for an average of about Rp1.75 million. In the same period, number of households that have saving in Off-Java continuously increasing, that is from 88 households in March 1997 to 116 households in March 1999 with an average value of Rp 2.28 million. On the other hand, number of households that having rice stock for food security reason increased either in Java, Off-Java, or across regions with average value of stock in March 1999 about Rp 720.33 thousand, Rp 960.4 thousand, and for an average of

Rp 875.04 thousand respectively. Non-agricultural product stock were not preferred by rural households in wet land area (Table 5.7).

Similar to the wet land area, the number of households that increased their security in term of saving and rice stock in dry land excluded estate crops have significantly increased during the economic crisis that started in July 1997. This happening in Java, Off-Java or across the regions. Among the income class and looking at the number of households that have saving and rice stock, then low income households is seem to be less responsive compared with others income classes. This is may be due to the limited resources available for these households either in Java or Off-Java ,so that they can not afford to form saving rice stock (Table 5.8).

Meanwhile, similar to previous agroecosystem, that more households stock their rice and increased saving in dry land included estate crops. In saving for example, the number for households in March 1999 that had saving is 151 that increased from 120 households of March 1998. In average, the value of saving also increased. On the other hand, the value of saving in average was the highest in coastal area compared to other agroecosystem that is, about Rp 6.54 million in March 1998 but slightly declined to about Rp 5.86 million in March 1999 (Table 5.9).

### **5.3. Circulated Saving (*Arisan*)**

Circulated saving (*Arisan*) is very common in rural Indonesia and during the crisis, its activity was significantly increasing. Under high uncertainty, *Arisan* become the best choice to increase the security either for food security or other need. *Arisan* can be in cash or in kind, it very much depend on culture and social circumstances of the community. In general, the value of *Arisan* in all income classes especially in cash has increased as household income increases (Table 5.10). Its average value in Java for example has increases from Rp 364.7 thousand in March 1997 to Rp 825.89 thousand in March 1999 and in Off-Java from Rp 540.02 thousand to Rp 703.4 thousand in the same period.

Similar figure was also found in agroecosystem area of wet land, dry land, and coastal. However, the value of *Arisan* in kind is mostly lower than in cash. This indicated that people need more cash for their security especially during the crisis. In wet land area for example, the value of *Arisan* in Java increased to Rp 641.49 thousand in March 1999 from about Rp 273.1 thousand in March 1997 and in Off-Java its value increased from Rp 424.36 thousand to Rp 552.81 thousand in average in the same period (Table 5.11). Detail information of this *Arisan* in other agroecosystems in dry land and coastal area is presented in Table 5.12 and Table 5.13. Similar to saving that discussed previously, *Arisan* during the



economic crisis in coastal area is the biggest among other ecosystems, that is about Rp 1.65 million in average in March 1999 that increased from about Rp 578.33 thousand in March 1997 (Table 5.13).

Table 5.6. Number and average saving of rural household by income class, PATANAS 1999 (Rp.000)

Type of Saving or other Investment	Java								Off Java							
	Low		Medium		High		Average		Low		Medium		High		Average	
	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean
1. Current Saving	22	327.25	212	1567.63	47	5856.45	281	2187.87	22	1444.32	303	1656.88	91	6752.48	416	2760.3
2. Saving in March 1998	10	522.30	149	1595.52	33	6456.76	192	2375.15	22	1596.36	238	2241.53	86	5716.47	346	3064.2
3. Saving in July 1997	12	883.08	134	1614.57	28	2720.54	174	1742.10	16	2023.13	196	1665.33	75	3797.25	287	2242.4
4. Rice Stock in March 1999	22	198.55	153	550.39	21	1636.29	196	627.24	80	517.84	371	751.97	41	1733.56	492	795.7
5. Rice Stock in March 1998	17	196.44	119	600.27	15	1812.80	151	675.26	73	481.08	330	699.95	37	1587.53	440	738.3
6. Rice Stock in July 1997	15	149.90	95	325.90	10	1268.45	120	382.45	66	370.45	286	725.39	31	824.68	383	672.3
7. Non Agr. Prod. Stock in March 99	0	.	9	502.00	1	300.00	10	481.80	3	414.17	26	800.25	5	128.00	34	667.3
8. Non Agr. Prod. Stock in March 98	0	.	3	2950.00	1	240.00	4	2272.50	0	.	10	947.88	2	300.00	12	839.9
9. Non Agr. Prod. Stock in July 97	0	.	0	.	1	180.00	1	180.00	0	.	4	1438.70	3	688.33	7	1117.1

Table 5.6. Number and average saving of rural household by income class , PATANAS 1999 (Rp.000)  
(continued).

Type of Saving or other Investment	Java and Off-Java							
	Low		Medium		High		Average	
	n	mean	n	mean	n	mean	n	mean
1. Current Saving	57	797.89	505	1653.67	135	6536.99	697	2529.52
2. Saving in March 1998	34	1010.68	383	1979.32	121	5981.85	538	2818.3
3. Saving in July 1997	33	1417.61	326	1616.65	102	3655.73	461	2053.56
4. Rice Stock in March 1999	90	418.28	536	692.38	62	1704.24	688	747.71
5. Rice Stock in March 1998	77	366.46	460	685.59	54	1541.05	591	722.17
6. Rice Stock in July 1997	70	303.08	386	624.77	47	872.17	503	603.12
7. Non Agr. Prod. Stock in March 99	2	650	35	716.77	7	160	44	625.16
8. Non Agr. Prod. Stock in March 98	1	50	12	1523.23	3	280	16	1198.05
9. Non Agr. Prod. Stock in July 97	0	.	4	1438.7	4	561.25	8	999.98

Table 5.7. Number and average saving of rural household by income class in wet land villages, PATANAS 1999 (Rp.000)

Type of Saving or other Investment	Java								Off Java							
	Low		Medium		High		Average		Low		Medium		High		Average	
	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean
1. Current Saving	17	339.09	129	1460.40	22	4501.14	168	1745.12	8	2111.88	96	1756.85	12	6627.08	116	2285.2
2. Saving in March 1998	5	595.00	78	1273.87	14	2556.07	97	1423.94	8	1708.75	81	2777.89	12	10727.58	101	3637.7
3. Saving in July 1997	7	452.79	81	794.27	12	1614.58	100	868.81	5	3090.00	73	1825.26	10	4882.50	88	2244.5
4. Rice Stock in March 1999	13	178.81	98	707.70	12	1410.17	123	720.33	46	643.26	165	856.36	12	3606.04	223	960.4
5. Rice Stock in March 1998	8	155.25	67	855.30	8	2340.25	83	930.95	43	517.64	144	762.99	11	3549.95	198	864.5
6. Rice Stock in July 1997	6	69.42	48	400.11	4	2007.38	58	476.75	43	392.45	128	611.05	7	1587.86	178	596.7
7. Non Agr. Prod. Stock in March 99	0	.	3	110.00	0	.	3	110.00	2	21.25	10	640.90	1	250.00	13	515.5
8. Non Agr. Prod. Stock in March 98	0	.	1	50.00	0	.	1	50.00	0	.	4	541.25	1	450.00	5	523.0
9. Non Agr. Prod. Stock in July 97	0	.	0	.	0	.	0	.	0	.	1	1000.00	1	450.00	2	725.0

Table 5.7. Number and average saving of rural household by income class in wet land villages, PATANAS 1999 (Rp.000) (continued).

Type of Saving or other Investment	Java and Off-Java							
	Low		Medium		High		Average	
	n	mean	n	mean	n	mean	n	mean
1. Current Saving	36	853.04	219	1610.43	29	6029.83	284	1965.7
2. Saving in March 1998	12	1027.5	161	1924.04	25	7337.24	198	2553.19
3. Saving in July 1997	14	1026.39	153	1184.48	21	4228.81	188	1512.76
4. Rice Stock in March 1999	50	543.94	273	789.12	23	2614.63	346	875.04
5. Rice Stock in March 1998	41	420.62	219	797.77	21	2690.07	281	884.16
6. Rice Stock in July 1997	39	352.94	181	541.38	16	1381.38	236	567.19
7. Non Agr. Prod. Stock in March 99	1	100	14	477.25	1	250	16	439.47
8. Non Agr. Prod. Stock in March 98	1	50	4	541.25	1	450	6	444.17
9. Non Agr. Prod. Stock in July 97	0	.	1	1000	1	450	2	725

Table 5.8. Number and average saving of rural household by income class in dry land (excluded estate) villages, PATANAS 1999 (Rp.000)

Type of Saving or other Investment	Java								Off Java							
	Low		Medium		High		Average		Low		Medium		High		Average	
	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean
1. Current Saving	4	203.00	57	1160.50	16	2731.25	77	1437.15	7	1600.00	113	1706.55	29	6246.03	149	2585.1
2. Saving in March 1998	4	406.25	53	1604.46	13	5211.54	70	2205.88	8	1393.75	89	2324.17	28	4904.04	125	2842.5
3. Saving in July 1997	4	356.88	44	2283.34	12	2985.83	60	2295.41	7	1145.71	61	1524.51	25	4014.76	93	2165.4
4. Rice Stock in March 1999	9	227.06	53	259.05	9	1937.78	71	467.79	14	299.07	130	781.82	16	717.42	160	733.1
5. Rice Stock in March 1998	9	233.06	50	260.04	7	1210.00	66	357.11	14	240.71	117	757.37	16	893.67	147	723.0
6. Rice Stock in July 1997	9	203.56	46	244.67	6	775.83	61	290.85	10	150.40	102	1062.27	13	677.02	125	949.3
7. Non Agr. Prod. Stock in March 99	0	.	6	698.00	1	300.00	7	641.14	1	1200.00	12	1167.08	3	96.67	16	968.4
8. Non Agr. Prod. Stock in March 98	0	.	2	4400.00	1	240.00	3	3013.33	0	.	4	1825.00	1	150.00	5	1490.0
9. Non Agr. Prod. Stock in July 97	0	.	0	.	1	180.00	1	180.00	0	.	2	2375.00	2	807.50	4	1591.3

Table 5.8. Number and average saving of rural household by income class in dry land (excluded estate) villages, PATANAS 1999 (Rp.000) (continued).

Type of Saving or other Investment	Java and Off-Java							
	Low		Medium		High		Average	
	n	mean	n	mean	n	mean	n	mean
1. Current Saving	13	901.31	170	1482.05	43	5399.3	226	2193.96
2. Saving in March 1998	14	970.71	140	2018.09	41	5209.83	195	2613.98
3. Saving in July 1997	14	779.39	103	1885.51	36	3721.92	153	2216.4
4. Rice Stock in March 1999	25	253.92	181	637.03	25	1154.55	231	651.58
5. Rice Stock in March 1998	25	232.47	166	621.96	22	945.17	213	609.63
6. Rice Stock in July 1997	23	191.37	144	826.08	19	686.38	186	733.33
7. Non Agr. Prod. Stock in March 99	1	1200	18	1010.72	4	147.5	23	868.83
8. Non Agr. Prod. Stock in March 98	0	.	6	2683.33	2	195	8	2061.25
9. Non Agr. Prod. Stock in July 97	0	.	2	2375	3	598.33	5	1309

Table 5.9. Number and average saving of rural household by income class in dry land (included estate) and coastal villages, PATANAS 1999 (Rp.000)

Type of Saving or other Investment	Dry land (estate crops) – Off Java								Coastal – Java							
	Low		Medium		High		Average		Low		Medium		High		Average	
	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean	n	mean
1. Current Saving	7	525.71	94	1495.07	50	7076.32	151	3298.23	1	623.00	26	2992.23	9	14725.33	36	5859.69
2. Saving in March 1998	6	1716.67	68	1494.46	46	4903.74	120	2812.46	1	623.00	18	2963.00	6	18256.33	25	6539.80
3. Saving in July 1997	4	2225.00	62	1615.56	40	3390.00	106	2308.16	1	6000.00	9	5727.78	4	5242.50	14	5608.57
4. Rice Stock in March 1999	20	382.51	76	474.31	13	1255.76	109	550.67	0	.	2	562.50	0	.	2	562.50
5. Rice Stock in March 1998	16	593.13	69	471.03	10	539.05	95	498.75	0	.	2	562.50	0	.	2	562.50
6. Rice Stock in July 1997	13	466.92	56	373.12	11	513.52	80	407.67	0	.	1	500.00	0	.	1	500.00
7. Non Agr. Prod. Stock in March 99	0	.	4	98.15	1	100.00	5	98.52	0	.	0	.	0	.	0	.
8. Non Agr. Prod. Stock in March 98	0	.	2	6.90	0	.	2	6.90	0	.	0	.	0	.	0	.
9. Non Agr. Prod. Stock in July 97	0	.	1	4.80	0	.	1	4.80	0	.	0	.	0	.	0	.

Table 5.10. Value of circulated saving or *Arisan* (cash and in kind) before and after Crisis (Rp.000), PATANAS 1999

	Period	Java				Off Java				Java and Off Java			
		Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
CASH	March98-March99	110.77	801.65	1220.56	825.89	141.07	600.72	1127.84	628.95	125.75	672.12	1198.59	703.4
	March97-March98	171.27	341.78	983	417.06	135.13	566.78	1065.8	607.38	151.49	472.91	1044.22	535.22
	March96-March97	122.67	270.52	916.9	364.7	133.35	644.81	942.96	644.58	139.14	484.22	953.28	540.02
	Average	134.18	516.35	1068.76	575.19	137.25	600.38	1053.93	625.87	137.29	559.62	1079.25	606.75
IN KIND	March 98- March 99	.	99.74	1256	430.1	233.33	1385.12	150	1161.76	159.35	708.56	2662.5	869.1
	March97-March98	.	74.33	239	115.5	213.33	996	.	839.47	181	577.53	2000	587.65
	March96-March97	.	48	117.5	67.86	255	967.7	25	785.54	171	569.93	812.5	534.35
	Average	.	80.16	717.13	255.88	231.25	1158.36	87.5	963.29	169.34	633.66	2039.29	700.27

Table 5.11. Value of circulated saving *Arisan* (cash and in kind) before and after Crisis in wet land villages (Rp.000), PATANAS 1999

	Period	Java				Off Java				Java and Off Java			
		Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
CASH	March98-March99	65.45	734.93	322.9	641.49	82.5	525.41	320.38	434.34	83.28	645.08	288.59	552.81
	March97-March98	129.33	274.72	414.07	280.47	79.83	685.44	237.5	548.56	116.63	428.43	300.22	384.32
	March96-March97	97.71	254.83	459.73	273.1	91.21	892.29	243.75	692.17	103.53	479.97	280.13	424.36
	Average	95.11	456.99	391.3	425.22	83.81	656.69	275.72	528.27	98.54	533.66	290.09	466.26
IN KIND	March 98-March 99	.	103.49	174.67	121.28	233.33	880.54	.	759.19	159.35	389.78	4000	485.8
	March97-March98	.	76	239	122.57	213.33	200.25	.	203.82	181	170.47	.	172.22
	March96-March97	.	43.5	117.5	68.17	255	162.83	25	168	171	125.73	25	128.07
	Average	.	82.52	176.71	108.9	231.25	519.48	25	441.69	169.34	263.37	2012.5	305.3

Table 5.12. Value of *Arisan* (cash and in kind) before and after Crisis in dry land (non estate crops) (Rp.000), PATANAS 1999

	Period	Java				Off Java				Java and Off Java			
		Low	Medium	High	Average	Low	Medium	High	Average	Low	Medium	High	Average
CASH	March98-March99	600	372.2	2203.83	1032.06	326	633	1122.66	699.89	302.86	602.38	1444.74	755.25
	March97-March98	600	420.25	2212	985.38	417.5	323.71	902.88	445.32	372	338.5	1231.74	535.33
	March96-March97	300	393.14	1931.8	977.77	327.5	253.86	596.21	351.7	292	271.08	1065.47	492.03
	Average	500	393.44	2115.33	1001.53	350.8	447.09	898.89	534.68	320	440.49	1265.31	619.03
IN KIND	March 98-March 99	.	66	.	66	.	3025	.	3025	.	2541.5	2000	2433.2
	March97-March98	.	66	.	66	.	2587.5	.	2587.5	.	2104	2000	2083.2
	March96-March97	.	66	.	66	.	2175	.	2175	.	1791.5	1600	1753.2
	Average	.	66	.	66	.	2595.83	.	2595.83	.	2145.67	1866.67	2089.87

Table 5.13. Value of circulated saving (cash and in kind) before and after Crisis in dry land (estate crops) and coastal (Rp.000), PATANAS 1999

	Period	Dry land (estate crops) – Off Java				Coastal - Java			
		Low	Medium	High	Average	Low	Medium	High	Average
CASH	March98-March99	140.55	649.33	1345.93	753.42	120	1358.67	2727.25	1652.91
	March97-March98	101.78	609.77	1318.93	728.25	120	746.65	1887.5	925.59
	March96-March97	99.5	647.35	1221.28	736.33	120	340.71	2700	578.33
	Average	116.36	635.62	1299.28	740.12	120	993.46	2466.77	1251.78
IN KIND	March 98-March 99	.	.	150	150	.	.	4500	4500
	March97-March98	.	.	.	.	.	.	.	.
	March96-March97	.	.	.	.	.	.	.	.
	Average	.	.	150	150	.	.	4500	4500

#### 5.4. Household Lending and Borrowing

Two lending and borrowing system that developed among households at the PATANAS villages, that are regular and non-regular. Lending and borrowing are usually in cash and the borrower comprised of: family, neighbor, landowner, trader, hard labor, and employee, etc. Lender is also grouped based on income class, that is low, medium and high income households. Information of lending and borrowing either regular or non-regular are presented in Table 5.14 and Table 5.15.

