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**ECONOMIC CRISIS INDUCED MANAGEMENT: IS  
AGRICULTURE A SAFE HAVEN?**

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between

**CASER (Bogor) • CIES (Adelaide) • CSIS (Jakarta) • RSPAS (ANU, Canberra)**

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**CASER/CSIS/CIES/ANU  
joint research project on**



## **Policy analysis of linkages between Indonesia's agricultural production, trade and environment**

Rapid economic growth in Indonesia has been accompanied by significant structural changes, including for its agricultural sector and its unique natural environment. Recently questions have been raised about the impact of Indonesia's agricultural, industrial, trade and environmental policies on sustainable rural development. The nature of interactions between the economic activities of different sectors and the environment are such that an intersectoral, system-wide perspective is essential for assessing them. An international perspective also is needed to assess the impact on Indonesia of major shocks abroad, such as the implementation of the Uruguay Round agreements, APEC initiatives, or reforms in former centrally planned economies. There is increasing pressure on supporters of liberal trade to demonstrate that trade reforms at home or abroad affecting countries such as Indonesia will not add to global environmental problems (e.g., deforestation, reduced biodiversity). Again, this requires system-wide quantitative models of the economy and ecology, because typically there are both positive and negative effects at work, so the sign of the net effects ultimately has to be determined empirically.

To begin to address these issues, the Australian Centre for International Agricultural Research (ACIAR) has generously provided funds for a collaborative 3-year project (to mid-1999) involving the University of Adelaide's Centre for International Economic Studies (CIES) as the lead institution, Bogor's Centre for Agro-Socioeconomic Research (CASER) which is affiliated with the Ministry of Agriculture, Jakarta's independent Centre for Strategic and International Studies (CSIS), and the Economics Division of the Research School of Pacific and Asian Studies (RSPAS) at the Australian National University in Canberra. Being based on Indonesia with its rich diversity of environmental resources (and on which there are relatively good data) and its rapid economic growth, the project could also serve as a prototype for similar studies of other developing countries in Southeast Asia and elsewhere.

The key objective of the project is to assess the production, consumption, trade, income distributional, regional, environmental, and welfare effects of structural and policy changes at home and abroad particularly as they will or could affect Indonesia's agricultural sector over the next 5-10 years. Among other things, the analysis will focus both on the effects of economic changes on the environment, and on the impacts on Indonesia's agricultural production and trade of resource and environmental policy changes. The implications of regional and multilateral trade liberalization initiatives and Indonesia's ongoing unilateral trade reforms will be analysed, along with other potential domestic policy changes and significant external shocks such as the entry of China and Taiwan into the World Trade Organization. The analysis will draw on and adapt computable general equilibrium (CGE) models such as the national INDOGEM Model (built as part of an earlier ACIAR project) and the global GTAP Model.

The project is being undertaken in close collaboration with the Indonesian Ministry of Agriculture and ministries involved in trade, planning, and the environment. A Research Advisory Committee has been established to encourage close collaboration of representatives from those and other ministries.

ACIAR INDONESIA RESEARCH PROJECT

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## **Background and objective**

The turbulence of Indonesia economy which began in June 1997, as the exchange rate weakened to more than 60 percent, then it spread very rapid to all economic sectors. For the first time in the last 30 years, banking system nearly collapsed, inflation ran toward higher level and even the more gloomy picture in economic growth predicted minus 15 percent. The failure of manufacture and especially construction industries which are relatively labor intensive have effectively laid-off million workers. Depend upon which source of data used the total number of lay off workers is around 5 million. According to ILO the total unemployment is around 5,4 million.

The economic crisis led to the insecurity of food security especially for the poor section of population. Fortunately however, it was widely reported for some exported agriculture commodities which operating domestic based input industries such as agro-processing export oriented industries are experiencing booming in total sales value. The agriculture sector confronted twin problems for coping with this deviating economic crisis: First, for short run objective how to increase food supply to ensure staple food availability for at least 1500 calorie per day and second, for short and long run objective how to dynamic the agriculture growth (especially non rice commodities). In one hand, given the “conservative” nature of agriculture for changes, these two difficult task should carried out in coordinated sequencing from short to long run objective. On the other hand, for Increasing the level of economic efficiency in the agriculture sector will require greater reliance on the market mechanism as Indonesia commitment to open economic model through GATT/WTO, AFTA agreement rather than on government intervention and control.

One of the most serious problems confronting planning for coping with economic crisis is beside increased numbers of food insecure there is the strong trend widening spread of social and political unrest. The biggest problem is the effect of economic crisis not only create large number of these lay off workers not only from formal sector but its economic chain effects deviating the informal sector which employed workers who have semi skill (high school and below). Large of them predictably large number of them become return migrants to the rural areas. In this circumstance, agriculture sector will confronting problem how to expand “agriculture sector capacity” to increase its contribution to economic growth and become a dynamic sector of economy but at the same time generate employment for this return.

The central research question that need to be examined is whether really the agriculture sector would be playing an important role for reducing the burden of large lost jobs of workers due economic crisis. The objective of this paper is three fold: (1) to assess how large the agriculture capacity to absorbs the existing economic crisis induced unemployment that can be taken increase

number of return migrants to rural areas, (2) to examine whether these return migrants would generate a positive effect on agriculture sector, and finally (3) to prepare some policy options that could be used to increase agriculture capacity for explicitly employment creation and implicitly for agriculture and economic growth.

