

UNDEREMPLOYMENT, DIVERSIFICATION AND OFF-FARM EMPLOYMENT IN INDONESIA

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This paper deals with agricultural diversification and off-farm employment as methods of reducing not only rural but also urban unemployment in Indonesia. It looks into the positive effects as well as the difficulties of pursuing agricultural diversification. Also examined is the potential for raising the non-agricultural income of farm families particularly because of the large pool of underemployed rural labor. It points out the need to upgrade the quality of off-farm jobs to lessen the income inequalities between the agricultural and nonagricultural sectors, and the need to substantially reduce the labor surplus to improve within and between disparities in family incomes. Finally, it makes policy recommendations regarding the promotion of agricultural diversification, off-farm employment, and the better generation of data needed for a more efficient policy implementation.

1. Introduction

During the two weeks of my stay, I did not have the time to make an exhaustive review of past studies on underemployment and off-farm employment in Indonesia. I thought that priority should be given to the substantive aspects of the subject, seeing from the recent review of off-farm employment studies by Benjamin White that the topic has not been adequately researched.¹

I have been interested in the topic of Manpower for some years and have published two papers, the first in *Off-farm Employment in Asian Development*, (R. Shand, editor, Australian National University, Canberra, 1985) and the second in *Non-Agricultural Employment of Farm-Families in Asia*, (Choe and Kim, editors, Korean Rural Economics Institute, Seoul, 1987). The first paper, which was also published in the *Philippine Review of Economics and Business*, (September & December 1985) dealt with off-farm employment in Japan, Taiwan, and South Korea, while the second focussed on other countries of Asia, except Indonesia for which I was unable to obtain any data. Benjamin White refers to both papers in his review as a basis of comparison with Indonesian data.

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¹ See his *Rural Non-Farm Employment in Java: Recent Developments, Policy Issues and Research Needs*, a report prepared for the UNDP/ILO Department of Manpower Project, January 1986.

In both papers, I take the broader concept by referring to non-agricultural incomes of agricultural families, instead of the traditional concept of off-farm employment. The reason is that farm families derive incomes from rent, interest and sources other than employment. Moreover, most farm families combine cropping with fishing, livestock, and forestry and often it is difficult to separate the earnings from each of these activities. Accordingly, non-agricultural incomes are those derived from industry and services, and agricultural families include those in fishing, forestry and livestock as well as cropping, as defined in the International Standard Industrial Classification of economic activities. For simplicity, we use the term *off-farm employment* here to refer to non-agricultural incomes of agricultural families.

The importance of non-agricultural incomes to agricultural families in Asian countries lies in the nature of the monsoon winds which bring heavy rains in one-half of the year and light to very little rains in the other half of the year. The sharp reversal of winds caused by the heating in the summer months and freezing in the winter months of the world's largest land mass extending from Korea to the Pamirs in the west makes possible paddy rice agriculture during the months of heavy rain when water is collected in puddles and seedlings are transplanted. Over the centuries, paddy rice-growing has evolved into the most labor-intensive staple agriculture in the world. This was the basis for the great population density of monsoon Asia.

However, the enormous workforce needed for paddies had little to do on the farm during the dry half of the year, unless there was irrigation to bring water from the rivers and ponds. The incomes earned by the peasants during the rainy months from their tiny farms had to be supplemented by irrigated farming and non-agricultural activities during the dry months, if incomes were to be sufficient.²

The months of light rain in Java, most parts of Sulawesi and Kalimantan are from May to September, although in these months Sumatra has more rain. In the countries of Asia north of the equator, the dry months are from December to May and the heavy rains come starting June, except in Malaysia where (as in Sumatra) there is rainfall sufficient for three crops. In the postwar period, during the 1950s Japan constructed sufficient irrigation to make agriculture a year-round occupation. This, together with off-farm employment, enabled the peasantry to be fully occupied by the end of the 1950s.

²Details of the above are found in my volume, *Economic Growth in Monsoon Asia, A Comparative Survey*, Tokyo University Press, 1987.

With family incomes as high as those of urban workers' families, the peasantry was able to purchase urban goods and services in sufficient quantities to contribute to the growth of industry and services. Likewise, Taiwan peasants became fully-occupied by the end of the 1960s. In both countries, the growth of farm family incomes through diversified agriculture during the dry season and off-farm incomes was crucial in the earlier decades when agriculture was the major sector, and the nonagricultural sector was trying to take off. The development of agriculture preceded that of industry. In the later decades, the further rise in farm family incomes with rising crop yields and the further rise of off-farm incomes were of major importance. South Korea's problem of growth was somewhat different. Korea opted for accelerated industrial exports in the 1960s at the expense of agriculture but finding that this did not contribute to sustained, stable growth returned to agricultural development in the 1970s. All this laid the basis for the migration from the rural sector to the urban areas, as self-sufficiency in food production was attained — Japan in the late 1950s, Taiwan in the late 1960s, and Korea in the 1970s.³