Most of the money lender in rural Java lend money to their family and neighbor, there are 42 households lend money to family that comprised of 4 regular and 37 non-regular lending with average value about Rp 20.66 million and Rp 1.36 million respectively. At least 13 households were also lend money to their neighbor and all are non-regular lending with an average of Rp 2.66 million. Most of the lender lend their money to the middle and high income groups (Table 5.14).

Similarly, most lender likely prefer to lend their money to family or at least 70 lender in Off-Java households were recorded. At most 5 households regularly lend their money to family and 67 households non regular lender with value about Rp 3.39 million and 1.05 million in average respectively. Since the total only 70 households, there must be 2 households were doing both, that is regular and non-regular lending. On the other hand, 4 households and 28 households were regularly and non-regularly lender for a total of 32 households respectively and lend their money to neighbor. The amount of these lending were about Rp 1.16 million and 1.20 million for regular and non-regular lending system respectively. In addition, only a few number of households that lend their money to land owner, that is 2 regular lender and 10 non-regular lender (Table 5.14).

Furthermore, the total number of households become regular lender, non-regular lender across the region were recorded that is, 9 households and 4 households regularly lend their money to family and neighbor respectively. Meanwhile, 104 households and 41 households non-regularly lend money to family and neighbor with average cash about Rp11.07 million and Rp 1.16 million respectively. In addition, 2 regular lender and 16 non-regular lender were recorded to lend money to land owner for an average value of Rp 1.52 million and Rp 1.63 million respectively. On the other hand, 13 lender also lend money to trader with value about 2.29 Rp million in average (Table 15 continue).

Among rural households at PATANAS villages either in Java or Off-Java, there were also found formal and informal borrower. Within each classification is further grouped into regular and regular borrower. In Java for example, there were 2 households and 13



households become formal-regular and formal-non-regular borrower with value of about Rp 3.50 million and Rp 4.19 million in average respectively. In addition, 84 informal-regular borrower and 192 informal-non-regular borrower were also found in rural Java with value about Rp 4.79 million and Rp 1.51 million in average per households respectively (Table 5.15). However, most of the informal borrower in Java are belong to meddle income class or a total of 225 households, while number of low and high income are 22 and 28 households respectively.

Furthermore, most of the formal borrower in Off-Java are non-regular borrower, that is 49 households and only 6 households are formal-regular borrower with average value of about Rp 2.97 million and Rp 1.67 million. Meanwhile, within the informal scheme, the non-regular borrower has found to the dominant borrower, that were 368 households and only 46 households are regular borrower, with amount of about Rp 1.18 million and Rp 3.77 million in average respectively. Since the total of informal borrower (regular = 46 HH and non-regular = 368 HH) only 400 households, there must be at least 14 households as regular borrower and at the same time they are also non-regular borrower. By income class, most of the borrower are belong to middle income either formal or informal scheme, that are 276 households and 36 households respectively.

## **5.5. Credit**

Households at PATANAS villages in Java or in Off-Java can be a creditor or debtor in the credit scheme. The discussion is focused in these two aspects. Many reasons are raised for the usage of having credit from creditor. There are at most 15 usage of credit were recorded either households as creditor or debtor. The detail information of credit and its usage is presented in Table 5.16 and Table 5.17.

In average, at least there are four dominant usage of having credit by PATANAS households such as: production input, non-agricultural input, consumption and other either in Java, Off-Java or across regions. Most of households that asking for credit are belong to the low and middle income groups for above mentioned usage.

In Java for example, there were 291 PATANAS households asking for credit and at least 70 households used credit for food consumption or about 24.74% of the total households. Other usage are for agricultural input and non-agricultural input or about 19.24 % and 14.43% of the total households respectively. Among income classes, middle income households were the most frequent looking for credit, there were 235 households got credit. Out of 235 households in this income class, 70 households use credit for food consumption

(29.79%) followed by households that asking credit for agricultural and non-agricultural inputs or about 16.60% and 11.06% of the total households respectively.

Meanwhile, in Off-Java, there were 350 households in middle income class out of 458 households that have had credit for various purposes. Most of households in Off-Java were looking for credit to be used for agricultural inputs or at least 189 households across income classes. Other dominant usage of credit were consumption, education, and non-agricultural input that have been asked by 61 households, 29 households, and 27 households or about 13.32%, 6.33% and 5.90% of the total households respectively (Table 5.16).

Between two regions, number of households that asking credit for food in Java is slightly higher compared with Off-Java that were 72 households and 61 households respectively. On the other hand, number of households looking for credit for agricultural input in Off -Java were significantly higher than in Java or at least 189 households and 56 households respectively. These two figures indirectly indicated that in Off-Java on-farm credit was not meet the farmers demand compared with Java, so that they try to look for other alternative of credit scheme. On the other food security in Off-Java was slightly better than in Java, higher income of rural households in Off-Java is one among other factors that made them more secure in food stocks.

Rural households at PATANAS villages to some extent they also provided credit for other households either among respondents or households outside respondents. Secondary information were collected regarding the reason of debtor asking credit from the PATANAS respondents. The information is then presented in Table 5.17.

There were 73 rural households at PATANAS villages in Java and 142 households in Off-Java that provided credit to other households. Secondary information collected from creditor that the debtor mostly asking for credit for agricultural inputs, non-agricultural inputs, food consumption, and other both in Java and Off-Java. About 21.92% of the total households in Java and about 23.24% in Off-Java in average have had credit for agricultural inputs respectively. Other usage of credit such as social donation, religious activities, rural facilities construction etc. were quite highly demanded by rural households, that is about 31.51% of the total debtor in Java and 27.46% in Off-Java respectively.

In contrast with PATANAS households as debtor, when they were the creditor, information regarding food consumption, households that asking credit for this usage in Off-Java is slightly higher than in Java, that is about 13.38% and 9.59% of total debtor or 19 households Java and 7 households in Java respectively. Since the number of households is very small, no clear implication can be made from these figures. But more interested is that,

there were 9 households or about 12.33% of debtor in rural Java asking credit for buying house equipment which is not productive asset. More detail information for other usage of credit in both region presented in Table 5.17.

## **5.6. Rural Household and Poverty**

It is hypothesized that the current economic crisis is having a major impact on both urban and rural areas. At the beginning, the impact of this crisis occurred in the urban areas and rapidly affected the rural sectors. In the urban areas, economic crisis has quickly increased the number of unemployment because of significant declining of job opportunities that mainly due to enterprise bankruptcy. The huge number of unemployment are rural labor that migrate to urban areas, so that a significant pressure unemployment is then in rural areas which has to absorb emerged workers from urban areas.

It was usual phenomena that migration of rural people to urban occurred chronically. They are circular and or commuters and especially for young people. Major parts of the migrants are household member of landless labor and small farmers. Attractive economic activities were opportunities in informal sectors such as vendor, housekeepers, and some of them employed in factories (with low payment). Usually, they remit parts of their income to their family in the rural.

Theoretically, economic contraction in the urban areas due to economic crisis diminished jobs and opportunities. In short run the remittance may be decreased, while in the long run, its imply that large amount of unemployment migrate back to the rural sectors. At the same time since domestic exchange rates fell down, agricultural inputs, output prices, and prices of all consumption goods and services increased simultaneously. The changes affected both production and consumption side in the rural area. In the production side, agriculture sectors especially estate crops and other agriculture export commodities gained more benefit from the crisis.

It was different impact of the economic crisis in the urban area and the rural area, because of the differences in economic structure. Urban sectors were more sensitive to the turbulence of exchange rate because of the greater dependencies on imported input goods. To some extents rural households were more resistant to the crisis than urban households since they are mostly depend upon domestic resources. From the field survey results can be seen variability of the impact of economic crisis to the rural households. Many households experienced in increasing welfare, while others declined especially households with no exported commodity oriented income sources. Better off households were among

large land owner's farmers in estate crops and coastal areas, while the worse off households were landless labors and small owners especially in wet land areas as well as dry land area excluded estate crops. Fortunately there are institutions that responsible in coping the crisis in the rural areas. Such institutions were poverty sharing mechanism as stated by Clifford Gerrts. In line with modernization the institutions likely degenerate, though until now such institutions still being exists. On production aspects, generally the mechanism relates to the farm activities.

Empirically, poverty is not new evidence for the rural households. Since many years ago most of them have been being the poor. Due to this manner, recent economic crisis may be not dramatic evidence, so there is no special strategy for coping itself. It implied that coped the crisis rather difficult to be identified.

### **5.7. Strategy for Coping the Crisis**

There were two types of programs and strategy in coping the impact of economic crisis. First, social safety net program developed by government. Second, informal strategy namely strategy for coping the crisis developed by households themselves. Implementation of the program is approached by price subsidy of staple food especially rice for the poor. For example, the market price of rice is about Rp 2,800 – Rp 3,200/Kg, while price of subsidized rice is only Rp 1,000/Kg. The distribution of the subsidized rice was conducted simultaneously by government agents and non-government organizations (NGO's).

At the field level, due to difficulties in delineating and identifying the targeted groups, then not only the poor got the rice but also upper layer (see per capita consumption structure in Chapter 4). In terms of the informal strategy, the poor households developed some strategy approaches simultaneously such as: (1) changed food consumption and goods to the lower quality, (2) substituted rice by other sources of staple food, and (3) decreased per capita food consumption.

Table 5.14. Household lending by income class and region, PATANAS 1999 (Rp 000).

Borrower	Type	Java								Off Java							
		Low		Medium		High		Average		Low		Medium		High		Average	
		n	mean	n	mean	N	mean	n	mean	n	mean	n	mean	n	mean	n	mean
1. Family	Regular	0	.	2	325	2	41000	4	20662.5	0	.	3	5071.67	2	875	5	3393
	Non Regular	3	376.67	19	1360.79	15	1552.67	37	1358.78	6	506.54	51	1101.91	10	1087.5	67	1046.44
	Total	3	376.67	21	1262.14	17	6193.53	41	3242.07	6	506.54	52	1373.31	12	1052.08	70	1243.95
2. Neighbor	Regular	.	.	0	.	0	.	0	.	0	.	3	1270	1	2250	4	1515
	Non Regular	.	.	7	2525	6	2808.33	13	2655.77	2	170	22	545.73	4	5037.5	28	1160.57
	Total	.	.	7	2525	6	2808.33	13	2655.77	2	170	25	632.64	5	4480	32	1204.88
3. Land Owner	Regular	.	.	0	.	0	.	0	.	.	.	1	40	1	400	2	220
	Non Regular	.	.	2	8500	4	458.75	6	3139.17	.	.	8	341.88	2	1450	10	563.5
	Total	.	.	2	8500	4	458.75	6	3139.17	.	.	9	308.33	3	1100	12	506.25
4. Trader	Regular	0	.	0	.	0	.	0	.	.	.	1	110	0	.	1	110
	Non Regular	1	14000	3	3733.33	3	846.67	7	3962.86	.	.	4	357.5	1	500	5	386
	Total	1	14000	3	3733.33	3	846.67	7	3962.86	.	.	5	308	1	500	6	340
5. Labor	Regular	.	.	0	.	0	.	0	.	.	.	0	.	.	.	0	.
	Non Regular	.	.	3	4000	2	1375	5	2950	.	.	3	400	.	.	3	400
	Total	.	.	3	4000	2	1375	5	2950	.	.	3	400	.	.	3	400
6. Employee	Regular	.	.	0	.	.	.	0	.	.	.	0	.	.	.	0	.
	Non Regular	.	.	1	5000	.	.	1	5000	.	.	3	800	.	.	3	800
	Total	.	.	1	5000	.	.	1	5000	.	.	3	800	.	.	3	800

Table 5.14. Household lending by income class and region, PATANAS 1999 (Rp 000)  
(Continued).

Borrower	Type	Java and Off-Java							
		Low		Medium		High		Average	
		n	mean	n	mean	n	mean	n	mean
1. Family	Regular	0	.	4	216.25	5	19750	9	11068.33
	Non Regular	10	537.43	70	1127.82	24	1502.71	104	1157.56
	Total	10	537.43	73	1093.32	28	4814.82	111	1982
2. Neighbor	Regular	0	.	3	1270	1	2250	4	1515
	Non Regular	2	170	28	1388.61	11	2527.27	41	1634.66
	Total	2	170	31	1377.13	12	2504.17	45	1624.02
3. Land Owner	Regular	.	.	1	40	1	400	2	220
	Non Regular	.	.	10	2018.5	6	714.17	16	1529.38
	Total	.	.	11	1838.64	7	669.29	18	1383.89
4. Trader	Regular	0	.	1	110	0	.	1	110
	Non Regular	1	14000	8	1885	3	196.67	12	2472.5
	Total	1	14000	9	1687.78	3	196.67	13	2290.77
5. Labor	Regular	.	.	0	.	0	.	0	.
	Non Regular	.	.	7	2271.43	1	50	8	1993.75
	Total	.	.	7	2271.43	1	50	8	1993.75
6. Employee	Regular	.	.	0	.	0	.	0	.
	Non Regular	.	.	3	2133.33	1	1000	4	1850
	Total	.	.	3	2133.33	1	1000	4	1850

Table 5.15. Household borrowing by income class and region, PATANAS 1999 (Rp 000).

Region	Income Class		Formal			Informal		
			Regular	Non Regular	Total	Regular	Non Regular	Total
Java	Low	n	.	.	.	5	17	22
		mean	.	.	.	36100	455.41	8556.45
	Medium	n	2	7	8	73	153	225
		mean	3500	4250	4593.75	1374.13	1411.23	1405.46
	High	n	0	6	6	6	22	28
		mean	.	4116.67	4116.67	20212.5	3042.05	6721.43
Average	n	2	13	14	84	192	275	
	mean	3500	4188.46	4389.29	4786.74	1513.46	2518.81	
Off Java	Low	n	0	3	3	5	71	73
		mean	.	220	220	159	468.23	466.29
	Medium	n	5	40	41	36	276	303
		mean	999.1	2985.13	3034.16	1007.28	937.94	974.04
	High	n	1	6	6	5	21	24
		mean	5000	4166.67	5000	27300	6704.29	11553.75
Average	n	6	49	50	46	368	400	
	mean	1665.92	2960.52	3101.22	3772.98	1176.37	1516.16	
Java and Off Java	Low	n	0	1	1	22	59	78
		mean	.	260	260	8622.05	359.72	2703.95
	Medium	n	7	48	50	99	461	550
		mean	1713.64	3086.57	3203.02	1313.72	1087.94	1148.36
	High	n	1	13	13	9	40	47
		mean	5000	3930.77	4315.38	28433.33	5018.15	9715.44
Average	n	8	62	64	130	560	675	
	mean	2124.44	3217.99	3382.98	4428.03	1291.95	1924.64	

Table 5.16. Utilization of credit by PATANAS households as debtor (borrower) by income class and region, PATANAS 1999.