## **ECONOMIC CRISIS AND AGRICULTURE SECTOR**

### *Sign of Crisis: Causes and their Impacts*

The contagious effect of rupiah currencies crisis in the mid of 1997 in Asia began in Thailand, and was spread to Indonesia very rapidly. Rupiah now is depreciated to the lowest level, in one point of time in 1998 reached to Rp 15,000 per US \$ per dollar. Combined with the political turmoil, rupiah may never return to its initial equilibrium level which was calculated around Rp 4,000 to Rp 5,000 per US \$ per dollar. In order to avoid capital flight and in order to strengthen the rupiah currency the Bank Indonesia launched a tight money policy by increasing the interest rate at the level of 50-60% per month.

It is so difficult to understand why Indonesia economy that for 32 years had such a rapid growth in 1998 the reversal fortune occurred, Hill (1998). He also notes that the economic crisis may have similar to the recession and depression experienced by the United Kingdom (1929-1932). Up to present time there is nobody knows what are exactly factors behind such dramatic economic crisis. Many domestic and foreign economists are now trying to make an effort to answer some hard questions and increase our understanding over what has actually happened that caused effect factors behind this crisis on the nature of crisis. The crisis was not easy to anybody to digest in detail but now there are several published and unpublished papers on this subject available. I took opinion of economists: Nasution, A. (1998) and Sadli (1998) in general, describes that the Indonesia's economic crisis has a strong contagious effect and not an ordinary one. This section is not designed to discuss in detail what and how monetary and fiscal policy related to real sectors of economy have an effect on the domestic economy but rather to focus on how the economy in both monetary and real sector has been hit by the economic crisis.

### ***Monetary sector***

Many studies have shown that the causes of depreciation of rupiah, Nasution (1997), and Tarmidi, (1998) are partly poor management in monetary and banking system and inconsistency in fiscal policies. This poor economic management leads to uncontrolled private debt, current account deficit, significant capital flight especially from portfolio investment, capital out flow, crisis of trust to the government and financial institutions. These

simultaneous causes of crisis were stimulated by both internal and external factors. From the external, according to Sadli (1998), was a by product of the large inflow of foreign country's capital since mid 1980's and of the boom it inflated. The "boom" of capital in turn generate more capital inflows which may induce lack of government policies with respect to control current account deficit and exchange rate were the cause of existing devastating effect of crisis. Meanwhile, from the internal side, the free float exchange rate regime may have been used by business people for the possibility of easier capital flight. The over value of rupiah become an easy target for speculative attacks. Combined with a very weak domestic banking system, and political unrest there is no more incentive for foreign investors to allocate their resources in the country. The root of problem according to Helmberger (1998)<sup>1</sup> observe that the deregulation of banking in 1988 may have been a big mistake in the monetary sector. The mistake lie for the mushroom number of banks during this period (1988-1996) left unmonitored and uncontrolled. The strategy adopted by the government of Indonesia to implement the monetary reform is stabilising the rupiah, restructuring the banking system, building a framework to solve the private debt problem, and generating a climate for trading and export activity. The best lesson from Singapore that this country remain stable, economic according to Chia (1998) because government implemented a clean government principle and emphasis on meritocracy, the upholding of the rule of law and emphasis on market discipline and efficiency.

### ***Fiscal policy and real sector***

Nasution, A. (1998) and Sadli (1998) make a conjecture over possible impact of economic crisis to overall performance of real sectors. The sharp fall of rupiah creates insolvent business, especially those companies with a lot unhedged foreign borrowing and oriented toward the domestic market. As result private company that hard hits are: the manufacture, the construction sector, the real estate and property, company that operating to produce service (especially tourism sector). The collapsed in of the real sectors have created company bankrupts and lay-off 4 to 5 million workers. For some few real sectors, however, such as the mining sector, experience a positive growth and some agriculture commodities have experienced boom.

In the fiscal policy for expansion real sector, the Government of Indonesia is facing difficulties in (1) lack of revenue for demand expansion for pushing the real sector to move, and (2) invite new foreign direct investment (FDI) and foreign loan to fulfil the budget deficit. Fiscal policy is a power and perhaps now the only tool for achieving economic stability and growth and should be used mainly to restore internal stability. The immediate step that should be taken is consolidation of budget expenditure into the formal budget and implemented with high discipline with no corruption please. At the

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<sup>1</sup> Is based on private conversation with him during a meeting in Jakarta, 1998.

present time, GOI implemented the tight government spending to finance all economic development sectors. It look for budget allocation in FY 1999 is focus on the food sector, to subsidise the differential exchange rate and on providing job opportunities in terms of social safety net.

***Impact of crisis on labor market and poverty incidence***

Until April 1998 it was noted that about 3.2 million lay off workers should be sent home. The largest sector suffering from this problem is the construction (property) sector by a number of one million workers. This lay-off creates a big problem for the urban migrant and implies a return migration phenomenon as the result. For rural areas this big wave of return migration arises a crucial problem in order to supply job opportunities. Returning to the agriculture sector, for certain number of migrants, is not easy because there is a big change of skill and “culture”. At the same time labor productivity in the agricultural sector tends to be lower and lower because this sector employs an increasing labor supply.

Another source of data shows that of the total unemployed of eight million in 1998, 5.5 million are newly unemployed. Table 3 below show the structure of unemployment by sector and gender. As seen in the table construction sector is the sector generating high newly unemployed followed by the manufacturing sector. It is noted that there are four million newly unemployed as a result of worse situation in both sectors. Moreover as the total, around 30% of the newly unemployed is female, meaning that one out of every three newly unemployed is female.