This paper deals with agricultural diversification and off-farm employment as methods of reducing not only rural but also urban underemployment. Unfortunately, there are no migration surveys in the 1980s. But with the working age population 10 years and above accelerating from 1.6 million during 1971-1980 to 3.7 million during 1980-1985 and the average number of children ever born to rural women higher than in the urban areas, 1.81 compared to 1.59 in 1985, one would expect population in the urban areas to be growing slower than in the rural areas. But, in fact, the urban areas grew much faster, 5.5 per cent compared to 1.2 per cent for the rural areas; therefore about one-half or more of urban growth must be attributed to rural-to-urban migration. This migration was in part due to the inability of the rural sector to absorb the increased labor force. The percentage of the workforce in agriculture declined from 56.39 per cent in 1980 to 54.7 per cent in 1985, with the rise in productivity of rice-growing.⁴ In the next section, we look into the extent of underemployment in the rural areas since in large part the unemployment and underemployment in the urban sector have their origin in the large rural and agricultural sector.

³ For details, see Oshima (1987).

⁴ The total fertility rate in the urban areas in 1985 is reported to be about 2.5 compared to the rate for the nation as a whole of 3.3. In 1983, Indonesia's total fertility was the highest in East and Southeast Asia. In part, this was due to high child mortality rate, the highest in East and Southeast Asia, higher than Sri Lanka and as high as in India.

Unemployment and Underemployment in Rural Indonesia: Availability of Labor for Off-farm Jobs

The data from the 1986 labor force survey taken for each quarter are now in the process of tabulation. This section should be revised when the 1986 data become available. The data set for 1980 may show greater amounts of labor surplus than in 1985.

The 1985 Intercensal Survey taken in the last weeks of October and the first weeks of November reported 1.4 million in the labor force (or 2.1 per cent of the total labor force of 63.8 million) without work and 62.4 million employed.⁵ Of the latter about 43 per cent worked less than 35 hours. In the rural sector, out of a labor force of 40.8 million, 0.9 million were unemployed and of those employed, 48 per cent were working less than 35 hours. Within the rural sector, 55 per cent in agriculture worked less than 35 hours. These hours of work were only in agriculture. Since the agricultural workers also have work in industry and services during the slack months, the hours of work in nonagriculture must be added to those in agriculture. Data are not available from the 1985 Intercensal Survey. From the unpublished tables of the 1980 Census, we learn that 11 per cent of the rural workers or 5.7 million worked on jobs other than their main jobs in agriculture.

We have computed average hours of work for the underemployed workers by using the mid-point of the hours of work brackets, and multiplying it by the number of workers in each bracket. In the 1985 Intercensal Survey, the 18 million underemployed persons in agriculture worked on the average 20 hours per week. From the 1980 Census we find that the 11 per cent who had a job in addition to a job in agriculture worked on the average 9 hours per week. Since roughly 9 out of 10 rural workers had no additional job, the hours worked outside of agriculture by those with another job will raise the average hours worked by the underemployed persons only slightly by no more than 1 hour.

Nevertheless, many of the employed workers in agriculture are not available for full-time work, as many are schoolchildren and wives with housework. In the 1980 Census, those working less than 35 hours were asked whether they were looking for more hours of work; 1.3 million wanted more work or about 5 per cent of the total

⁵ October-November is said to be neither the peak season of rural labor demand which is during December, January, February when rice planting occurs nor the slack season (the dry months of May, June, July, August). Plowing begins around October. See Sayuti Hasibuan's, "Urban Unemployment Problems in Indonesia", on urban unemployment.

underemployed workers. An additional 3.9 million did not reply as they were out working and could not be reached by the interviewers and for other unknown reasons. The rest of the underemployed were schoolchildren and housewives who did not want additional work. If we assume that those who did not reply may want additional work, something like one-fifth of the underemployed workers may want additional hours of work. This assumes that all schoolchildren and housewives are not available for additional work but many may opt to work if more hours are available.

The foregoing data are from the 1980 Census and 1985 Intercensal Survey, and both pertain to the October/November period which was a period of average rural labor demand as noted above. If the drier months (from April to September) are considered, the unemployment and underemployment are likely to be more extensive than in October/November, though less extensive than in the busy months of December to March. However, after the planting and until the harvesting in the wet months, there may be substantial unemployment and underemployment since the weeding does not take much time when the crop is growing in the water. This section should be revised after the 1986 Labor Force Survey's quarterly data become available, especially the data on average hours of work.