Usage	Java								Off Java							
	Low		Medium		High		Average		Low		Medium		High		Average	
	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent
Input production	9	40.91	39	16.6	8	23.53	56	19.24	27	34.18	157	44.86	5	17.24	189	41.27
Machinery	.	.	2	0.85	1	2.94	3	1.03	.	.	3	0.86	.	.	3	0.66
Buying Animal	1	4.55	8	3.4	3	8.82	12	4.12	2	2.53	6	1.71	2	6.9	10	2.18
Rent/Buying land	.	.	2	0.85	.	.	2	0.69	1	1.27	5	1.43	2	6.9	8	1.75
Non agric. Input	5	22.73	26	11.06	11	32.35	42	14.43	3	3.8	22	6.29	2	6.9	27	5.9
Non agric. equipment	.	.	7	2.98	.	.	7	2.41	1	1.27	4	1.14	1	3.45	6	1.31
Non agric. building	1	4.55	3	1.28	1	2.94	5	1.72	.	.	5	1.43	3	10.34	8	1.75
Consumption	1	4.55	70	29.79	1	2.94	72	24.74	20	25.32	40	11.43	1	3.45	61	13.32
Buying Household equipt.	1	4.55	9	3.83	2	5.88	12	4.12	.	.	2	0.57	.	.	2	0.44
Buying House	.	.	3	1.28	.	.	3	1.03	.	.	14	4	2	6.9	16	3.49
Buying Car	.	.	4	1.7	1	2.94	5	1.72	2	2.53	2	0.57	3	10.34	7	1.53
Education	.	.	14	5.96	2	5.88	16	5.5	6	7.59	21	6	2	6.9	29	6.33
Celebration	2	9.09	11	4.68	1	2.94	14	4.81	1	1.27	4	1.14	2	6.9	7	1.53
Moving	.	.	2	0.85	.	.	2	0.69	5	6.33	7	2	.	.	12	2.62
Others	2	9.09	35	14.89	3	8.82	40	13.75	11	13.92	58	16.57	4	13.79	73	15.94
All	22	100	235	100	34	100	29	100	79	100	350	100	29	100	458	100



Table 5.16. Utilization of credit by PATANAS households as debtor (borrower) by income class and region, PATANAS 1999 (Continued)

Usage	Java and Off Java							
	Low		Medium		High		Average	
	n	Percent	n	Percent	n	Percent	n	Percent
Input production	24	29.63	208	34.15	13	22.03	245	32.71
Machinery	.	.	5	0.82	1	1.69	6	0.8
Buying Animal	2	2.47	16	2.63	4	6.78	22	2.94
Rent/Buying land	.	.	8	1.31	2	3.39	10	1.34
Non agric. Input	10	12.35	49	8.05	10	16.95	69	9.21
Non agric. equipment	.	.	12	1.97	1	1.69	13	1.74
Non agric. building	2	2.47	7	1.15	4	6.78	13	1.74
Consumption	21	25.93	109	17.9	3	5.08	133	17.76
Buying Household eqpt.	1	1.23	11	1.81	2	3.39	14	1.87
Buying House	.	.	17	2.79	2	3.39	19	2.54
Buying Car	2	2.47	7	1.15	3	5.08	12	1.6
Education	6	7.41	35	5.75	4	6.78	45	6.01
Celebration	4	4.94	15	2.46	2	3.39	21	2.8
Moving	2	2.47	12	1.97	.	.	14	1.87
Others	7	8.64	98	16.09	8	13.56	113	15.09
All	81	100	609	100	59	100	749	100

Table 5.17. Utilization of credit by debtor according to PATANAS households as creditor, by income class and region, PATANAS 1999.

Usage	Java								Off Java							
	Low		Medium		High		Average		Low		Medium		High		Average	
	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent	n	Percent
Input production	.	.	11	29.73	5	15.63	16	21.92	6	54.55	18	17.65	9	31.03	33	23.24
Buying Animal	.	.	.	.	.	.	.	.	.	.	5	4.9	.	.	5	3.52
Rent/Buying land	.	.	.	.	1	3.13	1	1.37	.	.	.	.	.	.	.	.
Non agric. Input	2	50	9	24.32	1	3.13	12	16.44	.	.	12	11.76	9	31.03	21	14.79
Non agric. equipment	.	.	2	5.41	.	.	2	2.74	.	.	3	2.94	.	.	3	2.11
Non agric. building	.	.	.	.	.	.	.	.	.	.	.	.	1	3.45	1	0.7
Consumption	1	25	5	13.51	1	3.13	7	9.59	3	27.27	13	12.75	3	10.34	19	13.38
Buying Household eqpt.	1	25	.	.	8	25	9	12.33	.	.	.	.	.	.	.	.
Buying House	.	.	.	.	1	3.13	1	1.37	.	.	3	2.94	.	.	3	2.11
Buying Car	.	.	.	.	.	.	.	.	.	.	1	0.98	.	.	1	0.7
Education	.	.	.	.	.	.	.	.	.	.	5	4.9	2	6.9	7	4.93
Celebration	.	.	2	5.41	.	.	2	2.74	.	.	2	1.96	2	6.9	4	2.82
Moving	.	.	.	.	.	.	.	.	1	9.09	5	4.9	.	.	6	4.23
Others	.	.	8	21.62	15	46.88	23	31.51	1	9.09	35	34.31	3	10.34	39	27.46
All	4	100	37	100	32	100	73	100	11	100	102	100	29	100	142	100

Table 5.17. Utilization of credit by debtor (borrower) according to PATANAS households as creditor, by income class and region, PATANAS 1999 (continued).

Usage	Java							
	Low		Medium		High		Average	
	n	Percent	n	Percent	n	Percent	n	Percent
Input production	4	28.57	27	19.29	18	29.51	49	22.79
Buying Animal	.	.	5	3.57	.	.	5	2.33
Rent/Buying land	.	.	1	0.71	.	.	1	0.47
Non agric. Input	2	14.29	21	15	10	16.39	33	15.35
Non agric. equipment	1	7.14	4	2.86	.	.	5	2.33
Non agric. building	.	.	.	.	1	1.64	1	0.47
Consumption	3	21.43	20	14.29	3	4.92	26	12.09
Buying Household eqpt.	1	7.14	6	4.29	2	3.28	9	4.19
Buying House	.	.	3	2.14	1	1.64	4	1.86
Buying Car	.	.	1	0.71	.	.	1	0.47
Education	.	.	5	3.57	2	3.28	7	3.26
Celebration	.	.	4	2.86	2	3.28	6	2.79
Moving	1	7.14	3	2.14	2	3.28	6	2.79
Others	2	14.29	40	28.57	20	32.79	62	28.84
All	14	100	140	100	61	100	215	100

## VI. CONCLUSION AND POLICY IMPLICATION

Discussion has focused on the dynamic of rural household's economy before and during the economic crisis. The discussion includes land occupation, household's labor structure, technology, income, expenditure, consumption structure, remittance, credit and household's strategy coping with the crisis provided some insight and signal about the impact of economic crisis on the rural development. Conclusion and its policy implication for government's rural development program are described bellow.

### 6.1. Conclusion

#### Land Occupation

- (1) Land occupation in rural areas includes land ownership and land holding structure. In general, land holding in all agroecosystem areas is higher compared to land ownership. Land holding is depending on farming intensity along the year, which is indicated by cropping index (CI). In the case land ownership, land certificate is the legal document that could prove someone owns a peace of land. Structural changes of land ownership and land holding has occurred as an impact of economic crisis. This change provided some insight or signal that need to be bare in mind for any rural development program related to land resource management.
- (2) *First*, number of landless households at wetland and coastal areas in Java has substantially increased during the economic crisis compared to that number of 1995. At wetland area for example, its percentage increased from 48.6% in 1995 to 49.5% in 1999, while at coastal area the percentage increased from 59.5% to 65.8%. *Second*, land ownership distribution gap at both wetland and coastal areas in Java as well as in Off-Java has significantly increased. *Third*, comparison that was made between these two periods of data, the conclusion then is that during economic crisis the structure of land occupation has changed particularly percentage of landless and small land holding farmers (<0.25 ha) has significantly increased. However the trend and magnitude of this change is location specific. Gini index that shows land distribution more skewed during economic crisis except dryland\_B area with index declined from 0.5152 to 0.4858 respectively also supports this conclusion.

- (3) In average, size of land ownership at wetland area in Java has declined from 0.232 ha in 1995 to 0.190 ha in 1999; while in Off-Java the size remain unchanged. Reversibly, at other agroecosystem areas size of land ownership substantially increased in the same period. This figure indicates that land fragmentation increased at wetland area, while at other agroecosystem area land accumulation is more dominant.
- (4) In average, size of rural household's land holding either in Java or in Off-Java is higher than land ownership and has increased during the economic crisis. The more intensive land cultivation in a year, the higher land holding size. In aggregate, average land holding size during economic crisis tend to increase at all agroecosystem areas. At wetland area in Java for example, land-holding size slightly increased from 0.379 ha in 1995 to 0.411 ha in 1999, while at dry land the size from 0.910 ha to 1.142 ha. In addition, land holding size increased to 1.134 ha in 1999 compared to that size of 1995, which is about 0.525 ha in average.
- (5) Meanwhile, the increase of land holding size at wetland in Off-Java even higher than in Java that is from about 1.121 ha in 1995 to 1.685 ha in 1999 in average. In addition, at dry land either food crops or estate crops base villages, land holding size has substantially increased from 1.424 ha and 1.348 ha in 1995 to 2.456 ha and 2.106 ha 1999 respectively.
- (6) The increasing trend of rural household's land holding size at all agroecosystem areas during the economic crisis indicated that the land value as well as its opportunity cost has significantly increased. Rural households cultivate their own land more intensive or add more land holding. They can increase cropping intensity, pawn-in, as sharecropper, rent-in, etc. for larger land holding. However, increasing of land holding not in line with production efficiency since there was no common trend of efficiency across agroecosystem areas.

### **Household Labor Allocation**

- (7) Households labor that allocated for agricultural work during the economic crisis especially in 1999 increased as size of land holding increases, which is higher in Java than in Off-Java or about 44.83% and 63.59% of the total household labor respectively. Compared to the figures of 1995, the share slightly declined in Java but substantially

increased in Off-Java. In wet area labor allocation during the period of 1995-1999 has significantly increased either in Java or Off-Java. In rice farming especially, household labor allocation for these on-farm activities in Java relatively small that is about 4.08% in 1995 then increased to 10.27% in 1999. On the other hand, labor allocation for non-agricultural work declined as land holding increases. Most of household labors in this sector are allocated for non-agricultural labor, non-agricultural entrepreneur. The above-mentioned fact indicated that the share of hired labor to the total labor for agricultural production in Java considerably higher compared to Off Java. On the other hand, the effective availability of family labor for agricultural production especially rice production in Java more and more limited including non-rice on-farm activities. This condition has pushed wage rate in rural area increases significantly that affect cost of production.

- (8) However, the percentage of labor allocation for agricultural and non-agricultural activities was not in line with the share of agricultural and non-agricultural income to the total rural household income especially in Java. This opposite trend is interesting that more family labor allocated to non-agricultural income not necessary give them more income with respect to the total household income. Among agroecosystem areas, household income at dry land excluded estate crops is the lowest compared with other areas. Most of households in this area are resource poor households and their life depends on non-rice farming.

### **Modern Input Use and Rice Cost of Production Structure**

- (9) Modern input use in rice farming is the most affected agricultural production technology due to price shock of inputs especially fertilizer. The application of TSP fertilizer almost half of the recommended rate of 150-200 kg/ha. On the other hand, Potassium (KCl) fertilizer almost none compared to recommendation of 100–150 kg/ha. Due to the technology shock and insect-pest attack in Off-Java, farmers found that their yield declined about 0.5 – 1.0 ton/ha
- (10) Meanwhile, rice production cost structure is then very much affected by rocketing price of fertilizer, which are about three times than before the economic crisis. The increased price of fertilizer also influences wages and other inputs prices. Labor cost component

was the highest among other components followed by fertilizer cost. In addition, land rent per season in Java is higher than in Off-Java, therefore, On-farm rice revenue excluded land rent significantly higher in Java than in Off-Java during the period of 1995-1999.

### **Households Income Structure**

- (11) Household income increased as size of land holding increases as well as rice on-farm income. Contribution of agricultural income is very dominant compared to non-agricultural income in all regions. However, the share of agricultural income to the total household's income in Java is lower than in Off-Java. In rice eq., the agricultural income substantially increased in both Java and Off-Java but the share to total household's income slightly declined in the period of 1995-1999.
- (12) Non-agricultural income is declining as size of household's land holding increases. Meanwhile, share of non-agricultural income in Java is significantly higher than in Off-Java. Among non-agricultural source of income, non-agricultural labor income and entrepreneur are the leading sector. This indicates that during the crisis rural households have diversified their source of income.
- (13) Among agroecosystem, household's income at dry land excluded estate crops is the lowest, and increasing as land holding increases. The share of agricultural income to the total household's income is the highest compared to other agroecosystem areas. Most of the agricultural income in this area was generated from non-rice farming either in Java or in Off-Java in the same period.

### **Expenditure and Food Consumption**

- (14) In aggregate, total household's expenditure has substantially increased during the period of 1997-1999. In eq., rice, the expenditure increased from about 2208 kg/year in 1997 to 2640 kg/year in 1999. Food expenditure and non-food expenditure increased as household's income increases. However food expenditure is higher than non-food expenditure in both Java and Off-Java or more than 60% of the total expenditure. Household food expenditure in Java is slightly higher than in Off-Java. Within food expenditure, household expenditure for carbohydrate is the highest among food item.

- (15) Total rural household expenditure at wet land area in Java relatively stable in equivalent rice per year that is about 2115 kg/year in 1997 and 2124 kg/year in 1999. However total household expenditure in Off-Java has significantly increased during the crisis that is about 2398 kg rice/year in 1997 increased to about 3745 kg rice/year in 1999. Household's expenditure at dry land included estate crops in Off-Java also substantially increased during the economic crisis but the structure was not significantly changed. Similarly, food expenditure still the dominant component of the household's expenditure structure with share more than 60% of total expenditure.
- (16) Meanwhile, per capita food consumption increased as rural household income increases except high-income group in Off-Java. However, per capita rice consumption declined as income increases. Rice consumption is comprised of subsidized rice and market rice. Subsidized rice consumption can be used as indicator to evaluate food security problem in certain area. Per capita rice consumption in Java is lower than Off-Java that is about 90.8 kg/year and 116.7 kg/year respectively. Per capita subsidized rice consumption was very small or about 5 kg per capita per year in average.
- (17) However, per capita subsidized rice consumption at dry land area excluded estate crops is the highest among agroecosystem areas, which are about 9.1 kg/year in Java and 9.3 kg/year in Off-Java. This indicated that this area experienced the highest price shock so that government then distributed more subsidized rice. Meanwhile, per capita consumption of this rice at coastal area was the lowest compared to other agroecosystem areas that is about 2.2 kg/year

### **Remittance, Credit, Saving and other Investment**

- (19) Participation rate of households receiving remittance substantially increased during the period of July 1997 to March 1999 that indicated before and during the economic crisis. Similarly, the value of remittance was also significantly increased in the same period. In average, number of households and value of remittance at wetland area was the highest among agroecosystem areas particularly in Java. Among income class, high-income class in Java and medium-income class in Off-Java had received the highest value of remittance in average. Most of remittance that came in to the villages were from other district either from the same province or other provinces.



- (20) Most of credit requested by rural households in PATANAS villages is allocated for agricultural inputs. Other households that also asking for credit are allocated for food consumption and non-agricultural inputs. This indicated that farming credit is still the dominant type of credit in rural area. Most of this credit is for rice farming in term of fertilizer, seed, pesticide etc. However, late distribution of all credit components is always becomes the usual problems due to administrative constraints.
- (21) In term of rice stocks, there is a common reaction of PATANAS rural households either in Java or in Off-Java. They tend to increase their rice stock for two reasons, that is: (1) food security as an anticipation of price shock, and (2) waiting for better price especially for large farmers. In March 1997 for example, there were 120 households in Java has partially stock their rice than in March 1999 the number increasing to 196 households or an increase about 63%. Meanwhile, PATANAS households in Off-Java is seem to be more responsive in anticipating the economic crisis, there were 240 households in March 1997 stock rice, then in March 1999 the number increased to 492 or about 105% increase.
- (22) Similar to rice stocks, the numbers of households have current saving (March 1999) increased significantly from March 1997. In Java for example, 174 households had had saving in March 1997 and in March 1999 the number increased 281 households or about 61% increase. Meanwhile in Off-Java the number increased from 287 households to 416 households in the same period or about 44% increase.
- (23) Another type of saving, that its activity is also significantly increasing is circulated saving or *Arisan*. This is not popular among low-income households but also high-income class households. Most of this type of saving is for food security and social-cultural needs. The value of *Arisan* has increased as income increases in all income class.

## 6.2. Policy Implication

- (24) Structural change in land occupation in rural area either in land ownership or land holding implies there was very strong push factor due to economic crisis. However, increasing absolute number and percentage of landless households especially at wetland and coastal area in Java need more concrete government action program.

Broadening off-farm and non-farm job opportunities should be one of the priority programs.

- (25) Increasing trend of land fragmentation at wetland area implies that government needs to set policy option that can diversify source of household's income especially off-farm and non-farm income. Sprinkle heavy investment in urban area to rural area could directly provide job opportunity to the rural households labor force. Any effort to consolidate farm management in the perspective of integrated agribusiness system should take into account this condition. To avoid sudden unemployment, combination of land-base and non-land-base agriculture in a crops-livestock systems perspective should be considered as one of alternatives that appropriate for rural household's welfare improvement.
- (26) More post-harvest activity and rural based agro-industry should be developed in order to provide more job opportunity to the extensive rural labor supply especially in Java with high occupation of landless households. Primary agricultural production seems to be capable to absorb agricultural labor in Off-Java, however the efficiency must be increased to reduce cost of production.
- (27) Technology break through is needed to solve the fertilizer problem that has significantly reduced the rice yield. Alternative fertilizer must be found to substitute the conventional fertilizer. It will be suitable if locally produced input is given higher priority in technology development. However, proper test of various alternative fertilizers is needed to avoid cheating.
- (28) Income structure implies that agricultural sector is still considerably important sector for the welfare of rural household in Java as well as Off Java. In addition, agricultural income is still become the main source of rural household's income in all agroecosystem areas. Despite of one of the main income source, rice is still the main staple food crop for food security. Further implication of this condition is that, government must treat rice as one of the protective commodity, since Indonesia food security could not depend from a very limited world market of rice.
- (29) With population more than two hundred million and still grow at about 1.6 percent per year, Indonesia is one of the largest rice consumers in the world. Therefore, its rice

consumption and production performance will have significant effects on the world rice market. Increased rice demand from Indonesia in the world market will increase the world market price of rice.