**Table 1** Profile of the Newly Unemployed by Sector and Gender

Sector	Male	Female	Total	% Female of The Total
New school leavers	555,000	450,000	1,000,000	45
Construction	2,250,000	250,000	2,500,000	10
Manufacturing	750,000	750,000	1,500,000	50
Tertiary Sector	250,000	250,000	500,000	50
Total	3,800,000	1,700,000	5,500,000	31

Source: Hugo (1998) *in* Ahmed (1998)

According to Hugo’s data above the crisis also enlarges the number of people living under the poverty line. Until 1996, before the crisis, about 22.5 million people were living under the poverty line (Table 2). However, during the crisis, there is an additional number of the poor at the level of 9.9 million, therefore the total number of the poor increases to be 32.4 million. Rural areas is the most suffering place to face the poverty problem that is around 60% of the total (Hugo, 1998 *in* Ahmed, 1998).

**Table 2:** Population under Poverty Line Pre- and Post-Crisis

<b>Period</b>	<b>Urban</b>	<b>Rural</b>	<b>Total</b>
Pre-Crisis (1996)	7.2	13.3	22.5
New Entrants	3.7	6.2	9.9
Total	10.9	19.5	32.4

Source: Hugo (1998) in Ahmed (1998)

The number of poverty incidence is not an easy matter to verify. For example various sources have different figures. According to World Bank (1998) perhaps the most realistic data, the incidence of poverty up to 14.1%. CBS records used by GOI official shows, the number of incidence of poverty would jump from 22 in 1996 to 79.4 million in 1998, (Booth, 1998). Due to the crisis the poverty problem is going to be larger both in rural especially in urban areas. Before the crisis, there were 22.5 million people living under the poverty line (7.2 million in urban and 13.3 million in rural). During the crisis, 9.9 million people as the “new entrants” were living under the poverty line (3.7 million in urban and 6.2 million in rural). Therefore the total number of the poor is around 32.4 million. The problem dimensions of this increasing number of poverty incidence is: (a) how to create large number of jobs and (b) how to produce more food to feed this nearly poor and poor people. The lay off large numbers of workers from manufacture, construction and textile industries may have silently returned to rural areas. The impact of return migrants to the agriculture sector would be examined later in chapter IV.

### ***Some source of the labor problem***

*Inappropriate Job and Wage.* People suffering from lay off workers cannot be said directly as unemployed people. Pressure to earn income for living pushes them to take arbitrary job provided for them in, even, arbitrary level of wage. There are at least three impacts caused by this phenomenon, eg., (1) low labor productivity, (2) low wage, and (3) low sectors productivity where the people enter. The low labor productivity relates to the increasing absorption of labor (the newly unemployed) to enter an industry. The low wage is a consequence of labor surplus vice a vice the weak demand of labor. In this context the low wage will be possibly paid for them causing a (new) poverty life. It must be not that in terms of US dollar today the Indonesian labor is the cheapest labor in the world. Meanwhile the low sector productivity causes a shortage in the supply of domestic goods, but at the same time imported goods cannot be put as the substitute because of the high price of foreign currencies.

Further, due to the rapid increase of market price of daily goods and inflation, the real wage paid to the worker who still has a job decreases from time to time. The nominal wage also declines because the industry has no

ability to pay the worker at the usual level of wage related to the lower demand of output. Bullard, Bello and Malhotra (1998) write that at current rates, the minimum wage is worth about 63 cents a day.

*Indonesian Worker Returns Home from Abroad.* This issue is the impact of the same economic crisis happening in neighbouring countries employing Indonesian workers. The critics in Malaysia and South Korea pushes them to send home the worker in order to protect and substitute the local worker. There is no accurate data on the issue, but newspapers report that thousands workers should be sent home because they lost their job in the neighbouring country.

*Weak Demand for Labor in Domestic Market.* The economic growth as predicted will be around minus 4 to 8 percent. The implication of this low growth of economy is that demand for labor will be dramatically weak. Beside the agricultural sector still has a positive growth, the overall domestic market demand for labor is very weak.

*Weak Demand for Labor in Neighbouring Countries.* The crisis as also faced by neighbouring countries such as Malaysia and South Korea causes the weak demand for Indonesia labor. This means that the problem is in the international market.

## **The link of economic and agriculture development**

The objective of Indonesia economic development in macro indicators are: (1) to achieve a continuous high growth, (2) low inflation rate, (3) surplus in balance of payment (trade) and (4) employment creation. In order to achieve the multiple macro economic target, Indonesia commits her resources to adopt import substitution industrialisation (1970-1983) but then later shift to export promotion industrialisation strategy (1984-1997). The basic strategy of economic development adopted was structural transformation. The structural transformation was based on an economic premise by putting manufacture sector as a leading role for achieving rapid economic growth. The demand power under structural transformation would gradually absorb rural/agriculture surplus labor into product industrial labor force. In this case, the role of demand becomes the center of power to solve employment problems in Indonesia.

Chapter II is devised in two parts: First to explain the failure of industrialisation based on the experience of implementing an economic doctrine; structural transformation in the last 30 years and second, followed by rough assessment the impact of economic crisis on agriculture sector.

### ***Structural change transformation: before crisis***

Agriculture development (for achieving high economic growth and employment creation in Indonesia under economic development in the last 30 years was based and placed on structural transformation theory or approach (STA). Under this STA the engine of economic growth is simply centred on the demand power created through development manufacture industries. The inability of manufacture sector to absorb the 2-4 percent growth of labor force<sup>2</sup> is very limited, therefore the rural-urban migration in the last 30 years has created a massive informal sector in practically all cities in Indonesia. This type of labor market described by Nachrowi at al. (1995) as the employment in the informal sector provide an alternative to employment in the manufacturing sector to the agriculture based worker. The basic reason is that the manufacture sector requires a relative highly skilled workers while agriculture workers who migrate to urban sectors mostly have a low skill. The major thesis of continuing rural-urban migration is still in line with the classic Lewis (1957) model surplus of rural labor. Where urban job for may continuing offering higher level of wage or income in informal sector, Nachrowi (1995).