This review of existing data for the period 1980-1985 points to the existence of substantial underemployment even during a period when the real GDP was growing at an average of 5 per cent per year. In 1986 the GDP growth rate fell to one-half of that in 1980-1985 and with the acceleration in labor supply, underemployment must have risen sharply.

Agricultural Diversification as a Source of Rural Employment

Fortunately, the government has already adopted a policy of diversifying agriculture, i.e., a shift away from rice to non-rice crops intended largely for exports (rubber, tea, coffee, palm oil, sugar cane, etc.). Indonesian agricultural production is less diversified than Philippine and Thai Agriculture. Although per capita calorie supplies have reached levels equalling or exceeding those of other Southeast Asia countries (according to data in the Food Balance Sheets of Indonesia, published by the Central Bureau of Statistics), protein levels are lowest, about 50 grams in 1983, compared to 54 for Philippines and 62 in Malaysia, with Thailand in between these two countries. And it is diversified crops that supply protein besides other nutrients. (One of the reasons for the high child mortality may be the low protein intake.)

Through Bappenas, a major USAID-funded study was recently conducted on diversified agriculture in Java by the Centre for Agribusiness Development, and published in three volumes.⁶ The study investigates 36 crops and 11 agro industries and recommends the planting of diversified crops on 250,000 hectares of upland from 1988 followed by an additional 250,000 hectares five years later. It estimates that the program will create about a million jobs under certain assumptions. Although the constraints are many, the potentials are encouraging and should promote economic growth, improve income distribution, and generate a large number of jobs, particularly when multiplier effects are taken into account. The study does not appear to have taken into account jobs created by the income/employment multiplier, although direct and indirect linkage effects are included.

I have found in a study for the Philippines that the multiplier effect has a major impact on job creation in diversification programs, aside from the acceleration effect.⁷ That is to say, a 10 per cent increase in agriculture-related production (including public works program on rural infrastructure such as irrigation, roads, fertilizer, and so on), and deducting 30 per cent as leakages abroad, gives a total multiplier effect capable of generating a demand for labor that can absorb the unemployed labor both in the rural and urban sectors. But a 10 per cent growth in agricultural production is difficult to achieve in one year; two to three years will be needed, assuming normal planting conditions.

There does not appear to be any reason why such results cannot be achieved in Indonesia. The latter's propensity to consume is just as high as in the Philippines (if not higher) and the leakages abroad even less, so that both the multiplicand and the multiplier are as favorable, if not more, for large multiplier effects. It will, however, be interesting if estimates are worked out for Indonesia to see the developments on labor absorption in both rural and urban sectors after the first 750,000 hectares, and after the second 250,000 hectares, are diversified. In addition, allowances should be made for increased diversification, not only in Java but for the outer islands.

The issue that has to be resolved is to what extent will there be a domestic market for the increased output of diversified crops.

⁶ Book I deals with the problem of employment, policy issues and action program in Java. Book II deals with commodity profiles and evaluates the possibility of diversification program. Book III deals with provincial reports.

⁷ "Agricultural Diversification in the Philippine Recovery Program," *Philippine Review of Economics and Business*, this issue.

Some of the diversified crops such as soya beans represent import-substitution. (Indonesia imported in 1985 one-half billion US\$ worth of food.) Domestic demand for diversified crops will increase with the further rise in per capita incomes, particularly with per capita incomes in Indonesia now reaching levels where there is a perceptible shift away from predominantly calorie to protein foods. And this is especially the case if the diversification is largely carried out by peasant and small holder farms, so that the distribution of family incomes does not worsen and may improve.

Statistics of family income distribution are available.⁸ Inequality as measured by the Gini coefficient, declined sharply from around .50 levels in 1976-1978 to .44 in 1982 and to .32 in 1984. The fall is too sharp to appear plausible, and it may be due to the fact that the 1976-1978 estimates were from *Sakernas* and the 1982 and 1984 from *Supernas*. The 1984 Gini is the lowest in Asia, and one of the lowest I know of in non-communist countries. The lowest Gini in Asia is found in Taiwan, around .40 in 1986, which is lower than in communist China. For countries like the Philippines, India, Nepal, and Malaysia, the latest Gini available is around .50 and more. For Japan, South Korea, Thailand, and Sri Lanka, the Gini is around .45. Thus, there are problems in the low Gini reported in the *Supernas* which need to be investigated before the results are accepted. Nevertheless, inequality may have peaked around 1976-1978 and may have declined by 1984. Rice peasants may have benefitted from higher yields with cost-saving technologies, and rising real wages and increased employment may have benefitted the landless peasant families. These may have improved the incomes of those in the lowest income brackets. If so, diversified agriculture could generate a large part of the demand for diversified crops, as in Say's Law. However, since 1984, the situation may have changed with lower GDP growth and increasing unemployment. The point to be noted is that as long as diversification is mainly undertaken only in small farms and it generates jobs for the landless families, domestic demand together with import substitution may be sufficient.