- (30) The implication is that our ability to sustain rice self sufficiency primarily depends upon internal rather than external factors. However, we have to build the capacity to produce rice in more efficient manner, without harming our rice self-sufficiency goal. Nevertheless, It is not impossible for Indonesia to be a net rice exporter in the future as long as we can increase our capacity to produce tradable quality of rice, taking into account all possible negative external factors.
- (31) In relation to this issue, a stimulating question then is, *can Indonesia moves from a rice self-sufficient country to an efficient and competitive rice exporting country* in the near future? It is important to anticipate this possibility from now on, considering (1) that large amounts of resources have been invested to agriculture, (2) world trade liberalization will change relative price and, in turn, change the flows of tradable commodities.
- (32) On the other hand, various constraints and problems need to be solved such as: (1) heavy reliance on irrigated areas, (2) increasing cost for irrigation infrastructure, (3) scarcity of land suitable for expanding irrigated areas, both in Java and off-Java, (4) conversion of highly productive irrigated land in Java for others purposes, (5) lack of technological breakthrough in production system, (6) increasing total food demand due to population pressure, (7) increasing demand for better quality rice as a result of increasing household income, and (8) large percentages of post-production losses.
- (33) Government should provide considerable protection to the national rice production. Import tariff should be gradually imposed to the rice import to protect domestic rice production from unstable of world rice market. Low price policy in the past has put rice farmer in a disadvantageous position.

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Annex 4.1 Income structure of rural household by size of land holding, PATANAS 1995 and 1999.

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
A. Agriculture	600.79	1027.11	1755.52	3407.80	1688.31	662.00	2216.00	3810.00	4741.00	2643.00
Share (%)	26.13	62.33	70.45	79.11	62.78	21.82	58.50	75.82	72.63	60.45
1. On-Farm	200.69	820.20	1609.69	3291.06	1468.51	311.00	1947.00	3557.00	4552.00	2376.00
Share (%)	8.73	49.77	64.60	76.40	54.61	10.25	51.39	70.77	69.75	54.35
2. Off-Farm	400.10	206.91	145.83	116.74	219.79	351.00	269.00	254.00	188.00	267.00
Share (%)	17.40	12.56	5.85	2.71	8.17	11.57	7.11	5.05	2.89	6.10
B. Non Agriculture	1698.87	620.72	736.33	899.71	1000.81	2370.00	1572.00	1215.00	1786.00	1729.00
Share (%)	73.87	37.67	29.55	20.89	37.22	78.18	41.50	24.18	27.37	39.55
1. Non Agric. Entrepreneur	697.25	218.23	261.10	392.32	397.42	745.00	686.00	441.00	947.00	719.00
Share (%)	30.32	13.24	10.48	9.11	14.78	24.56	18.12	8.78	14.51	16.44
2. Non Agric. Labor	521.68	151.06	217.29	160.62	266.92	652.00	350.00	247.00	288.00	384.00
Share (%)	22.69	9.17	8.72	3.73	9.93	21.50	9.23	4.91	4.42	8.78
3. Professional	340.30	163.97	210.20	237.78	239.95	398.00	169.00	208.00	280.00	244.00
Share (%)	14.80	9.95	8.44	5.52	8.92	13.11	4.47	4.14	4.28	5.57
4. Others	139.64	87.46	47.74	108.99	96.52	573.00	366.00	315.00	271.00	381.00
Share (%)	6.07	5.31	1.92	2.53	3.59	18.89	9.65	6.27	4.15	8.71
Total Income	2299.66	1647.82	2491.85	4307.51	2689.12	3031.00	3788.00	5025.00	6527.00	4372.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.2. Income structure of rural household by size of land holding in Java, PATANAS 1995 and 1999.

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
A. Agriculture	700.87	687.24	1824.42	4846.93	1817.98	669.00	2351.00	3778.00	7440.00	2417.00
Share (%)	31.94	38.83	66.98	87.84	61.13	26.57	53.07	73.79	89.63	58.06
1. On-Farm	234.40	426.80	1663.33	4730.00	1509.04	354.00	2086.00	3652.00	7386.00	2176.00
Share (%)	10.68	24.12	61.07	85.72	50.74	14.06	47.09	71.33	88.98	52.28
2. Off-Farm	466.47	260.44	161.09	116.93	308.94	315.00	265.00	126.00	54.00	241.00
Share (%)	21.25	14.72	5.91	2.12	10.39	12.51	5.97	2.46	0.64	5.78
B. Non Agriculture	1493.81	1082.55	899.42	671.11	1156.06	1848.00	2079.00	1341.00	861.00	1746.00
Share (%)	68.07	61.17	33.02	12.16	38.87	73.43	46.93	26.21	10.37	41.94
1. Non Agric. Entrepreneur	620.68	237.06	338.91	318.97	462.33	732.00	892.00	856.00	533.00	789.00
Share (%)	28.28	13.39	12.44	5.78	15.55	29.09	20.14	16.71	6.42	18.95
2. Non Agric. Labor	529.34	201.14	264.22	160.00	365.16	622.00	410.00	178.00	124.00	426.00
Share (%)	24.12	11.37	9.70	2.90	12.28	24.72	9.25	3.47	1.49	10.24
3. Professional	233.95	291.10	234.24	109.86	212.82	198.00	217.00	52.00	11.00	162.00
Share (%)	10.66	16.45	8.60	1.99	7.16	7.88	4.89	1.02	0.13	3.88
4. Others	109.84	353.25	62.05	82.28	115.75	291.00	559.00	256.00	193.00	367.00
Share (%)	5.00	19.96	2.28	1.49	3.89	11.56	12.61	5.00	2.33	8.81
Total Income	2194.67	1769.79	2723.84	5518.04	2974.04	2517.00	4430.00	5119.00	8301.00	4163.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.3. Income structure of rural household by size of land holding in Off Java, PATANAS 1995 and 1999.

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
A. Agriculture	366.19	1083.05	1723.02	2721.19	1609.65	641.00	1999.00	3559.00	4593.00	2780.00
Share (%)	14.38	66.54	72.32	72.95	63.97	14.35	60.46	72.23	68.16	61.80
1. On-Farm	121.68	884.95	1584.39	2604.54	1443.92	191.00	1707.00	3327.00	4348.00	2498.00
Share (%)	4.78	54.37	66.50	69.83	57.38	4.27	51.64	67.50	64.52	55.52
2. Off-Farm	244.51	198.10	138.63	116.65	165.72	450.00	292.00	233.00	246.00	283.00
Share (%)	9.60	12.17	5.82	3.13	6.59	10.08	8.82	4.72	3.64	6.28
B. Non Agriculture	2179.59	544.70	659.40	1008.78	906.64	3828.00	1307.00	1369.00	2146.00	1719.00
Share (%)	85.62	33.46	27.68	27.05	36.03	85.65	39.54	27.77	31.84	38.20
1. Non Agric. Entrepreneur	876.76	215.13	224.40	427.32	358.04	779.00	521.00	479.00	1174.00	677.00
Share (%)	34.44	13.22	9.42	11.46	14.23	17.42	15.75	9.72	17.42	15.04
2. Non Agric. Labor	503.72	142.82	195.15	160.91	207.33	735.00	336.00	292.00	324.00	358.00
Share (%)	19.79	8.77	8.19	4.31	8.24	16.44	10.17	5.92	4.81	7.96
3. Professional	589.61	143.04	198.86	298.81	256.41	954.00	163.00	253.00	363.00	293.00
Share (%)	23.16	8.79	8.35	8.01	10.19	21.35	4.94	5.13	5.38	6.52
4. Others	209.50	43.71	40.99	121.74	84.86	1360.00	287.00	341.00	283.00	389.00
Share (%)	8.23	2.69	1.72	3.26	3.37	30.43	8.68	6.93	4.20	8.66
Total Income	2545.78	1627.75	2382.42	3729.97	2516.29	4469.00	3306.00	4928.00	6739.00	4499.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.4. Income structure of rural household by size of land holding at wet land villages, PATANAS 1995 and 1999.

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	437.82	701.31	1379.51	2894.46	1203.94	703.00	2204.00	3189.00	5298.00	2245.00
Share (%)	21.51	47.21	58.33	78.00	52.03	27.67	55.98	77.97	72.26	56.88
a. Rice Farming	0.00	229.04	449.39	1237.11	402.57	0.00	461.00	1506.00	2515.00	680.00
Share (%)	0.00	15.42	19.00	33.34	17.40	0.00	11.70	36.83	34.31	17.22
b. Non Rice Farming	118.72	326.59	785.91	1537.31	603.10	475.00	1506.00	1507.00	2440.00	1326.00
Share (%)	5.83	21.98	33.23	41.43	26.07	18.69	38.26	36.84	33.28	33.60
c. Agricultural Labor	319.10	145.68	144.21	120.04	198.27	228.00	237.00	176.00	343.00	239.00
Share (%)	15.67	9.81	6.10	3.23	8.57	8.98	6.02	4.30	4.67	6.07
2. Non Agriculture	1598.09	784.28	985.51	816.15	1109.83	1839.00	1733.00	901.00	2034.00	1702.00
Share (%)	78.50	52.79	41.67	22.00	47.97	72.33	44.02	22.03	27.74	43.12
A. Non Agric. Entrepreneur	573.09	186.55	355.56	235.03	364.95	476.00	595.00	259.00	823.00	550.00
Share (%)	28.15	12.56	15.03	6.33	15.77	18.71	15.12	6.34	11.22	13.93
B. Non Agric. Labor	600.46	213.19	260.71	203.24	351.86	796.00	405.00	231.00	589.00	513.00
Share (%)	29.49	14.35	11.02	5.48	15.21	31.29	10.28	5.64	8.03	13.00
C. Professional	357.32	222.50	286.11	245.11	286.95	221.00	247.00	183.00	288.00	237.00
Share (%)	17.55	14.98	12.10	6.61	12.40	8.70	6.28	4.48	3.93	6.01
D. Others	67.22	162.04	83.13	132.77	106.08	341.00	486.00	228.00	334.00	400.00
Share (%)	3.30	10.91	3.51	3.58	4.58	13.40	12.34	5.57	4.55	10.13
Total Income	2035.90	1485.59	2365.03	3710.61	2313.77	2542.00	3937.00	4090.00	7331.00	3947.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00



Annex 4.5. Income structure of rural household by size of land holding at wet land villages in Java, PATANAS 1995 and 1999.

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	437.53	498.74	1137.48	3295.36	1048.02	769.00	2247.00	3898.00	9281.00	2075.00
Share (%)	21.67	25.66	45.43	80.98	42.96	30.87	47.74	71.02	80.98	50.79
a. Rice Farming	0.00	28.92	245.72	897.37	198.55	0.00	346.00	1431.00	6303.00	557.00
Share (%)	0.00	1.49	9.81	22.05	8.14	0.00	7.35	26.07	55.00	13.64
b. Non Rice Farming	83.13	248.61	746.34	2223.40	584.75	567.00	1626.00	2358.00	2918.00	1304.00
Share (%)	4.12	12.79	29.81	54.64	23.97	22.74	34.55	42.96	25.46	31.93
c. Agricultural Labor	354.40	221.22	145.42	174.59	264.72	203.00	275.00	109.00	59.00	213.00
Share (%)	17.56	11.38	5.81	4.29	10.85	8.14	5.84	1.98	0.52	5.22
2. Non Agriculture	1581.27	1444.88	1366.06	773.82	1391.35	1722.00	2460.00	1591.00	2180.00	2010.00
Share (%)	78.33	74.34	54.56	19.02	57.04	69.13	52.26	28.98	19.02	49.21
A. Non Agric. Entrepreneur	552.43	243.06	483.55	56.49	424.12	427.00	895.00	733.00	1172.00	678.00
Share (%)	27.36	12.51	19.31	1.39	17.39	17.12	19.01	13.35	10.23	16.59
B. Non Agric. Labor	639.80	288.11	372.00	289.83	485.51	816.00	527.00	299.00	354.00	618.00
Share (%)	31.69	14.82	14.86	7.12	19.90	32.73	11.20	5.46	3.09	15.12
C. Professional	310.36	416.99	406.67	253.26	334.88	165.00	282.00	123.00	4.00	199.00
Share (%)	15.37	21.45	16.24	6.22	13.73	6.63	6.00	2.23	0.03	4.88
D. Others	78.68	496.72	103.84	174.24	146.84	308.00	756.00	436.00	650.00	512.00
Share (%)	3.90	25.56	4.15	4.28	6.02	12.34	16.05	7.94	5.67	12.54
Total Income	2018.79	1943.62	2503.55	4069.18	2439.38	2492.00	4707.00	5488.00	11461.00	4085.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.6. Income structure of rural household by size of land holding at wet land villages in Off Java, PATANAS 1995 and 1999.

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	438.81	767.64	1602.93	2621.85	1364.80	418.00	1883.00	2688.00	5680.00	2421.00
Share (%)	20.96	57.47	71.65	75.63	62.49	15.12	62.56	67.34	75.94	63.63
a. Rice Farming	0.00	294.57	637.40	1468.13	613.06	0.00	433.00	1117.00	2450.00	806.00
Share (%)	0.00	22.05	28.49	42.35	28.07	0.00	14.37	27.97	32.75	21.18
b. Non Rice Farming	238.56	352.12	822.44	1070.77	622.03	79.00	1230.00	1363.00	2753.00	1349.00
Share (%)	11.40	26.36	36.76	30.89	28.48	2.86	40.86	34.14	36.80	35.45
c. Agricultural Labor	200.25	120.94	143.09	82.94	129.72	339.00	220.00	209.00	477.00	266.00
Share (%)	9.57	9.05	6.40	2.39	5.94	12.26	7.32	5.23	6.38	7.00
2. Non Agriculture	1654.71	567.98	634.23	844.94	819.38	2344.00	1127.00	1304.00	1800.00	1384.00
Share (%)	79.04	42.53	28.35	24.37	37.51	84.88	37.44	32.66	24.06	36.37
A. Non Agric. Entrepreneur	642.64	168.05	237.41	356.44	303.91	688.00	300.00	527.00	526.00	418.00
Share (%)	30.70	12.58	10.61	10.28	13.91	24.89	9.97	13.21	7.04	10.98
B. Non Agric. Labor	467.97	188.66	157.99	144.36	213.96	709.00	324.00	320.00	624.00	405.00
Share (%)	22.35	14.13	7.06	4.16	9.80	25.66	10.76	8.02	8.34	10.65
C. Professional	515.45	158.82	174.82	239.57	237.49	464.00	225.00	254.00	374.00	277.00
Share (%)	24.62	11.89	7.81	6.91	10.87	16.79	7.47	6.37	5.00	7.27
D. Others	28.65	52.45	64.01	104.57	64.02	484.00	278.00	202.00	276.00	284.00
Share (%)	1.37	3.93	2.86	3.02	2.93	17.53	9.24	5.07	3.69	7.47
Total Income	2093.52	1335.62	2237.16	3466.79	2184.17	2762.00	3010.00	3992.00	7480.00	3805.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.7. Income structure of rural household by size of land holding at dry land\_A villages, PATANAS 1995 and 1999 <sup>1)</sup>

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
<b>1. Agriculture</b>	975.41	1536.21	2117.01	4436.17	2572.61	780.00	2320.00	4031.00	5046.00	3152.00
Share (%)	52.38	73.18	81.90	85.13	79.89	30.77	67.14	76.11	73.65	69.25
<b>a. Rice Farming</b>	0.00	86.82	153.73	318.37	169.98	0.00	126.00	107.00	583.00	233.00
Share (%)	0.00	4.14	5.95	6.11	5.28	0.00	3.64	2.01	8.51	5.12
<b>b. Non Rice Farming</b>	229.84	1146.64	1790.63	4040.15	2151.37	84.00	1879.00	3568.00	4362.00	2616.00
Share (%)	12.34	54.62	69.27	77.53	66.81	3.32	54.39	67.37	63.67	57.47
<b>c. Agricultural Labor</b>	745.58	302.75	172.65	77.65	251.27	696.00	315.00	356.00	100.00	303.00
Share (%)	40.04	14.42	6.68	1.49	7.80	27.44	9.12	6.72	1.47	6.65
<b>2. Non Agriculture</b>	886.76	562.97	468.01	775.10	647.43	1755.00	1135.00	1265.00	1805.00	1400.00
Share (%)	47.62	26.82	18.10	14.87	20.11	69.23	32.86	23.89	26.35	30.75
<b>A. Non Agric. Entrepreneur</b>	420.02	243.41	122.26	507.03	316.74	473.00	670.00	439.00	1161.00	747.00
Share (%)	22.56	11.60	4.73	9.73	9.84	18.67	19.38	8.28	16.94	16.41
<b>B. Non Agric. Labor</b>	235.28	141.75	233.71	89.54	164.96	791.00	215.00	286.00	179.00	276.00
Share (%)	12.63	6.75	9.04	1.72	5.12	31.21	6.23	5.41	2.62	6.07
<b>C. Professional</b>	179.57	155.70	85.83	129.15	129.52	271.00	71.00	228.00	256.00	165.00
Share (%)	9.64	7.42	3.32	2.48	4.02	10.67	2.05	4.30	3.73	3.62
<b>D. Others</b>	51.88	22.12	26.21	49.38	36.22	220.00	178.00	313.00	209.00	211.00
Share (%)	2.79	1.05	1.01	0.95	1.12	8.68	5.15	5.90	3.05	4.63
<b>Total Income</b>	1862.16	2099.20	2585.03	5211.27	3220.05	2535.00	3455.00	5297.00	6850.00	4552.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_A = dry land with dominant commodity excluded estate crops.