Indonesia industrial strategy under both; import substitution (1970-1983) and export promotion (1984-1998) in the context of structural transformation: “heralded by creating demand through export industrial development” have failed to place the agriculture sector as a leading role for achieving high economic growth and employment creation. The Structural change in the economy is something that raises further one question: why the contribution of the industrial sector, especially manufacturing sector, in terms of output employment is not growing fast enough to absorb the still high growth of population and labor force (at least 2.4% pa.). This implies that industrialisation in the Lewis’ context of economic structural changes has failed to generate gradual labor absorption in urban (capitalist) sectors through rural-urban migration mechanism; shift in occupation. The labor absorption induced by industrial development was not effectively rationalised in the agriculture sector from labor surplus economy. A desirable result of this resource shift should be the rapid growth in non-farm activities (industries) without jeopardising the agricultural production. According to Tambunan (1998) the major failure of this objective is because agriculture sector is suffering from under investment and especially, investment in the research and development (R&D) related to agriculture productivity growth. After updating to Simatupang (1995) data, indicates the bank based investment in the agriculture sector clearly indicates a steadily decline since 1995 to 1998 while industry and service sector have steadily increased (see Table 3).

These economic and industrial development experiences, tell us that under structural transformation by emphasising demand absorption capacity of

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<sup>2</sup> According to Pasay and Haydi (1990), the increasing growth of labor force was due to unincreasing propensity to participate in the labor market and increasing growth in manpower.

industrial sector for absorbing agriculture labor by manufacture sector can never keep up with the total absolute Indonesia labor force per year. Therefore, in this time of economic crisis and era of economic reformation, we have to examine a possible new approach by placing new revised industrial strategy. This new industrial strategy can be called **reagriculturisation of industry (economic) development**. In association with this fundamental changes of industrial policy we have to look and examine the supply side of agriculture development. We believe that the supply side approach can bring the agriculture sector as a still important sector for achieving high economic growth and employment generation for millions of people.

### *The impact of economic crisis on agriculture sector*

Using digit 1 of CBS the group of agriculture commodities consist of: (1) food crops, (2) state and small holder plantations, (3) fisheries, (4) livestock, (5) forestry. The differential impact of economic crisis to the agriculture sector would effectively altered by changes of one or combination of the following variables: (1) cost structure, (2) price of agriculture output, (3) economic value of asset such land, agriculture equipment, (4) level of output, (5) employment and (6) profit of agriculture firm. Any measurement over impact of economic crisis on agriculture would trace through observation in those six variables that can be formed into single matrix as presented in Table 4. Any claim whether agriculture experience “booming” or not-booming by economic crisis should be examined through changes in these six variables.

**Table 3:** Banking Based Credit Investment by Sector 1969/70-1997/98 (in million)

Year	Agriculture	Industry	Mining	Service	Mis.	Total
1980/81	117 (4)	917 (29)	1806 (56)	300 (9)	71 (2)	3311 (100)
1981/82	219 (6)	1190 (32)	1623 (43)	588 (16)	139 (4)	3579 (100)
1982/83	389 (8)	1958 (43)	1182 (23)	775 (17)	301 (7)	4605 (100)
1983/84	495 (10)	2316 (49)	632 (13)	858 (18)	431 (9)	4732 (100)
1984/85	619 (12)	2566 (48)	345 (6)	1184 (22)	620 (12)	5381 (100)
1985/86	984 (16)	2539 (42)	222 (4)	1558 (26)	806 (13)	7614 (100)
1986/87	1300 (17)	3213 (42)	368 (4)	1729 (23)	1004 (13)	7614 (100)
1987/88	1744 (19)	3768 (41)	230 (2)	2388 (26)	1083 (12)	9210 (100)
1988/89	2637 (22)	4917 (41)	322 (3)	3168 (26)	1071 (9)	12115 (100)
1989/90	3629 (23)	6639 (42)	321 (20)	4884 (31)	200 (1)	15673 (100)
1990/91	4597 (21)	9151 (42)	389 (2)	6959 (32)	490 (2)	21586 (100)
1991/92	5884 (21)	11764 (42)	443 (2)	9108 (32)	1011 (4)	28210 (100)
1992/93	7169 (19)	16489 (44)	436 (1)	12131 (32)	1213 (3)	37438 (100)
1993/94	8942 (21)	17206 (40)	169 (0)	16461 (39)	13 (0)	42793 (100)
1994/95	10215 (23)	20447 (46)	215 (0)	13349 (30)	0 -	44226 (100)
1995/96	10869 (20)	23949 (45)	271 (0)	18125 (34)	0 -	53214 (100)
1996/97	12040 (19)	25485 (41)	540 (0)	23691 (38)	0 -	61756 (100)
1997/98	13551 (17)	31241 (40)	1089 (3)	32334 (41)	0 -	78215 (100)

Source: Simatupang (1995) based on *Nota Keuangan dan RAPBN various year for years*. 1969/70 1993/94. RAPBN for various year for years 1994/95 - 1997/98 Notes: Number in bracket is share in percentage.

It is widely reported within the agriculture sector and sub-sector performing contradicting situation during the economic crisis. Livestock industry especially poultry industry collapsed while most state and small holder plantation are take large benefit from this economic crisis. In the last two years there has been contradictory statement especially among agriculture economist regarding the booming status of agriculture sector. Some of them claim that agriculture sector is booming because the strength of agriculture sector (domestic oriented resource industries). The other claim, however, mentioned for the same reason: that the agriculture sector is less effected than other sector. For either claimed, however, the agriculture sector could not be immune from economic crisis. For most agriculture commodities as shows by Ratnawati at all (1998) there significant increased in cost of production. However, for few export oriented commodities such as palm oil, cacao, pepper and Coffee price of output even 10 times, as result the revenue of farmers far higher than increased mental cost due to the increase price of input (fertiliser and pesticides). In addition, the asset value of all firms may have significantly decline. If this is the case, all those impacted firms would have difficulties in valuing bank guaranteed for borrowing money.

In order to increase our understanding over the impact of crisis on agriculture and its connection with agriculture capacity for labor absorption it is useful to first present the agriculture growth performance as presented in Table 5. Since the largest number of population or labor force depend on food sector (60% of agriculture GDP) which experiencing a negative growth would prevent agriculture sector, for increasing its capacity for increasing its contribution for labor absorption. In addition to this food sector problem, since food sector is concentrated in Java economy where the most populous island and relatively industrialised economy where unemployed higher (Table 1), the economic crisis therefore would increase new “stressed” on agriculture sector. In addition, since the concentration of livestock also in Java, the collapsed of small and large livestock industry will not soon be recovered unless the domestic feed mills industry is domestically developed.



rice to the advantage of consumers. Since rice economy dominant Java's rural economy, the economic crisis may have a strong economic disadvantage for Java compared to outer islands.

From these limited evidences, two conclusions are made over the crisis on agriculture sector: (a) The food sector is suffered from negative growth out other the agriculture commodities are may have less effected than any commodities, (b) for farmers who growing export oriented agriculture commodities such as pepper, palm oil, coffee, cacao and fish have taken advantage of the large devaluation of the rupiah. However, the "booming" for these few agriculture commodities may be only temporary changes. If the exchange rate is move to the initial equilibrium, which may be lower than the present exchange rate, these export agriculture commodities may not take large benefits. The negative growth of food sector would have strong implication on employment creation in Java and outer island.

### **The capacity of agriculture and rural economy for creating more employment: the haven case?**

In order to examine over this topic, the haven case interpreted as how far and much the agriculture capacity for creating new employment and unemployed workers during crisis and beyond (long term objective). This chapter will be divided to two sub-sections: (a) to examine how likely the return migrant could advantage or disadvantage for agriculture rural economy and (b) to examine the agriculture productivity and labor absorption hypothesis.

#### ***The short run problem of rural-urban migration on agriculture sector***

The impact of economic crisis in the urban and industrial sector created a chain effect on unemployment. The lay off workers of manufacture and construction industries as reflected in Table 1 and Table 2 combined with the dramatic slow down of economy has a significant effect in both formal and informal labor market in urban areas. Large number of these unemployment workers from both sources are suspected to return to their respective hometown (village). Large numbers of migrants are Javanese and the rest return to outer islands. Most of these migrants from the urban informal sectors are viewed as still to have a strong "agriculture background". The reason for return migration is that they lost and don't find any jobs with reasonable wage available in the urban/industrial sectors. They return and by using "cultural or traditional safety net" that they have since a long time keep and maintain valuable human resources that is "kinship" among close and far relatives who live in the rural areas.

Although there is no exact number available, it is reasonable to make sort of conjecture that large numbers of return migrants in Java become available for hire labourers for rice economy in the rural areas. Since the average ownership of cultivated land in Java (according to population census, 1995, is small 0.5 hectare per household) this return migrants would have very small opportunities to get a job as agriculture labourers. The reason is that, with a small size of land, farmers are likely not to hire any additional labor. If return migrants stay in rural economy with contributing nothing to input but through “kinship” mechanism have shared in the output then it is easy to understand the low productivity of food crops. Another angle of problem, given the typical of working environment in rice farms which essentially (hard work) it must be very difficult for them to accept a Rp 5,000 wage per day in rural areas.

Even as noted by Booth (1998) that happened in the past decade there was a considerable increase in farm mechanisation for relatively large farmers (1-2 ha) in Java and outer island in response to scarcity of labor. The very large rupiah devaluation will make such equipment more expensive and thus force farmers to return to traditional farm practices, which means a more labor intensive method of farming. For given the same amount of land for producing a certain level of output, reducing agriculture equipment used (capital base asset) and substituting cheaper input labor for expensive equipment likely will create a next worse Geertz agriculture involution. It is probably reasonable to conclude that employment demand (creation) through this economic crisis inducement effect would be very small.

Unlike in the case of Java, however, return migrants to outer island may have bigger chances or opportunities to get jobs in their respective home. There are at least two reasons: (a) most outer island economy is based on commercial and export oriented crops such as palm oil, coffee, cacao, fish, shrimps, etc. which experience “boom” due to large devaluation of rupiah. This implies that agriculture capacity to absorb labor during this crisis is still available in outer island . Assume all these return migrants would take the average wage whatever wage applied in the local economy in outer island, there is a strong chance demand for labor in outer island is bigger than in Java. However conversation made to made to many friends as well as researchers who have observed rural economy during the crisis in outer island strongly indicates that it is not an easy solution for return migrants (urban people) to adjust hard working style of farmers. For survival reason, they may take that jobs and they try as hard as possible to adapt the agriculture life style.

The interesting case that may be worth to look is these return migrants who are lay off and they bring with them some amount of capital. Some of these return migrants may be making a market entry and become farmers. In the Java case, since land availability is limited, given the price of land in Java now is increased, return migrants may only be able to purchase only a small

fraction of land. For survival reason this purchasing land can be a rational decision but for development of profitable agriculture business, may not. The case with operating small size of agriculture land for given the fact fate of return in producing agriculture commodities is not higher than 18% these return migrants as small investors may just simply put their money in the bank to earn higher interest paid.