Annex 4.8. Income structure of rural household by size of land holding at dry land\_A villages in Java, PATANAS 1995 and 1999 <sup>1)</sup>

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
<b>1. Agriculture</b>	1173.58	1155.70	1989.47	5911.41	3240.96	436.00	2613.00	3798.00	5914.00	3166.00
Share (%)	53.27	83.45	87.98	90.58	84.50	27.79	65.79	76.52	90.93	73.52
<b>a. Rice Farming</b>	0.00	0.00	10.22	0.00	2.82	0.00	0.00	0.00	18.00	3.00
Share (%)	0.00	0.00	0.45	0.00	0.07	0.00	0.00	0.00	0.28	0.07
<b>b. Non Rice Farming</b>	274.90	781.15	1789.72	5832.07	2896.34	37.00	2356.00	3654.00	5820.00	2947.00
Share (%)	12.48	56.41	79.15	89.36	75.52	2.35	59.32	73.63	89.47	68.44
<b>c. Agricultural Labor</b>	898.68	374.55	189.53	79.34	341.81	399.00	257.00	144.00	76.00	216.00
Share (%)	40.79	27.05	8.38	1.22	8.91	25.43	6.47	2.89	1.17	5.01
<b>2. Non Agriculture</b>	1029.50	229.18	271.82	614.99	594.42	1133.00	1359.00	1165.00	590.00	1140.00
Share (%)	46.73	16.55	12.02	9.42	15.50	72.21	34.21	23.48	9.07	26.48
<b>A. Non Agric. Entrepreneur</b>	423.83	207.41	143.93	513.75	364.12	304.00	908.00	954.00	397.00	744.00
Share (%)	19.24	14.98	6.36	7.87	9.49	19.37	22.85	19.23	6.11	17.29
<b>B. Non Agric. Labor</b>	273.08	0.00	122.40	72.47	131.33	277.00	214.00	85.00	73.00	162.00
Share (%)	12.40	0.00	5.41	1.11	3.42	17.64	5.39	1.72	1.13	3.76
<b>C. Professional</b>	259.81	0.00	0.00	9.34	69.64	391.00	106.00	0.00	19.00	104.00
Share (%)	11.79	0.00	0.00	0.14	1.82	24.89	2.68	0.00	0.29	2.43
<b>D. Others</b>	72.78	21.77	5.49	19.43	29.33	162.00	124.00	125.00	101.00	127.00
Share (%)	3.30	1.57	0.24	0.30	0.76	10.30	3.13	2.53	1.55	2.94
<b>Total Income</b>	2203.07	1384.87	2261.30	6526.40	3835.38	1569.00	3972.00	4963.00	6504.00	4306.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_A = dry land with dominant commodity excluded estate crops.

Annex 4.9 Income structure of rural household by size of land holding at dry land\_A villages in Off Java, PATANAS 1995 and 1999 <sup>1)</sup>

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
<b>1. Agriculture</b>	531.90	1590.06	2183.39	3255.98	2180.09	1214.00	1947.00	3583.00	5114.00	3144.00
Share (%)	48.39	72.27	79.30	78.28	76.26	32.34	68.34	71.28	68.66	66.94
<b>a. Rice Farming</b>	0.00	99.11	228.41	573.07	268.15	0.00	235.00	215.00	741.00	368.00
Share (%)	0.00	4.50	8.30	13.78	9.38	0.00	8.25	4.27	9.95	7.84
<b>b. Non Rice Farming</b>	128.98	1198.36	1791.11	2606.61	1713.84	144.00	1302.00	3037.00	4260.00	2422.00
Share (%)	11.73	54.46	65.05	62.67	59.95	3.83	45.69	60.42	57.20	51.56
<b>c. Agricultural Labor</b>	402.92	292.59	163.87	76.30	198.10	1070.00	410.00	331.00	113.00	354.00
Share (%)	36.66	13.30	5.95	1.83	6.93	28.50	14.40	6.58	1.52	7.54
<b>2. Non Agriculture</b>	567.29	610.21	570.11	903.18	678.57	2540.00	902.00	1444.00	2334.00	1553.00
Share (%)	51.61	27.73	20.70	21.72	23.74	67.66	31.66	28.72	31.34	33.06
<b>A. Non Agric. Entrepreneur</b>	411.50	248.50	110.98	501.65	288.91	687.00	346.00	379.00	1567.00	749.00
Share (%)	37.44	11.29	4.03	12.06	10.11	18.30	12.14	7.55	21.03	15.94
<b>B. Non Agric. Labor</b>	150.68	161.81	291.64	103.20	184.71	1440.00	244.00	382.00	203.00	343.00
Share (%)	13.71	7.35	10.59	2.48	6.46	38.36	8.58	7.59	2.73	7.30
<b>C. Professional</b>	0.00	177.73	130.50	224.99	164.69	119.00	95.00	322.00	305.00	200.00
Share (%)	0.00	8.08	4.74	5.41	5.76	3.18	3.33	6.41	4.10	4.27
<b>D. Others</b>	5.11	22.17	36.99	73.34	40.26	294.00	217.00	361.00	259.00	260.00
Share (%)	0.46	1.01	1.34	1.76	1.41	7.82	7.61	7.17	3.48	5.54
<b>Total Income</b>	1099.18	2200.28	2753.50	4159.16	2858.66	3753.00	2850.00	5027.00	7448.00	4697.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_A = dry land with dominant commodity excluded estate crops.

Annex 4.10. Income structure of rural household by size of land holding at dry land\_B villages (Off Java), PATANAS 1995 and 1999 <sup>1)</sup>

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
<b>1. Agriculture</b>	230.84	907.30	1321.34	2301.79	1308.88	427.00	2179.00	4168.00	3235.00	2777.00
Share (%)	6.49	66.76	62.89	65.11	52.21	5.96	53.64	75.29	60.57	56.00
<b>a. Rice Farming</b>	0.00	108.03	127.82	236.61	133.30	0.00	187.00	256.00	453.00	246.00
Share (%)	0.00	7.95	6.08	6.69	5.32	0.00	4.62	4.62	8.48	4.97
<b>b. Non Rice Farming</b>	8.61	613.75	1086.59	1885.05	1006.51	368.00	1727.00	3724.00	2502.00	2298.00
Share (%)	0.24	45.16	51.71	53.32	40.15	5.13	42.52	67.26	46.84	46.36
<b>c. Agricultural Labor</b>	222.24	185.52	106.93	180.14	169.08	59.00	264.00	189.00	281.00	232.00
Share (%)	6.25	13.65	5.09	5.10	6.74	0.83	6.50	3.41	5.26	4.68
<b>2. Non Agriculture</b>	3325.33	451.74	779.79	1233.46	1197.92	6737.00	1883.00	1368.00	2106.00	2181.00
Share (%)	93.51	33.24	37.11	34.89	47.79	94.04	46.36	24.71	39.43	44.00
<b>A. Non Agric. Entrepreneur</b>	1285.26	232.43	337.89	413.16	471.91	968.00	931.00	506.00	1046.00	849.00
Share (%)	36.14	17.10	16.08	11.69	18.83	13.51	22.93	9.15	19.59	17.12
<b>B. Non Agric. Labor</b>	680.00	72.99	121.47	227.25	222.08	165.00	434.00	215.00	303.00	329.00
Share (%)	19.12	5.37	5.78	6.43	8.86	2.31	10.70	3.89	5.68	6.63
<b>C. Professional</b>	897.60	90.02	295.20	413.11	358.63	2265.00	156.00	208.00	432.00	395.00
Share (%)	25.24	6.62	14.05	11.69	14.31	31.62	3.83	3.77	8.10	7.96
<b>D. Others</b>	462.47	56.30	25.23	179.94	145.30	3339.00	362.00	429.00	320.00	606.00
Share (%)	13.00	4.14	1.20	5.09	5.80	46.60	8.90	7.75	5.98	12.22
<b>Total Income</b>	3556.16	1359.04	2101.14	3535.25	2506.81	7164.00	4062.00	5536.00	5341.00	4958.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_B = dry land with dominant commodity excluded is estate crops.

Annex 4.11. Income structure of rural household by size of land holding at Coastal villages (Java), PATANAS 1995 and 1999.

Source Income	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
<b>1. Agriculture</b>	987.81	634.80	22345.64	6090.82	1653.24	542.00	639.00	632.00	9131.00	2070.00
Share (%)	38.26	57.08	99.54	98.83	52.37	17.85	18.70	40.79	96.71	49.90
<b>a. Rice Farming</b>	0.00	0.00	7.99	293.42	7.63	0.00	0.00	632.00	-9.00	14.00
Share (%)	0.00	0.00	0.04	4.76	0.24	0.00	0.00	40.79	-0.09	0.35
<b>b. Non Rice Farming</b>	545.96	634.80	22337.65	5797.40	1231.72	0.00	639.00	0.00	9140.00	1644.00
Share (%)	21.15	57.08	99.50	94.07	39.02	0.00	18.70	0.00	96.80	39.63
<b>c. Agricultural Labor</b>	441.85	0.00	0.00	0.00	413.88	542.00	0.00	0.00	0.00	412.00
Share (%)	17.12	0.00	0.00	0.00	13.11	17.85	0.00	0.00	0.00	9.92
<b>2. Non Agriculture</b>	1593.71	477.25	103.50	71.87	1503.32	2494.00	2779.00	917.00	311.00	2078.00
Share (%)	61.74	42.92	0.46	1.17	47.63	82.15	81.30	59.21	3.29	50.10
<b>A. Non Agric. Entrepreneur</b>	897.89	460.00	103.50	0.00	849.50	1668.00	421.00	731.00	276.00	1350.00
Share (%)	34.78	41.37	0.46	0.00	26.91	54.93	12.31	47.18	2.92	32.55
<b>B. Non Agric. Labor</b>	445.83	0.00	0.00	0.00	417.61	328.00	0.00	148.00	35.00	259.00
Share (%)	17.27	0.00	0.00	0.00	13.23	10.80	0.00	9.58	0.37	6.25
<b>C. Professional</b>	47.14	0.00	0.00	71.87	45.98	185.00	0.00	0.00	0.00	140.00
Share (%)	1.83	0.00	0.00	1.17	1.46	6.08	0.00	0.00	0.00	3.38
<b>D. Others</b>	202.85	17.25	0.00	0.00	190.23	314.00	2359.00	38.00	0.00	329.00
Share (%)	7.86	1.55	0.00	0.00	6.03	10.34	68.99	2.46	0.00	7.93
<b>Total Income</b>	2581.52	1112.04	22449.14	6162.70	3156.56	3036.00	3419.00	1549.00	9442.00	4148.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.12. Per capita income structure of rural household by size of land holding, PATANAS 1995 and 1999.

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
A. Agriculture	170.96	265.27	387.55	683.57	374.95	151	572.00	882.00	999.00	618.00
Share (%)	27.97	62.08	72.56	75.23	60.55	19.83	60.89	76.42	70.98	60.00
1. On-Farm	71.34	209.52	354.64	656.39	320.52	65	508.00	828.00	962.00	556.00
Share (%)	11.70	49.14	66.41	72.07	51.96	8.52	54.03	71.74	68.38	54.02
2. Off-Farm	99.62	55.75	32.91	27.18	54.43	86	65.00	54.00	37.00	62.00
Share (%)	16.27	12.95	6.15	3.16	8.59	11.31	6.86	4.68	2.59	5.98
B. Non Agriculture	451.98	164.52	147.02	207.76	246.06	609	368.00	272.00	408.00	412.00
Share (%)	72.03	37.92	27.44	24.77	39.45	80.17	39.11	23.58	29.02	40.00
1. Non Agric. Entrepreneur	191.11	57.86	52.34	98.70	101.46	199	159.00	102.00	219.00	172.00
Share (%)	30.57	13.44	9.76	11.44	16.19	26.17	16.94	8.86	15.56	16.69
2. Non Agric. Labor	127.96	39.87	43.64	30.73	61.59	164	77.00	53.00	63.00	88.00
Share (%)	20.59	9.23	8.12	3.61	9.73	21.64	8.15	4.62	4.50	8.59
3. Professional	83.43	43.27	39.28	51.14	54.73	90	37.00	39.00	57.00	52.00
Share (%)	13.08	9.99	7.37	6.38	9.00	11.82	3.92	3.35	4.08	5.06
4. Others	49.48	23.52	11.77	27.19	28.28	156	95.00	77.00	69.00	99.00
Share (%)	7.79	5.25	2.18	3.33	4.54	20.47	10.09	6.71	4.87	9.64
Total Income	622.94	429.79	534.58	891.33	621.00	760	940.00	1154.00	1407.00	1030.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100	100.00	100.00	100.00	100.00



Annex 4.13 Per capita income structure of rural household by size of land holding in Java, PATANAS 1995 and 1999.

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
A. Agriculture	203.88	175.83	388.59	995.08	408.47	149.00	624.00	1044.00	1609.00	602.00
Share (%)	34.00	37.54	69.60	85.00	58.33	23.05	56.31	76.61	88.83	58.14
1. On-Farm	87.56	107.89	352.36	966.98	332.22	70.00	556.00	1020.00	1599.00	543.00
Share (%)	14.60	23.04	63.11	82.60	47.44	10.88	50.23	74.81	88.25	52.45
2. Off-Farm	116.32	67.94	36.23	28.10	76.25	79.00	67.00	25.00	11.00	59.00
Share (%)	19.40	14.51	6.49	2.40	10.89	12.17	6.08	1.80	0.58	5.69
B. Non Agriculture	395.84	292.53	169.74	175.65	291.83	496.00	484.00	319.00	202.00	434.00
Share (%)	66.00	62.46	30.40	15.00	41.67	76.95	43.69	23.39	11.17	41.86
1. Non Agric. Entrepreneur	175.94	68.83	62.30	105.16	127.16	191.00	213.00	190.00	119.00	191.00
Share (%)	29.34	14.70	11.16	8.98	18.16	29.63	19.22	13.92	6.55	18.47
2. Non Agric. Labor	126.82	58.32	57.03	29.55	85.21	162.00	86.00	43.00	26.00	103.00
Share (%)	21.15	12.45	10.21	2.52	12.17	25.11	7.73	3.18	1.46	9.92
3. Professional	57.09	70.82	33.71	24.05	46.35	46.00	50.00	9.00	2.00	37.00
Share (%)	9.52	15.12	6.04	2.05	6.62	7.08	4.51	0.69	0.10	3.55
4. Others	35.99	94.56	16.70	16.89	33.11	97.00	135.00	76.00	55.00	102.00
Share (%)	6.00	20.19	2.99	1.44	4.73	15.01	12.20	5.60	3.05	9.88
Total Income	599.72	468.35	558.33	1170.73	700.30	645.00	1108.00	1363.00	1812.00	1036.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.14 Per capita income structure of rural household by size of land holding in Off Java, PATANAS 1995 and 1999.

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
A. Agriculture	93.78	279.99	387.06	534.95	354.61	156.00	493.00	819.00	924.00	627.00
Share (%)	13.84	66.12	73.96	70.57	61.90	14.46	61.28	72.40	66.25	61.14
1. On-Farm	33.31	226.25	355.71	508.21	313.42	49.00	425.00	767.00	878.00	564.00
Share (%)	4.92	53.43	67.97	67.04	54.71	4.58	52.82	67.83	62.92	54.98
2. Off-Farm	60.47	53.74	31.35	26.74	41.19	107.00	68.00	52.00	47.00	63.00
Share (%)	8.93	12.69	5.99	3.53	7.19	9.88	8.46	4.57	3.33	6.16
B. Non Agriculture	583.59	143.45	136.31	223.08	218.29	925.00	311.00	312.00	471.00	399.00
Share (%)	86.15	33.88	26.04	29.43	38.10	85.54	38.72	27.60	33.75	38.86
1. Non Agric. Entrepreneur	226.68	56.05	47.64	95.62	85.87	220.00	124.00	104.00	271.00	160.00
Share (%)	33.46	13.24	9.10	12.61	14.99	20.39	15.40	9.20	19.45	15.60
2. Non Agric. Labor	130.64	36.83	37.33	31.29	47.26	171.00	75.00	66.00	67.00	80.00
Share (%)	19.29	8.70	7.13	4.13	8.25	15.84	9.33	5.85	4.83	7.77
3. Professional	145.18	38.74	41.90	64.06	59.81	213.00	35.00	53.00	68.00	61.00
Share (%)	21.43	9.15	8.01	8.45	10.44	19.73	4.36	4.73	4.87	5.98
4. Others	81.09	11.83	9.44	32.11	25.35	320.00	77.00	88.00	64.00	97.00
Share (%)	11.97	2.79	1.80	4.24	4.42	29.59	9.62	7.79	4.58	9.50
Total Income	677.38	423.44	523.37	758.03	572.90	1081.00	804.00	1131.00	1395.00	1026.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.15 Per capita income structure of rural household by size of land holding at wet land villages, PATANAS 1995 and 1999.

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	112.04	176.85	312.63	668.65	283.82	156.00	559.00	759.00	1092.00	530.00
Share (%)	22.39	47.19	63.00	80.60	53.07	24.40	57.21	78.44	72.07	56.17
a. Rice Farming	0.00	56.25	93.26	263.57	86.93	0.00	125.00	418.00	544.00	170.00
Share (%)	0.00	15.01	18.79	31.77	16.25	0.00	12.78	43.17	35.89	18.02
b. Non Rice Farming	32.68	81.78	186.18	382.21	148.98	94.00	375.00	303.00	489.00	302.00
Share (%)	6.53	21.82	37.52	46.08	27.86	14.61	38.43	31.35	32.27	32.06
c. Agricultural Labor	79.36	38.82	33.19	22.86	47.92	63.00	59.00	38.00	59.00	58.00
Share (%)	15.86	10.36	6.69	2.76	8.96	9.79	6.00	3.92	3.91	6.10
2. Non Agriculture	388.36	197.93	183.64	160.90	250.96	485.00	418.00	209.00	423.00	413.00
Share (%)	77.61	52.81	37.01	19.40	46.93	75.60	42.79	21.56	27.93	43.83
A. Non Agric. Entrepreneur	138.35	48.46	64.90	47.52	82.18	128.00	145.00	61.00	163.00	133.00
Share (%)	27.65	12.93	13.08	5.73	15.37	19.94	14.80	6.31	10.75	14.06
B. Non Agric. Labor	142.49	56.34	56.41	38.04	81.56	192.00	93.00	58.00	122.00	119.00
Share (%)	28.48	15.03	11.37	4.59	15.25	30.00	9.48	5.98	8.06	12.66
C. Professional	86.04	52.87	40.16	46.33	59.70	49.00	54.00	31.00	57.00	50.00
Share (%)	17.19	14.11	8.09	5.58	11.16	7.61	5.56	3.22	3.78	5.35
D. Others	21.48	40.26	22.17	29.01	27.53	115.00	126.00	59.00	81.00	111.00
Share (%)	4.29	10.74	4.47	3.50	5.15	17.90	12.94	6.06	5.34	11.72
Total Income	500.40	374.78	496.26	829.54	534.79	641.00	977.00	967.00	1515.00	943.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.16 Per capita income structure of rural household by size of land holding at wet land villages in Java, PATANAS 1995 and 1999.

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	112.02	140.3	287.62	939.55	284	170.00	586.00	1086.00	2836.00	553.00
Share (%)	22.36	26.07	52.45	85.65	46.62	27.46	49.92	72.73	83.08	52.34
a. Rice Farming	0	8.35	55.64	270.15	55.67	0.00	90.00	489.00	1834.00	168.00
Share (%)	0.00	1.55	10.15	24.63	9.14	0.00	7.70	32.74	53.72	15.89
b. Non Rice Farming	22.76	68.69	195.79	634.98	162.39	112.00	424.00	570.00	990.00	327.00
Share (%)	4.54	12.76	35.70	57.89	26.66	17.99	36.06	38.15	29.02	30.94
c. Agricultural Labor	89.26	63.27	36.2	34.42	65.94	59.00	72.00	27.00	11.00	58.00
Share (%)	17.82	11.76	6.60	3.14	10.82	9.47	6.15	1.84	0.34	5.51
2. Non Agriculture	388.88	397.8	260.78	157.4	325.19	450.00	588.00	407.00	578.00	503.00
Share (%)	77.64	73.93	47.55	14.35	53.38	72.54	50.08	27.27	16.92	47.66
A. Non Agric. Entrepreneur	133.1	79.5	91	8.86	98.17	109.00	222.00	156.00	291.00	166.00
Share (%)	26.57	14.77	16.59	0.81	16.11	17.55	18.87	10.46	8.52	15.72
B. Non Agric. Labor	151.65	83.53	82.91	57.44	113.88	194.00	113.00	81.00	76.00	143.00
Share (%)	30.28	15.52	15.12	5.24	18.69	31.32	9.62	5.41	2.23	13.56
C. Professional	78.8	101.5	58.52	56.05	73.32	36.00	68.00	22.00	1.00	45.00
Share (%)	15.73	18.85	10.67	5.11	12.04	5.83	5.77	1.49	0.03	4.30
D. Others	25.33	133.3	28.35	35.05	39.82	109.00	186.00	148.00	210.00	148.00
Share (%)	5.06	24.78	5.17	3.20	6.54	17.64	15.82	9.91	6.14	14.03
Total Income	500.9	538.1	548.39	1096.9	609.19	621.00	1175.00	1493.00	3414.00	1056.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.17. Per capita income structure of rural household by size of land holding at wet land villages in Off Java, PATANAS 1995 and 1999.

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	112.12	188.81	335.71	484.43	283.64	96.00	449.00	574.00	946.00	506.00
Share (%)	22.48	58.76	74.91	74.79	61.93	13.15	62.04	66.39	75.23	61.22
a. Rice Farming	0.00	71.93	127.98	259.10	119.18	0.00	110.00	255.00	431.00	172.00
Share (%)	0.00	22.39	28.56	40.00	26.02	0.00	15.18	29.48	34.24	20.81
b. Non Rice Farming	66.09	86.07	177.31	210.33	135.14	16.00	288.00	274.00	437.00	277.00
Share (%)	13.25	26.79	39.57	32.47	29.50	2.17	39.79	31.68	34.72	33.53
c. Agricultural Labor	46.04	30.81	30.42	15.00	29.32	80.00	51.00	45.00	79.00	57.00
Share (%)	9.23	9.59	6.79	2.32	6.40	10.98	7.06	5.23	6.28	6.88
2. Non Agriculture	386.61	132.48	112.44	163.28	174.38	636.00	275.00	291.00	311.00	321.00
Share (%)	77.52	41.23	25.09	25.21	38.07	86.85	37.96	33.61	24.77	38.78
A. Non Agric. Entrepreneur	156.01	38.30	40.81	73.81	65.69	210.00	75.00	111.00	88.00	98.00
Share (%)	31.28	11.92	9.11	11.40	14.34	28.74	10.38	12.84	7.01	11.88
B. Non Agric. Labor	111.65	47.44	31.95	24.84	48.21	184.00	79.00	85.00	105.00	95.00
Share (%)	22.39	14.77	7.13	3.84	10.53	25.14	10.92	9.86	8.38	11.48
C. Professional	110.42	36.96	23.21	39.72	45.64	103.00	46.00	52.00	63.00	56.00
Share (%)	22.14	11.50	5.18	6.13	9.96	14.12	6.39	6.01	5.04	6.74
D. Others	8.53	9.78	16.47	24.91	14.84	138.00	74.00	42.00	55.00	72.00
Share (%)	1.71	3.04	3.68	3.85	3.24	18.86	10.28	4.90	4.34	8.69
Total Income	498.73	321.30	448.14	647.71	458.03	732.00	723.00	865.00	1257.00	827.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.18. Per capita income structure of rural household by size of land holding at Dry land\_A villages , PATANAS 1995 and 1999 <sup>1)</sup>

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	242.94	401.85	459.64	793.83	524.46	205.00	632.00	898.00	1028.00	734.00
Share (%)	53.83	71.91	82.65	81.56	77.39	27.86	71.48	78.62	72.17	69.72
a. Rice Farming	0.00	20.64	31.91	54.36	32.11	0.00	30.00	21.00	115.00	49.00
Share (%)	0.00	3.69	5.74	5.58	4.74	0.00	3.41	1.87	8.09	4.62
b. Non Rice Farming	69.39	300.03	390.49	719.64	431.57	32.00	521.00	807.00	893.00	614.00
Share (%)	15.38	53.69	70.22	73.94	63.68	4.34	58.95	70.63	62.69	58.24
c. Agricultural Labor	173.54	81.19	37.24	19.83	60.77	173.00	81.00	70.00	20.00	72.00
Share (%)	38.45	14.53	6.70	2.04	8.97	23.53	9.12	6.12	1.39	6.86
2. Non Agriculture	208.39	156.96	96.46	179.49	153.23	531.00	252.00	244.00	396.00	319.00
Share (%)	46.17	28.09	17.35	18.44	22.61	72.14	28.52	21.38	27.83	30.28
A. Non Agric. Entrepreneur	108.90	67.17	22.85	132.42	80.78	106.00	146.00	89.00	271.00	167.00
Share (%)	24.13	12.02	4.11	13.61	11.92	14.45	16.55	7.81	18.99	15.87
B. Non Agric. Labor	54.42	33.45	45.97	16.15	34.43	238.00	44.00	54.00	35.00	63.00
Share (%)	12.06	5.99	8.27	1.66	5.08	32.27	4.94	4.71	2.44	5.98
C. Professional	35.69	49.95	22.11	20.85	30.28	72.00	14.00	38.00	48.00	33.00
Share (%)	7.91	8.94	3.98	2.14	4.47	9.78	1.54	3.32	3.37	3.10
D. Others	9.37	6.39	5.53	10.06	7.74	115.00	48.00	63.00	43.00	56.00
Share (%)	2.08	1.14	0.99	1.03	1.14	15.63	5.47	5.53	3.03	5.33
Total Income	451.34	558.82	556.11	973.32	677.69	736.00	884.00	1143.00	1425.00	1053.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_A = dry land with dominant commodity excluded estate crops.

Annex 4.19. Per capita income structure of rural household by size of land holding at Dry land\_A villages in Java, PATANAS 1995 and 1999 <sup>1)</sup>

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	290.80	264.59	398.93	1014.16	600.01	117.00	706.00	1047.00	1139.00	787.00
Share (%)	55.59	85.65	89.42	84.01	79.92	21.33	70.81	80.27	90.42	74.10
a. Rice Farming	0.00	0.00	2.17	0.00	0.60	0.00	0.00	0.00	2.00	0.00
Share (%)	0.00	0.00	0.49	0.00	0.08	0.00	0.00	0.00	0.18	0.04
b. Non Rice Farming	87.63	180.61	359.06	989.75	521.09	11.00	644.00	1024.00	1122.00	737.00
Share (%)	16.75	58.46	80.48	81.99	69.41	2.00	64.66	78.50	89.04	69.43
c. Agricultural Labor	203.17	83.98	37.69	24.41	78.32	106.00	61.00	23.00	15.00	49.00
Share (%)	38.84	27.18	8.45	2.02	10.43	19.32	6.15	1.78	1.20	4.64
2. Non Agriculture	232.33	44.35	47.22	192.95	150.74	431.00	291.00	257.00	121.00	275.00
Share (%)	44.41	14.36	10.58	15.98	20.08	78.67	29.19	19.73	9.58	25.90
A. Non Agric. Entrepreneur	108.35	39.43	23.55	176.29	105.83	74.00	203.00	218.00	83.00	168.00
Share (%)	20.71	12.76	5.28	14.60	14.10	13.57	20.39	16.71	6.55	15.81
B. Non Agric. Labor	59.48	0.00	22.75	10.61	25.52	192.00	40.00	15.00	16.00	52.00
Share (%)	11.37	0.00	5.10	0.88	3.40	35.06	3.99	1.19	1.24	4.93
C. Professional	51.64	0.00	0.00	1.56	13.72	98.00	20.00	0.00	3.00	23.00
Share (%)	9.87	0.00	0.00	0.13	1.83	17.84	1.99	0.00	0.25	2.19
D. Others	12.86	4.92	0.92	4.49	5.67	67.00	27.00	24.00	19.00	31.00
Share (%)	2.46	1.59	0.21	0.37	0.76	12.20	2.75	1.82	1.54	2.93
Total Income	523.14	308.93	446.15	1207.12	750.74	547.00	996.00	1304.00	1260.00	1062.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_A = dry land with dominant commodity excluded estate crops.

Annex 4.20. Per capita income structure of rural household by size of land holding at Dry land\_A villages in Off Java, PATANAS 1995 and 1999 <sup>1)</sup>

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	135.82	421.27	491.24	617.56	480.09	317.00	497.00	772.00	1060.00	704.00
Share (%)	46.73	70.90	80.09	78.54	75.63	32.49	70.43	74.28	67.36	67.11
a. Rice Farming	0.00	23.56	47.39	97.84	50.62	0.00	55.00	44.00	146.00	77.00
Share (%)	0.00	3.97	7.73	12.44	7.97	0.00	7.84	4.22	9.30	7.35
b. Non Rice Farming	28.58	316.93	406.85	503.56	379.00	58.00	335.00	657.00	892.00	541.00
Share (%)	9.83	53.34	66.33	64.04	59.70	5.99	47.47	63.23	56.67	51.59
c. Agricultural Labor	107.24	80.79	37.01	16.16	50.46	258.00	107.00	71.00	22.00	86.00
Share (%)	36.90	13.60	6.03	2.06	7.95	26.50	15.12	6.83	1.39	8.18
2. Non Agriculture	154.81	172.90	122.09	168.72	154.70	658.00	209.00	267.00	514.00	345.00
Share (%)	53.27	29.10	19.91	21.46	24.37	67.51	29.57	25.72	32.64	32.89
A. Non Agric. Entrepreneur	110.13	71.10	22.48	97.33	66.07	147.00	73.00	69.00	366.00	167.00
Share (%)	37.89	11.97	3.67	12.38	10.41	15.07	10.29	6.64	23.22	15.90
B. Non Agric. Labor	43.11	38.18	58.06	20.58	39.67	295.00	51.00	72.00	40.00	69.00
Share (%)	14.83	6.43	9.47	2.62	6.25	30.30	7.26	6.91	2.52	6.60
C. Professional	0.00	57.02	33.62	36.29	40.01	40.00	21.00	52.00	56.00	38.00
Share (%)	0.00	9.60	5.48	4.62	6.30	4.08	2.90	4.97	3.54	3.63
D. Others	1.57	6.60	7.93	14.52	8.95	176.00	64.00	75.00	53.00	71.00
Share (%)	0.54	1.11	1.29	1.85	1.41	18.07	9.10	7.20	3.36	6.75
Total Income	290.63	594.18	613.34	786.28	634.79	975.00	706.00	1039.00	1574.00	1048.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_A = dry land with dominant commodity excluded estate crops.



Annex 4.21 Per capita income structure of rural household by size of land holding at Dry land\_B villages ( Off Java), PATANAS 1995 and 1999 <sup>1)</sup>

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	59.53	234.62	317.34	497.38	304.25	93.00	518.00	1000.00	821.00	668.00
Share (%)	5.94	65.21	64.73	60.87	48.93	5.81	53.79	72.74	64.01	56.23
a. Rice Farming	0.00	27.10	27.38	49.80	29.50	0.00	28.00	91.00	101.00	60.00
Share (%)	0.00	7.53	5.59	6.09	4.74	0.00	2.89	6.59	7.85	5.03
b. Non Rice Farming	4.33	156.46	264.02	401.93	231.16	83.00	436.00	856.00	672.00	560.00
Share (%)	0.43	43.49	53.86	49.19	37.17	5.19	45.34	62.26	52.46	47.14
c. Agricultural Labor	55.19	51.06	25.94	45.64	43.59	10.00	53.00	53.00	48.00	48.00
Share (%)	5.51	14.19	5.29	5.59	7.01	0.62	5.56	3.88	3.71	4.05
2. Non Agriculture	942.37	125.17	172.91	319.73	317.59	1505.00	445.00	375.00	461.00	520.00
Share (%)	94.06	34.79	35.27	39.13	51.07	94.19	46.21	27.26	35.99	43.77
A. Non Agric. Entrepreneur	340.34	60.03	81.35	110.90	122.81	295.00	215.00	163.00	213.00	211.00
Share (%)	33.97	16.68	16.59	13.57	19.75	18.48	22.36	11.85	16.63	17.74
B. Non Agric. Labor	183.89	23.80	19.22	46.21	53.39	50.00	98.00	48.00	68.00	75.00
Share (%)	18.35	6.61	3.92	5.66	8.59	3.13	10.14	3.48	5.30	6.33
C. Professional	236.56	21.88	67.40	108.64	91.18	495.00	38.00	48.00	77.00	88.00
Share (%)	23.61	6.08	13.75	13.30	14.66	31.00	3.94	3.49	6.04	7.41
D. Others	181.58	19.46	4.94	53.98	50.21	664.00	94.00	115.00	102.00	146.00
Share (%)	18.12	5.41	1.01	6.61	8.07	41.58	9.77	8.35	7.98	12.25
Total Income	1001.90	359.79	490.24	817.11	621.84	1598.00	962.00	1375.00	1282.00	1189.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

1) Dry land\_B = dry land with dominant commodity excluded estate crops.