Perhaps another place for alternative to invest in rural areas is in the increasing importance of non-farm type of business in rural areas. If rate of return of putting money in non-farm activities is bigger than save in the bank, the investment made is good. If this is the case, then there is employment creation in rural areas. Various sources of information indicate that the non-farm income portion out of the total household income in Java in the last decades was of increasingly importance. Part of this income is remittance but large portion of it is coming from small-scale agro industries and non-farm rural industries ranging from handicraft to various types of small industries. These types of job, if available is the best hope for men or women with low skill who return to rural areas. The non-farm activities, in my judgment is one probability of the best alternative for investment and could play an important role as “safety nets” for creating employment. This type of investment and job in rural areas providing the more close if not matching to the type of work for return migrants from urban workers.

As conclusion, based on some observation above and my educated judgment, agriculture and rural economy may provide small number employment for return migrants during the economic crisis but not that much potential in Java relative to the outer island. The low agriculture capacity of labor absorption (especially) in Java partly because availability of land is limited and technology in non-rice is very limited since green revolution (see Table 6). If this return migrants are working in rural Java without break through in agriculture technology it possibly will end-up to the next Greetz’s agriculture involution. Therefore, we may conclude agriculture in Java, as labor absorber is not even “half heaven” to economic crisis inducement unemployment. This return migrants should open our eyes again to think why agriculture capacity absorb labor is very low (especially in Java) and why the informal sector in most towns in Indonesia has developed very fast? Therefore, there is a need to examine over what is wrong in the agriculture and rural economy. Many agriculture economists have shown the agriculture productivity especially non-rice and the role of non-farm activities are the key factors. This subject will be subsequently discussed next.

### ***Agriculture productivity and labor absorption hypothesis***

To some economists before the economic crisis, the structural economic change is seen as Indonesian economy entering the stage of industrialisation. In view of the fact that the agricultural sector remains the largest sector, however, the problem is that except for rice, agricultural productivity has in general been slowly moving as shown in Table 6. The great experience that taught us a lesson for increasing productivity is rice self-sufficiency program.

The key factor to increase agriculture productivity and employment creation is to get farmers adapted to available new technology. The rapid growth of the rice production heralded by the green revolution has provided a major source of farmers' income and employment for nearly 30 years. The irrigation, high yielding varieties (HYV) and the heavy use of fertilisers and pesticides significantly contribute to growth of the agriculture sector and food security. The importance of rice economy should also be viewed that it is providing millions of jobs to landless and poor labourers in rural areas. Thus, the technology and productivity are the key variables for improving existing agriculture capacity for generating employment in Indonesia. The data assembled on some crops to show productivity in Table 6 can be used as proxy of technological changes.

Except rice, the productivity of soybean and corn are not that much changing. Similar to these two crops productivity is also not improved. As data in Table 6, there is a rapid expansion of total acreage of palm oil. This commercial crops is the most rapid expanding in Indonesia now is about 2 million ha. The problem, however, in 1982 the productivity of palm oil increased from 295 to 268 kg/ha. Since then it was declining to only 268 kg/ha in 1995. Furthermore, except for sugar cane, if we compare agriculture productivity with neighbour countries we found that the Indonesia agriculture productivity except for food crop rice, in general is lower than Malaysia, Thailand and the Philippines (Table 7). The agriculture productivity gap of non-rice with neighbour countries provide us an explanation that there is a large latent potential demand for creating employment in the agriculture sector that has not been effectively exploited (or invested) in the last 30 years.

**Table 6** Total Acreage Change and Productivity of Some Food and Commercial Crops in Indonesia, Year 1980-1997

YEA R	FOOD CROPS						CROP PLANTATION			
	Paddy		Corn		Soybean		Coffee		Palm Oil	
	Total Harvest Area ('000H A)	Productivity (Kg/Ha )	Total Harvest Area ('000H A)	Productivity (Kg/Ha )	Total Harvest Area ('000H A)	Productivity (Kg/Ha )	Total Harvest Area ('000H A)	Productivity (Kg/Ha )	Total Harvest Area ('000H A)	Productivity (Kg/Ha )
1980	9005	3293	2735	1459	732	892	498	592	295	288
1981	9382	3493	2955	1526	811	847	527	598	319	295
1982	9022	3780	2700	1569	770	858	516	516	330	316
1983	9102	3871	3018	1688	633	898	539	437	406	283
1984	9764	3866	3086	1600	853	870	539	600	512	272
1985	9902	3942	2440	1774	896	970	540	512	597	251
1986	9988	3977	3047	1884	1254	978	610	593	607	269
1987	9923	3919	2626	1714	1101	990	632	560	729	250
1988	10090	4111	3203	1953	1143	1079	638	561	863	238
1989	10521	4251	2944	2103	1198	1098	724	554	974	242
1990	10502	4302	3158	2132	1334	1115	732	562	1127	259
1991	10187	4346	3009	2150	1374	1137	760	552	1311	245
1992	11103	4345	3629	2203	1435*	1303	761	554	1467	261
1993	11013	4375	2940	2198	1470	1162	772	545	1613	249
1994	10646	4344	3040	2177	1407	1051	773	476	1804	266
1995	11439	4349	3652	2258	1477	1143	810	565	2025	268
1996	11332	4509	3779	2463	1613	1203	810	591	-	-
1997	11100*	4561	3779*	2468	1200*	1208	800*	375	-	-

Given data on the agriculture productivity hypothesis in hand, let's now trying to answer the question posted in the topic of this paper. If agriculture productivity of non-rice commodities are significantly improve through: (a) some cases there is a area land expansion and (b) technology innovation (such as HYV in rice through increasing R&D) is expected would increase the agriculture capacity for increasing labor absorption during contraction of this economic crisis. From this low productivity reason, the agriculture sector performance can not be or even not close "half heaven" for absorbing and to bring return migrants to a high productivity level. We have to realise, however, that the process of R&D for producing various HYV for non-rice is a long run solution that Indonesia could not afford not to take that policy direction. Thus, the current structural changes occurred at a time when the agriculture development is biased to rice while non-rice which have a high potential for employment creation is relatively abandoned. This conclusion is based on time series of some crop productivity presented in Table 7.