Annex 4.22. Per capita income structure of rural household by size of land holding at Coastal villages ( Java), PATANAS 1995 and 1999

Aggregate	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	353.50	158.70	3759.56	1724.48	471.98	112.00	292.00	79.00	1565.00	376.00
Share (%)	40.69	57.08	99.54	98.97	49.32	14.98	33.64	34.74	96.59	41.95
a. Rice Farming	0.00	0.00	2.00	96.86	2.50	0.00	0.00	79.00	-1.00	2.00
Share (%)	0.00	0.00	0.05	5.56	0.26	0.00	0.00	34.74	-0.09	0.19
b. Non Rice Farming	232.03	158.70	3757.56	1627.62	355.69	0.00	292.00	0.00	1567.00	289.00
Share (%)	26.71	57.08	99.49	93.41	37.17	0.00	33.64	0.00	96.68	32.23
c. Agricultural Labor	121.47	0.00	0.00	0.00	113.79	112.00	0.00	0.00	0.00	85.00
Share (%)	13.98	0.00	0.00	0.00	11.89	14.98	0.00	0.00	0.00	9.53
2. Non Agriculture	515.20	119.31	17.25	17.97	485.01	638.00	576.00	148.00	55.00	520.00
Share (%)	59.31	42.92	0.46	1.03	50.68	85.02	66.36	65.26	3.41	58.05
A. Non Agric. Entrepreneur	314.38	115.00	17.25	0.00	296.38	444.00	70.00	123.00	48.00	351.00
Share (%)	36.19	41.37	0.46	0.00	30.97	59.10	8.08	54.14	2.97	39.20
B. Non Agric. Labor	114.25	0.00	0.00	0.00	107.02	70.00	0.00	19.00	7.00	55.00
Share (%)	13.15	0.00	0.00	0.00	11.18	9.35	0.00	8.16	0.43	6.14
C. Professional	12.13	0.00	0.00	17.97	11.82	43.00	0.00	0.00	0.00	33.00
Share (%)	1.40	0.00	0.00	1.03	1.24	5.76	0.00	0.00	0.00	3.66
D. Others	74.44	4.31	0.00	0.00	69.79	81.00	506.00	7.00	0.00	81.00
Share (%)	8.57	1.55	0.00	0.00	7.29	10.82	58.29	2.96	0.00	9.05
Total Income	868.71	278.01	3776.81	1742.45	956.97	750.00	868.00	227.00	1620.00	896.00
Share (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Annex 4.23. Average rural household's income at PATANAS villages, 1995 and 1999

PROP	DESA	ELEVASI	ECOSYS.	MAIN CROP	AGR95	NON95	INC95	AGR99	NON99	INC99	DINC	DINC(%)
Lampung	Gunung Rejo	Upland	Wet Land	VegeAnnexs	1655.7	540.9	2196.5	3160.4	751.2	3911.6	1715.0	78.1
Lampung	Air Nainingan	Upland	Dry Land	Estate Crops (Coffee, Pepper)	1394.8	316.9	1711.7	2199.4	1456.3	3655.7	1944.0	113.6
Lampung	Sumber Rejo	Low Land	Wet Land	Rice	2233.6	884.8	3118.4	2793.3	1036.8	3830.1	711.7	22.8
Lampung	Komering Putih	Low Land	Dry Land	Secondary Crops (Cassava)	2229.0	340.0	2569.0	2830.5	692.2	3522.7	953.7	37.1
Lampung	Beringin	Low Land	Dry Land	Estate Crops (Pepper)	1707.6	1177.8	2885.4	3036.9	1268.3	4305.2	1419.9	49.2
Lampung	Kota Napal	Low Land	Dry Land	Cassava + Sugar Cane	1387.8	632.4	2020.2	2052.7	246.9	2299.6	279.4	13.8
Central Java	Cepogo	Upland	Dry Land	Dairy	3438.1	1084.0	4522.1	5866.0	2027.4	7893.4	3371.3	74.6
Central Java	Kr. Wungu	Low Land	Wet Land	Rice	623.9	2370.2	2994.2	1755.5	1319.3	3074.7	80.6	2.7
Central Java	Kwadungan Gunung	Upland	Dry Land	Tobacco	3870.9	531.6	4402.5	625.2	620.3	1245.5	-3157.1	-71.7
Central Java	Karang Tengah	Upland	Dry Land	VegeAnnexs	3722.6	227.3	3949.9	2089.7	229.2	2318.9	-1631.0	-41.3
Central Java	Larangan	Low Land	Wet Land	Onion	1908.5	773.1	2681.6	3905.9	2450.8	6356.7	3675.2	137.1
Central Java	Kr. Moncol	Low Land	Wet Land	Rice	528.2	1115.8	1644.0	1592.9	1734.9	3327.8	1683.8	102.4
Central Java	Mojoagung	Low Land	Wet Land	Sugar Cane	897.4	1034.7	1932.1	1421.3	1355.1	2776.4	844.3	43.7
East Java	Gerih	Low Land	Wet Land	Rice + Sugar Cane	756.8	1159.3	1916.1	1115.7	1193.8	2309.5	393.4	20.5
East Java	Selosari	Low Land	Wet Land	Rice + Sugar Cane	2118.4	871.9	2990.3	2740.1	2754.9	5494.9	2504.7	83.8
East Java	Terung Kulon	Low Land	Wet Land	Rice + Sugar Cane	515.7	2338.0	2853.7	2175.2	3281.0	5456.2	2602.5	91.2
East Java	Sungun Legowo	Coastal	Coastal	Shrimp + "Bandeng"	2638.2	1579.0	4217.2	3308.7	2094.3	5403.0	1185.8	28.1
East Java	Brondong	Coastal	Coastal	Fish	476.8	1412.9	1889.7	590.6	2059.3	2650.0	760.3	40.2
East Java	Wiyurejo	Upland	Dry Land	VegeAnnexs	1897.4	485.9	2383.3	3931.0	1607.4	5538.4	3155.1	132.4
West N.T.	Gonjak/Gerunung	Low Land	Wet Land	Rice	898.1	532.2	1430.3	1764.5	1740.7	3505.2	2074.9	145.1
West N.T.	Sengkol	Low Land	Wet Land	Rice	1076.1	649.3	1725.3	1023.6	913.2	1936.8	211.5	12.3
West N.T.	Karang Baru	Upland	Dry Land	Garlic	991.1	176.7	1167.8	1785.4	1601.8	3387.3	2219.4	190.1
West N.T.	Plampang	Low Land	Dry Land	Livestock (Cow)	2193.8	277.1	2470.8	4007.9	1244.2	5252.1	2781.3	112.6
West N.T.	Sukadamai	Low Land	Dry Land	Estate Crops (Cashew Nut)	1065.0	410.6	1475.6	1234.0	551.1	1785.1	309.5	21.0
North Sulawesi	Rumoong Atas	Upland	Dry Land	Estate Crops (Clove)	1014.5	1644.4	2658.9	2660.8	4010.5	6671.4	4012.5	150.9
North Sulawesi	Pakuweru	Low Land	Dry Land	Estate Crops (Coconut)	1346.5	2000.3	3346.8	2677.2	2924.1	5601.2	2254.4	67.4
North Sulawesi	Wailan	Upland	Dry Land	VegeAnnexs	1447.6	1856.1	3303.7	4151.2	2906.5	7057.7	3754.0	113.6
North Sulawesi	Karegesan	Low Land	Dry Land	Coconut + "pala"	579.4	3709.1	4288.5	1365.9	5740.9	7106.8	2818.3	65.7
North Sulawesi	Mogoyunggung	Low Land	Wet Land	Rice	858.9	1760.2	2619.0	2450.5	2251.7	4702.2	2083.2	79.5
South Sulawesi	Margolembo	Low Land	Wet Land	Rice	1479.1	690.8	2169.9	2576.5	1338.3	3914.8	1744.9	80.4
South Sulawesi	Baroko	Upland	Dry Land	VegeAnnexs	5025.3	471.4	5496.7	3742.1	1154.4	4896.5	-600.2	-10.9
South Sulawesi	Selli	Low Land	Wet Land	Rice	1390.1	703.5	2093.6	3305.7	1649.6	4955.3	2861.7	136.7
South Sulawesi	Ka'do	Upland	Dry Land	Estate Crops (Coffee)	1436.7	420.8	1857.5	1189.2	1123.8	2313.0	455.6	24.5
South Sulawesi	Rumbia	Low Land	Dry Land	Secondary Crops (Corn)	1766.0	979.4	2745.4	3223.1	3138.6	6361.8	3616.4	131.7
South Sulawesi	Batupanga	Low Land	Dry Land	Estate Crops (kakao)	1917.3	16.0	1933.3	7823.2	621.3	8444.5	6511.2	336.8

Annex 4..24. Household's labor allocation by size of land holding, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	All	Landless	Small	Medium	Large	All
1. Agriculture	724.54	686.04	920.23	1019.96	836.56	567.7	1413.2	1944.2	1994.4	1435.3
Share (%)	33.51	48.34	64.14	62.72	50.04	23.55	60.85	72.65	68.52	57.17
a. On-farm	2.09	350.06	662.97	853.24	461.53	0	989.8	1645.7	1786.7	1044.6
Share (%)	0.10	24.66	46.21	52.47	27.61	0.00	42.62	61.49	61.38	41.61
b. Off-farm	722.45	335.98	257.26	166.72	375.03	567.7	423.3	298.5	207.7	390.7
Share (%)	33.42	23.67	17.93	10.25	22.43	23.55	18.23	11.15	7.14	15.56
2. Non Agriculture	1437.46	733.28	514.4	606.23	835.27	1843.2	909.1	731.9	916.4	1075.2
Share (%)	66.49	51.66	35.86	37.28	49.96	76.45	39.15	27.35	31.48	42.83
A. Non Agric. Entrepreneur	571.58	321.22	174.8	235.29	331.37	675.5	350.2	294.9	427.1	424.3
Share (%)	26.44	22.63	12.18	14.47	19.82	28.02	15.08	11.02	14.67	16.90
B. Non Agric. Labor	514.62	202.1	157.7	95.71	246.02	893.1	372.2	250.9	201.6	425.5
Share (%)	23.80	14.24	10.99	5.89	14.72	37.04	16.03	9.38	6.93	16.95
C. Professional	311.66	193.35	174	273.87	241.21	232.3	156.1	126.9	269	191
Share (%)	14.42	13.62	12.13	16.84	14.43	9.64	6.72	4.74	9.24	7.61
D. Others	39.6	16.61	7.9	1.36	16.67	42.3	30.6	59.3	18.7	34.4
Share (%)	1.83	1.17	0.55	0.08	1.00	1.75	1.32	2.22	0.64	1.37
Total	2162	1419.32	1434.63	1626.19	1671.83	2410.9	2322.3	2676.2	2910.8	2510.5
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.25. Household's labor allocation by size of land holding in Java, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
<b>1. Agriculture</b>	<b>844.1</b>	<b>769</b>	<b>897.4</b>	<b>1957.1</b>	<b>1084.5</b>	<b>522.9</b>	<b>1175.8</b>	<b>1613.3</b>	<b>1712.9</b>	<b>1044.8</b>
Share (%)	<b>34.89</b>	<b>41.53</b>	<b>49.89</b>	<b>76.10</b>	<b>47.79</b>	<b>21.34</b>	<b>51.51</b>	<b>72.88</b>	<b>77.38</b>	<b>44.83</b>
<b>a. On-farm</b>	<b>0</b>	<b>206.9</b>	<b>574.2</b>	<b>1736.6</b>	<b>508.1</b>	<b>0</b>	<b>769.9</b>	<b>1430.9</b>	<b>1623.9</b>	<b>661.2</b>
Share (%)	<b>0.00</b>	<b>11.17</b>	<b>31.92</b>	<b>67.52</b>	<b>22.39</b>	<b>0.00</b>	<b>33.73</b>	<b>64.64</b>	<b>73.36</b>	<b>28.37</b>
<b>b. Off-farm</b>	<b>844.1</b>	<b>562.1</b>	<b>323.2</b>	<b>220.5</b>	<b>576.3</b>	<b>522.9</b>	<b>406</b>	<b>182.4</b>	<b>89.1</b>	<b>383.6</b>
Share (%)	<b>34.89</b>	<b>30.36</b>	<b>17.97</b>	<b>8.57</b>	<b>25.40</b>	<b>21.34</b>	<b>17.79</b>	<b>8.24</b>	<b>4.03</b>	<b>16.46</b>
<b>2. Non Agriculture</b>	<b>1575.3</b>	<b>1082.5</b>	<b>901.4</b>	<b>614.8</b>	<b>1184.7</b>	<b>1927.8</b>	<b>1106.8</b>	<b>600.2</b>	<b>500.6</b>	<b>1285.7</b>
Share (%)	65.11	58.47	50.11	23.90	52.21	78.66	48.49	27.12	22.62	55.17
A. Non agric. entrepreneur	592.9	537.5	339.2	221.1	455.4	669.3	381.2	336.1	356.3	484.6
Share (%)	24.51	29.03	18.86	8.60	20.07	27.31	16.70	15.18	16.10	20.79
B. Non agric. labor	658	261.5	319.7	208.9	455.5	1043.8	519.2	200.9	88	630.3
Share (%)	27.20	14.12	17.77	8.12	20.07	42.59	22.74	9.08	3.98	27.05
C. Professional	268.5	237.7	235.2	168	237.4	183.9	163.9	50.1	34.5	140
Share (%)	11.10	12.84	13.08	6.53	10.46	7.50	7.18	2.26	1.56	6.01
D. Others	55.9	45.7	7.4	16.8	36.4	30.8	42.5	13	21.7	30.9
Share (%)	2.31	2.47	0.41	0.65	1.60	1.26	1.86	0.59	0.98	1.33
<b>Total</b>	<b>2419.4</b>	<b>1851.5</b>	<b>1798.8</b>	<b>2571.9</b>	<b>2269.2</b>	<b>2450.7</b>	<b>2282.7</b>	<b>2213.5</b>	<b>2213.5</b>	<b>2330.4</b>
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.26. Household's labor allocation by size of land holding in Off - Java, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	443.2	625.3	762	796.6	685.9	692.8	1484.9	2047	2107	1672.3
Share (%)	30.09	54.50	63.27	56.31	53.75	30.13	63.72	70.66	67.59	63.84
a. On-farm	7	320.2	543.8	658.7	433.2	0	1036.3	1740.5	1861.2	1277.2
Share (%)	0.48	27.91	45.15	46.56	33.95	0.00	44.47	60.08	59.71	48.75
b. Off-farm	436.2	305.1	218.1	137.9	252.7	692.8	448.6	306.6	245.8	395.1
Share (%)	29.61	26.59	18.11	9.75	19.80	30.13	19.25	10.58	7.89	15.08
2. Non Agriculture	1029.8	522.1	442.4	618.1	590	1606.7	845.5	849.8	1010.3	947.4
Share (%)	69.91	45.51	36.74	43.69	46.24	69.87	36.28	29.34	32.41	36.16
A. Non agric. entrepreneur	437.8	201.4	154.9	218.8	223.1	692.7	333.3	316.6	458.3	387.8
Share (%)	29.72	17.55	12.86	15.47	17.48	30.12	14.30	10.93	14.70	14.80
B. Non agric. labor	177.5	115.2	117	97.4	118.7	472.2	319.9	280.8	212.9	301.3
Share (%)	12.05	10.04	9.72	6.88	9.30	20.53	13.73	9.69	6.83	11.50
C. Professional	413.1	195.7	166.4	301.4	243.5	367.6	165.5	189	321.8	221.9
Share (%)	28.04	17.06	13.82	21.30	19.08	15.99	7.10	6.52	10.32	8.47
D. Others	1.4	9.8	4.1	0.5	4.7	74.3	26.8	63.4	17.3	36.5
Share (%)	0.10	0.85	0.34	0.04	0.37	3.23	1.15	2.19	0.55	1.39
Total	1473	1147.3	1204.3	1414.7	1276	2299.5	2330.4	2896.8	3117.2	2619.7
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.27. Household's labor allocation by size of land holding at wet land, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	669.8	465.7	806.5	988.2	703.1	538.62	999.13	1574.84	1947.31	1042.44
Share (%)	33.91	32.73	54.60	59.93	42.26	21.96	50.64	72.82	70.59	47.10
a. Rice Farming	0	95.1	289	397.5	160.4	0	476.91	1032.86	1354.01	505.61
Share (%)	0.00	6.68	19.57	24.11	9.64	0.00	24.17	47.76	49.08	22.84
b. Non Rice Farming	0.8	106.4	230.3	431.2	159.5	0	219.33	347.88	319.14	184.55
Share (%)	0.04	7.48	15.59	26.15	9.59	0.00	11.12	16.09	11.57	8.34
c. Agricultural Labor	669	264.2	287.2	159.5	383.2	538.62	302.89	194.1	274.15	352.29
Share (%)	33.86	18.57	19.44	9.67	23.03	21.96	15.35	8.98	9.94	15.92
2. Non Agriculture	1305.7	957.1	670.5	660.9	960.7	1914.3	973.83	587.67	811.35	1170.99
Share (%)	66.09	67.27	45.40	40.08	57.74	78.04	49.36	27.18	29.41	52.90
A. Non Agric. Entrepreneur	350.6	390.3	181.8	267.6	313.2	465.55	327.31	208.07	311.61	350.17
Share (%)	17.75	27.43	12.31	16.23	18.82	18.98	16.59	9.62	11.30	15.82
B. Non Agric. Labor	647.8	291	261.2	84	363.4	1235.18	418.59	148.64	279.3	597.33
Share (%)	32.79	20.45	17.68	5.09	21.84	50.36	21.22	6.87	10.12	26.99
C. Professional	273.5	261	210	309.3	265.4	157.03	211.23	115.94	211.91	185.68
Share (%)	13.84	18.35	14.22	18.76	15.95	6.40	10.71	5.36	7.68	8.39
D. Others	33.9	14.7	17.5	0	18.7	56.54	16.7	115.01	8.54	37.81
Share (%)	1.72	1.03	1.18	0.00	1.12	2.31	0.85	5.32	0.31	1.71
Total	1975.5	1422.7	1477	1649	1663.8	2452.92	1972.96	2162.5	2758.65	2213.43
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4. 28. Household's labor allocation by size of land holding and region at wet land in Java, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	745.6	514.1	483.6	1117.7	719.7	463.5	841.52	856.74	827.17	676.68
Share (%)	33.80	27.39	28.37	54.70	35.41	18.66	42.00	54.67	57.94	31.68
a. Rice Farming	0	23.2	109.8	358.9	83	0	332.98	487.34	670.67	219.36
Share (%)	0.00	1.24	6.44	17.56	4.08	0.00	16.62	31.10	46.98	10.27
b. Non Rice Farming	0	65.4	112.6	402.9	95.3	0	208.69	212.01	66.25	112.04
Share (%)	0.00	3.48	6.60	19.72	4.69	0.00	10.42	13.53	4.64	5.25
c. Agricultural Labor	745.6	425.5	261.1	355.9	541.3	463.5	299.86	157.4	90.25	345.27
Share (%)	33.80	22.67	15.31	17.42	26.63	18.66	14.97	10.04	6.32	16.16
2. Non Agriculture	1460.3	1363.2	1221.4	925.6	1312.9	2020.55	1162.07	710.33	600.42	1459.29
Share (%)	66.20	72.61	71.64	45.30	64.60	81.34	58.00	45.33	42.06	68.32
A. Non Agric. Entrepreneur	379.3	648.1	580.4	214.9	428.5	465.78	358.02	388.05	265	405.98
Share (%)	17.19	34.52	34.04	10.52	21.08	18.75	17.87	24.76	18.56	19.01
B. Non Agric. Labor	796.8	374.6	319	381.3	578.4	1401.06	580.67	202.42	294.08	881.02
Share (%)	36.12	19.95	18.71	18.66	28.46	56.40	28.98	12.92	20.60	41.25
C. Professional	240.4	340.5	320.8	288.2	277	122.1	206.15	117.77	36	151.19
Share (%)	10.90	18.14	18.82	14.10	13.63	4.92	10.29	7.52	2.52	7.08
D. Others	43.9	0	1.2	41.2	29	31.59	17.23	2.09	5.33	21.11
Share (%)	1.99	0.00	0.07	2.02	1.43	1.27	0.86	0.13	0.37	0.99
Total	2205.9	1877.3	1704.9	2043.3	2032.5	2484.05	2003.59	1567.07	1427.58	2135.97
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)