According to Erwidodo (1997) and Tambunan (1998) in order to increase agriculture productivity, and employment creation there is a need to launch economic reform in agriculture sector. The direction of the economic reform would be strengthening technological innovation in rice and non-rice

(agrarian reform) and improving the average skill of farmers<sup>3</sup>. This economic reform is true even under open economic assumption (as the GATT/WTO rules are fully implemented). According to Erwidodo in his paper, the agriculture sector would have strong benefits to such open economy notably competitive condition.

### **The option for agriculture and rural development**

The agriculture's role in the economic development is central because most of the people in poor countries make their living from the land. If leaders are seriously concerned with the welfare of their people, the only way they have is readily improve the welfare of the majority by helping to raise first the farmer's productivity in growing food and cash crops and second the prices they receive for those crops (Gillis, Perkins, Roemer and Snodgrass, 1996).

#### ***Strengthening agriculture research for generating new technology***

Since Indonesia's agriculture is one of the largest sectors with a very high degree of agrarian density, labor needs to be transferred out of the agriculture sector. In order to do this, it is necessary to increase the aggregate ratio of capital per labor in favoured agriculture sector. David Salmon (1982) for Indonesia as case study indicates the return to research expenditure is reasonably high, but R&D as the necessary investment in agriculture remains very poor to achieve a high agriculture productivity level. Davis, Oram and Ryan (1987) have shown that there is a substantial return to further investments in rice research (after green revolution). It is estimated that rice research could generate more than twice the benefits of research on potato and wheat.

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<sup>3</sup> In the area of human resources, there is an evidence to show that the average age of farmers increased from 34 to 37 years old. This evidence indicates that there is inconsistency in intergenerational changes among farmers. My conjecture is that the young generation after accomplished primary, junior and high school left the agriculture and rural rather earlier.

**Table 7** Productivity (kg/ha) of Some Food and Cash Crops in Selected ASIAN Countries, Asia and World (1982-1997)

COUNTRIES	FOOD CROPS					CASH CROPS	
	Paddy	Corn	Sweet Potato	Cassava	Soybean	Sugar Cane	Tobacco
<b>1982</b>							
Indonesia	3736	1569	7629	9812	858	85467	530
Malaysia	2674	1125	16471	12407	1500	45685	676
Philippines	2386	990	4956	8871	1051	45337	818
Thailand	1893	2299	8987	16362	1124	49241	981
Asia	3051	2443	14491	12044	1046	54289	1472
World	2987	3570	13178	9026	1768	58823	1521
<b>1985</b>							
Indonesia	3942	1774	8440	10881	970	82772	825
Malaysia	2977	1600	12000	10667	1500	48364	570
Philippines	2663	1100	4730	7172	1006	38396	916
Thailand	2061	2572	8987	13994	1285	47180	989
Asia	3340	2628	15472	11950	1253	52960	1469
World	3272	3771	13786	9742	1905	58438	1522
<b>1988</b>							
Indonesia	4111	1953	8710	11877	1079	76507	571
Malaysia	2678	1778	11935	10627	300	66842	765
Philippines	2644	1182	4821	8503	855	89960	1243
Thailand	2146	2618	9907	14421	1318	47651	775
Asia	3444	2905	11075	13079	1322	57432	1441
World	3363	3142	10298	9831	1715	61541	1470
<b>1991</b>							
Indonesia	4346	2150	9515	12095	1137	72883	437
Malaysia	3097	1750	12000	10500	333	51200	674
Philippines	2824	1297	4852	8604	750	93481	1259
Thailand	2137	2614	9709	14033	1370	51798	1126
Asia	3585	3312	15738	13114	1201	59909	1440
World	3500	3765	13670	9692	1889	60841	1533
<b>1994</b>							
Indonesia	4345	2209	9358	11595	1112	77575	714
Malaysia	3032	1818	11000	10476	333	68000	886
Philippines	2886	1504	4340	8878	1343	69715	1100
Thailand	2352	2934	10106	13807	1336	47307	1235
Asia	3747	3438	16367	12953	1440	60553	1385
World	3667	4138	14170	10072	2191	61603	1517
<b>1997</b>							
Indonesia	4561	2468	7661	12387	1208	70978	713
Malaysia	3008	1778	11111	10256		68085	1149
Philippines	2933	1589	4341	8837	1500	70845	1111
Thailand	2143	3250	10000	15000	1418	55878	1494
Asia	3909	3405	17500	13612	1338	63885	1736
World	3827	4182	14983	10062	2174	63324	1715

Source: FAO Production Yearbook, 1982, 1985, 1988, 1991, 1994, 1997

As also shown by research conducted by Hartoyo (1994) for his doctor dissertation, by using R&D expenditure as independent variable to measure the impact of technology on food crops (rice, corn, soybean, cassava and sweet potato) in Java arrived to the conclusion that if R&D increase for generating new technology it would increase demand for labor. Some data show that R&D agriculture related technology expenditures in the agriculture

sector tend to decline (Hill, 1995). The research expenditure in *Pelita II* (1974-79) recorded 34.2 percent of total planned development expenditure for agriculture and irrigation but since then continuously declined to 17.7 percent in *Pelita V* (1989-94). All of this empirical data imply, if R&D for generating new technology is in the position of under investment, the agriculture sector would not perform high labor capacity absorption. Despite of this high pay off research and development (R&D), however, the agriculture sector is suffering from under-investment.