Annex 4.29. Household's labor allocation by size of land holding and region at wet land in Off-Java, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	413	505	905.7	908.3	685.9	864.14	1203.55	1694.12	2304	1419.82
Share (%)	34.56	45.78	66.17	59.80	53.49	37.28	59.06	71.97	71.90	61.91
a. Rice Farming	0	182.1	302.5	420.7	240.4	0	638.94	1156.07	1537.55	800.95
Share (%)	0.00	16.51	22.10	27.70	18.75	0.00	31.35	49.11	47.98	34.92
b. Non Rice Farming	3.5	128.3	368.9	369.8	226	0	248.39	313.78	419.52	259.35
Share (%)	0.29	11.63	26.95	24.34	17.63	0.00	12.19	13.33	13.09	11.31
c. Agricultural Labor	409.4	194.6	234.3	117.8	219.6	864.14	316.23	224.27	346.93	359.53
Share (%)	34.26	17.64	17.12	7.76	17.13	37.28	15.52	9.53	10.83	15.68
2. Non Agriculture	781.9	598.2	463.1	610.8	596.3	1453.88	834.31	659.81	900.31	873.53
Share (%)	65.44	54.22	33.83	40.21	46.51	62.72	40.94	28.03	28.10	38.09
A. Non Agric. Entrepreneur	253.4	136.3	145.4	292.7	194	464.55	277.36	224.49	321.73	292.59
Share (%)	21.21	12.35	10.62	19.27	15.13	20.04	13.61	9.54	10.04	12.76
B. Non Agric. Labor	142.9	198	156.2	38.1	141	516.33	317.55	125.9	350.41	304.63
Share (%)	11.96	17.95	11.41	2.51	11.00	22.27	15.58	5.35	10.94	13.28
C. Professional	385.7	241.6	161.5	280	253.3	308.36	220.91	179.17	217.58	221.26
Share (%)	32.28	21.90	11.80	18.43	19.76	13.30	10.84	7.61	6.79	9.65
D. Others	0	22.3	0	0	8	164.64	18.49	130.24	10.59	55.05
Share (%)	0.00	2.02	0.00	0.00	0.62	7.10	0.91	5.53	0.33	2.40
Total	1194.9	1103.2	1368.8	1519	1282.2	2318.02	2037.86	2353.92	3204.31	2293.36
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.30. Household's labor allocation by size of land holding and region at dry land A, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	1865.7	1063.9	1150.3	1126.3	1216.7	1343.6	1929.3	2204.1	2273.3	2002.5
Share (%)	54.68	68.74	74.43	73.81	67.84	49.04	70.61	73.90	71.78	69.34
a. Rice Farming	0.0	36.4	65.3	126.7	68.4	0.0	896.4	1359.5	1562.4	1052.5
Share (%)	0.00	2.35	4.22	8.30	3.82	0.00	32.81	45.58	49.33	36.44
b. Non Rice Farming	10.0	475.2	826.6	839.8	625.6	0.0	388.3	499.5	549.2	408.0
Share (%)	0.29	30.70	53.49	55.04	34.88	0.00	14.21	16.75	17.34	14.13
c. Agricultural Labor	1855.7	552.3	258.4	159.9	522.7	1343.6	644.6	345.0	161.6	542.0
Share (%)	54.39	35.69	16.72	10.48	29.14	49.04	23.59	11.57	5.10	18.77
2. Non Agriculture	1546.2	483.8	395.2	399.6	576.9	1396.1	803.2	778.4	893.8	885.6
Share (%)	45.32	31.26	25.57	26.19	32.16	50.96	29.39	26.10	28.22	30.66
A. Non Agric. Entrepreneur	866.1	106.7	184.7	137.9	241.4	742.9	329.2	250.3	405.3	381.0
Share (%)	25.38	6.90	11.95	9.04	13.46	27.12	12.05	8.39	12.80	13.19
B. Non Agric. Labor	239.1	160.0	84.0	76.4	123.0	485.0	340.3	347.3	157.5	307.0
Share (%)	7.01	10.33	5.43	5.01	6.86	17.70	12.45	11.64	4.97	10.63
C. Professional	361.3	188.1	122.6	182.6	191.9	134.3	80.2	153.9	310.9	159.2
Share (%)	10.59	12.15	7.93	11.97	10.70	4.90	2.93	5.16	9.82	5.51
D. Others	79.7	29.0	3.9	2.6	20.5	33.9	53.5	27.0	20.0	38.4
Share (%)	2.34	1.88	0.25	0.17	1.15	1.24	1.96	0.90	0.63	1.33
Total	3411.9	1547.7	1545.5	1525.9	1793.6	2739.6	2732.4	2982.5	3167.1	2888.0
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.31. Household's labor allocation by size of land holding and region at dry land A, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	2296.9	1433.9	1513.0	2591.5	2125.5	1483.3	1827.9	2245.5	2428.8	1997.8
Share (%)	52.03	73.92	73.61	86.65	70.63	55.65	65.02	82.18	85.33	72.11
a. Rice Farming	0.0	0.0	18.2	0.0	5.0	0.0	780.4	1598.6	1885.2	1084.9
Share (%)	0.00	0.00	0.88	0.00	0.17	0.00	27.76	58.50	66.23	39.16
b. Non Rice Farming	0.0	512.3	1071.3	2460.8	1294.6	0.0	431.7	438.8	413.4	363.2
Share (%)	0.00	26.41	52.12	82.28	43.02	0.00	15.36	16.06	14.53	13.11
c. Agricultural Labor	2296.9	921.7	423.6	130.8	825.9	1483.3	615.9	208.1	130.1	549.7
Share (%)	52.03	47.51	20.61	4.37	27.45	55.65	21.91	7.62	4.57	19.84
2. Non Agriculture	2117.5	506.0	542.4	399.2	883.9	1182.2	983.3	487.1	417.5	772.5
Share (%)	47.97	26.08	26.39	13.35	29.37	44.35	34.98	17.82	14.67	27.89
A. Non Agric. Entrepreneur	1193.5	344.5	69.2	248.3	446.9	676.1	368.9	279.7	282.5	376.0
Share (%)	27.04	17.76	3.37	8.30	14.85	25.36	13.12	10.23	9.92	13.57
B. Non Agric. Labor	289.5	0.0	333.1	92.6	201.4	266.9	430.0	185.5	46.7	268.3
Share (%)	6.56	0.00	16.21	3.09	6.69	10.01	15.30	6.79	1.64	9.68
C. Professional	522.8	0.0	123.5	58.3	189.6	178.8	94.3	0.0	50.0	71.8
Share (%)	11.84	0.00	6.01	1.95	6.30	6.71	3.35	0.00	1.76	2.59
D. Others	111.7	161.5	16.5	0.0	46.0	60.4	90.1	21.9	38.4	56.4
Share (%)	2.53	8.32	0.80	0.00	1.53	2.27	3.21	0.80	1.35	2.04
Total	4414.4	1939.9	2055.4	2990.8	3009.4	2665.6	2811.3	2732.6	2846.3	2770.3
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.32. Household's labor allocation by size of land holding and region at dry land A, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	900.7	751.4	657.2	579.7	683.0	1167.3	1818.4	2404.0	2251.8	2005.2
Share (%)	77.09	65.44	66.60	53.73	63.26	41.20	70.03	69.68	69.63	67.81
a. Rice Farming	0.0	58.3	111.4	180.0	105.7	0.0	729.3	1460.2	1483.3	1033.4
Share (%)	0.00	5.08	11.28	16.68	9.79	0.00	28.09	42.32	45.87	34.95
b. Non Rice Farming	32.4	186.3	302.4	258.3	232.7	0.0	348.0	544.6	602.1	434.4
Share (%)	2.77	16.22	30.64	23.94	21.56	0.00	13.40	15.78	18.62	14.69
c. Agricultural Labor	868.3	506.8	243.5	141.4	344.6	1167.3	741.2	399.2	166.4	537.4
Share (%)	74.32	44.13	24.67	13.10	31.92	41.20	28.54	11.57	5.15	18.17
2. Non Agriculture	267.7	396.9	329.7	499.3	396.6	1665.7	778.2	1046.3	982.1	952.0
Share (%)	22.91	34.56	33.40	46.27	36.74	58.80	29.97	30.32	30.37	32.19
A. Non Agric. Entrepreneur	133.3	101.7	122.7	138.1	120.7	827.1	299.0	298.7	451.0	383.8
Share (%)	11.41	8.86	12.44	12.80	11.18	29.20	11.51	8.66	13.95	12.98
B. Non Agric. Labor	126.3	51.5	68.6	104.5	77.0	759.9	330.6	463.9	148.8	329.8
Share (%)	10.81	4.49	6.95	9.69	7.13	26.82	12.73	13.44	4.60	11.15
C. Professional	0.0	237.7	128.6	256.7	193.3	78.3	109.0	257.9	364.0	210.5
Share (%)	0.00	20.70	13.03	23.79	17.91	2.76	4.20	7.48	11.26	7.12
D. Others	8.0	5.9	9.8	0.0	5.6	0.4	39.7	25.8	18.3	27.9
Share (%)	0.68	0.52	0.99	0.00	0.52	0.02	1.53	0.75	0.56	0.94
Total	1168.4	1148.3	986.9	1079.0	1079.6	2833.0	2596.7	3450.3	3233.9	2957.2
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.33 Household's labor allocation by size of land holding and region at dry land B, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	287.0	627.4	751.4	911.5	688.6	79.2	1499.2	2076.6	1793.5	1597.9
Share (%)	14.96	49.56	55.95	53.45	45.59	4.34	61.98	70.64	61.66	61.24
a. Rice Farming	0.0	73.5	84.2	145.7	85.6	0.0	1129.8	1599.3	1169.8	1170.0
Share (%)	0.00	5.80	6.27	8.55	5.67	0.00	46.71	54.41	40.22	44.84
b. Non Rice Farming	0.0	335.2	491.2	615.6	404.6	0.0	38.1	169.7	333.9	131.5
Share (%)	0.00	26.48	36.58	36.10	26.78	0.00	1.57	5.77	11.48	5.04
c. Agricultural Labor	287.0	218.7	176.0	150.2	198.5	79.2	331.2	307.6	289.8	296.4
Share (%)	14.96	17.28	13.11	8.81	13.14	4.34	13.69	10.46	9.96	11.36
2. Non Agriculture	1632.0	638.6	591.5	793.7	821.9	1743.1	919.8	863.1	1115.0	1011.5
Share (%)	85.04	50.44	44.05	46.55	54.41	95.66	38.02	29.36	38.34	38.76
A. Non Agric. Entrepreneur	795.5	446.7	241.8	296.2	403.6	856.9	428.4	393.8	551.3	479.3
Share (%)	41.46	35.28	18.00	17.37	26.72	47.02	17.71	13.40	18.96	18.37
B. Non Agric. Labor	230.7	90.0	136.0	136.7	136.7	173.0	312.7	277.3	214.3	271.7
Share (%)	12.02	7.11	10.13	8.01	9.05	9.50	12.93	9.43	7.37	10.41
C. Professional	605.8	101.9	212.4	359.4	280.8	686.5	154.4	152.9	329.2	233.0
Share (%)	31.57	8.05	15.81	21.08	18.59	37.67	6.38	5.20	11.32	8.93
D. Others	0.0	0.0	1.4	1.4	0.8	26.7	24.3	39.2	20.1	27.4
Share (%)	0.00	0.00	0.11	0.08	0.05	1.46	1.00	1.33	0.69	1.05
Total	1919.0	1266.0	1342.9	1705.2	1510.6	1822.2	2418.9	2939.6	2908.4	2609.4
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Annex 4.34. Household's labor allocation by size of land holding and region at coastal area, PATANAS 1995 and 1999 (Man Hour/Year)

Activities	1995					1999				
	Landless	Small	Medium	Large	Average	Landless	Small	Medium	Large	Average
1. Agriculture	142.5	224.0	97.0	521.5	151.9	200.4	113.0	177.5	938.1	327.2
Share (%)	8.25	100.00	100.00	33.18	9.14	8.84	6.41	11.24	61.28	15.58
a. Rice Farming	0.0	0.0	97.0	347.7	11.3	0.0	113.0	177.5	152.6	35.8
Share (%)	0.00	0.00	100.00	22.12	0.68	0.00	6.41	11.24	9.97	1.71
b. Non Rice Farming	0.0	0.0	0.0	173.8	4.4	0.0	0.0	0.0	785.6	139.2
Share (%)	0.00	0.00	0.00	11.06	0.26	0.00	0.00	0.00	51.31	6.63
c. Agricultural Labor	142.5	224.0	0.0	0.0	136.3	200.4	0.0	0.0	0.0	152.2
Share (%)	8.25	100.00	0.00	0.00	8.20	8.84	0.00	0.00	0.00	7.24
2. Non Agriculture	1583.7	0.0	0.0	1050.0	1510.1	2067.1	1650.0	1401.0	592.9	1773.2
Share (%)	91.75	0.00	0.00	66.82	90.86	91.16	93.59	88.76	38.72	84.42
A. Non Agric. Entrepreneur	785.7	0.0	0.0	0.0	736.0	1151.2	1650.0	801.0	592.9	1062.4
Share (%)	45.52	0.00	0.00	0.00	44.28	50.77	93.59	50.74	38.72	50.58
B. Non Agric. Labor	580.4	0.0	0.0	0.0	543.7	567.6	0.0	600.0	0.0	446.3
Share (%)	33.62	0.00	0.00	0.00	32.71	25.03	0.00	38.01	0.00	21.25
C. Professional	170.3	0.0	0.0	1050.0	186.1	333.5	0.0	0.0	0.0	253.3
Share (%)	9.86	0.00	0.00	66.82	11.20	14.71	0.00	0.00	0.00	12.06
D. Others	47.3	0.0	0.0	0.0	44.3	14.8	0.0	0.0	0.0	11.2
Share (%)	2.74	0.00	0.00	0.00	2.67	0.65	0.00	0.00	0.00	0.53
Total	1726.2	224.0	97.0	1571.5	1662.0	2267.5	1763.0	1578.5	1531.0	2100.4
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)