- (a) The still high population growth (1.9% pa.), and an increasing number of labor force (4% pa.), and limited amount of land in rural Java have created a massive disguised employment and rural-urban migration.
- (b) The performance of the manufacturing sector in contributing to employment absorption is still very low. The problem is, with a few exceptions such as glove cigarettes industries, that the manufacturing sector in Indonesia tended to be rather capital-intensive and “foot-loose” industries with fewer backward and forward linkages.
- (c) During the implementation of a rice self-sufficiency program by subsidising modern input and fixing the price of rice at certain levels whereby consumers (households who supply labor) could buy food cheaply. But although this program provides stakes of rice supply and saves substantial foreign exchange earnings, it generates social cost for the rural economy. In this case, farmer’s income has not increased substantially because there has not been enough incremental income to support a certain threshold of demand, which is a basic prerequisite for rural industrialisation.

### ***Diversifying rural economy: rural industrialisation<sup>4</sup>***

One key to prevent a massive rural-urban migration and send low skilled workers seeking job overseas there is a need to improve rural economy. According to Tambunan (1989) the most viable policy option is to launch a long-term social and economic program: rural industrialisation.

There are at least three major reasons for launching rural industrialisation:

In conclusion, this rural industrialisation could play an important role to diversity rural economy and it will function: (a) to bridge the interest of small farmers to the regional and national and the world market, (b) to induce small

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<sup>4</sup> The idea of rural industrialisation is not new and it has been proposed in 1987 by Center for Development studies for further information see Sajogyo and Tambunan (ed.), *Rural Industrialisation*, PSP-ISEI Jaya, 1987.

traditional farmers to become a part of the industrial sector, an integrated part of the economy, and (c) to contribute to a better income distribution between rural and urban population. For purposes, the agro-industrial and agribusiness development should get the highest priority for rural industrialisation programs.

***Agrarian (land) reform: hard policy choice***

What we have ignored or neglected for what ever reason that is supposed to have been done in the early economic policy development (New Order Economy, 1970) is to larch agrarian (land) reform. The new order economic policy has lost a historical momentum for fundamental agriculture development policy that was expected to improve productivity for increasing contribution of agriculture to economic growth, fairness in distribution of income and employment creation. The allocation and reallocation of resources such as land, small capital assets, to poor people capital are not new to the GOI's economic development in the last 30 years. Transmigration is one program that distributes an average of 2 ha land to mostly Javanese landless in outer island. The property alleviation program through *Inpres Desa Tertinggal* (IDT) also distributes financial asset through various form of revolving fund programs. But it looks like these two program are not enough to solve the increasing gap of income per capita between the income group of people: the have and have not.

The result of the census in 1995 compared to the censuses before indicates although the average size of land ownership in Java is relatively stable around 0.5 ha. There is also strong evidence large acreage of land (thousand and million ha) concentrate in a few hand and firms. This already against Indonesia National Agrarian law and beyond. The problem, however the number of peasant (land less and obviously poor people) increase by one million. In supporting rural industrialisation which contain of agriculture modernisation (industrialisation) and non-farm industrialisation for coping with this economic crisis, once again, provide us a good momentum to exercise a long-term policy option in the asset distribution that is agrarian (land) reform.

Although Booth (1998) does not explicitly mention the importance of agrarian (land) reform but according to her in order to increase employment opportunities in agriculture there is to provide more land to rural households with the labor to cultivate it. The reason is that the grounds for arguing that distribution of land in most part of Southeast Asia is considerably more skewed than in Taiwan, especially when land under the control of large estates in included. The nature of this policy option would be long run and should be done with full scale and market oriented discipline. If not, it is likely will fail

like those experience by the Philippine and Egypt economy. The success story is Japan and Taiwan.

The question is why should be agrarian (land) reform option? The answer is distribution and redistribution of land as valuable assets in the supply side approach would change the landless to become productive unit farmers. This land distribution can effect the labor market in rural areas for the poor and landless. If this policy is implemented it would implicate or explicitly would generate more employment for the same amount land given to those large size state plantations. The policy implication, it is necessary to distribute land assets among poor and landless. If this policy option is well implemented it is expected that it would increase agriculture production and reduce significantly the rate and absolute number of rural urban migration. This precisely has been missing in the approach of “structural transformation”.

### ***Regionalization of agriculture development: institutional development***

The agriculture development in the last 30 years adopted centralised planning institution. The failure of rigid centralist bureaucratic behaviour lies in the inefficient allocation of resources used for agriculture development. There are two institutional reforms that working in the supply side approach should be taken: (1) R&D for agriculture generating technology and (2) Regionalization of agriculture planning. These two institutional reform. Should goes along recent GOI decentralisation program.

First, various research institution such as universities, BPPT, LIPI and other agencies are practically not in the function for continuously making R&D for generating new advanced technology in the agriculture sector. This research institution should be reorganised to take into account the regional ecological agriculture. Research stations playing as adaptive trial stations should work for similar well identified ecological agriculture regions. Agriculture universities or faculties should be designed to carry out basic researches and have field stations, no matter how poor the existing research capacity they have now. The research capacity should be built from the beginning for poor capacity and excellent universities are obliged to carry out advanced researches as their assign in their ecological agriculture region. Along with improved budgeting and preparing key personnel of research would be the key for research policy changes

Second, deregulation of agriculture from centralised agriculture planning to Regionalization of agriculture planning is a must. The reasons are three: (a) central planner does not know in detail the culture of people, agriculture practices and regional market behaviour of every agriculture commodities in all regions, (b) central planner have limited information and knowledge on what has been changed in various different regional agriculture's and (c) strong tendency in part of national agriculture planners to

homogenise agriculture input and output over many agriculture commodities may have grossly distorted market mechanism and efficiency. Based on these three reason there is a need to empowering agriculture regional planners and they should have the final decision over how to develop agriculture in that region.

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