In the future, further diversification may meet with difficulties and foreign markets must be sought. The prospects for exporting diversified products need to be studied in detail. One possibility is the opening of markets in Japan, Taiwan, and South Korea in the 1990s. Presently these markets are heavily protected.⁹ But the recent

⁸ See *Tingkat dan Perkembangan Distribusi Pendapatan Rumah tangga, 1978-1984*, Central Bureau of Statistics.

⁹ See, e.g., data from S.Y. Shei and K. Anderson, *Taiwan Agricultural Protection in Comparative Perspective*, Academia Sinica, Taipei, 1983.

rise of the Japanese yen to high levels has opened up industrial markets formerly dominated by the Japanese to the Koreans and Taiwanese who have begun to experience labor shortages as industrial exports increase sharply. And these countries are now considering dismantling the structure of agricultural protection in order to release more labor to the industrial sector. In the case of Japan, the low growth of GDP in recent years and the possibility of its lowering further in the next years have compelled labor unions to demand that food costs be reduced and cheaper foods be imported from abroad.

If so, prospects of food export in the 1990s to the markets of East Asia, including Hong Kong, Singapore and Malaysia, are promising, particularly with real wages rising rapidly in Thailand, the leading exporter of food products in Southeast Asia. But it will be necessary for Indonesian peasants to compete with Communist China and the Philippines besides Thailand, especially in the quality of agricultural produce. The East Asians are accustomed to much higher quality of fruits, vegetables, animal feed and products, and in the coming years efforts must be made to raise their quality standard and marketing. And this will require improved seeds, extension services, storage, transport and communication facilities.

Two other issues that need to be studied are: 1) the possibility of exporting to Europe, if and when EC countries lower their agricultural protection and 2) the extent to which Indonesia may be able to set up small and medium labor-intensive industries whose comparative advantages are declining in East Asia with the rise of real wages. East Asian countries, particularly Taiwan, Korea and Japan, are looking for places to move their low-value, labor-intensive industries. So far most of them have moved to Thailand but with real wages rising there, Indonesia and the Philippines may begin to look attractive in the 1990s.

Nonagricultural Incomes of Agricultural Families (or Off-Farm Incomes for short)

In Japan, off-farm incomes rose steadily from the early postwar years to reach four times the amount derived from agricultural activities (cropping, livestock, forestry, and fishing) by the late 1970s; in Taiwan, they increased to twice the amount. As a result, in both countries total farm incomes rose to levels of urban workers' incomes. In the small farms of monsoon agriculture, off-farm income shares must rise if peasant incomes are to keep pace with other family incomes since the rise in yields per hectare is not sufficient.

The 1984 household expenditure survey (*Susenans*) collected in-

come data also but these were not published in the official sources because of under-reporting. From the unpublished tables, the following were obtained for the average agricultural households: 366,000 rupiahs derived from agricultural production, 72,000 from nonagricultural production, 143,000 from wages and salaries, and 57,000 from transfer receipts. In terms of percentages, 57 per cent were from agriculture, 11 per cent from nonagriculture, 23 per cent from wages and salaries and 99 per cent from transfers. Or leaving out the transfers, the percentages are 63 per cent, 12 per cent, and 25 per cent respectively. Part of wages and salaries comes from agriculture (such as the landless and small farmers working for pay for other farmers and estates). Unfortunately, the survey did not distinguish the agricultural and nonagricultural portions. But it is possible to separate these using other sources of data.

Data from the *Social Accounting Matrix, Indonesia 1980* (vol. 1, Central Bureau, October 1986) show that 830,000 and 440,000 million rupiahs were paid out to agricultural workers in food crop, livestock, fishery production and estate crops, forestry and hunting, respectively, for a total of 1270,000 million rupiahs. Wages and salaries received per agricultural households of 143,000 rupiahs (reported in Susenas) multiplied by 21 million households reported in the 1985 Intercensal Survey gives a total wage bill of 2,403 million rupiahs. Thus, roughly one-half of the wages and salaries received by agricultural households came from agriculture, leaving the other half to nonagriculture sources. But of wages and salaries of 24 per cent, 12 per cent came from nonagriculture, which with 12 per cent from nonagriculture production (probably mainly from cottage industries) give 24 per cent or a little more than one-third of agricultural incomes. This result agrees with the findings by the World Bank (1987) study on employment, and also those cited by Benjamin White in his review study, although both studies were confined to Java and ours is for Indonesia as a whole.

One-third as the percentage of nonagricultural incomes of farm families in 1985 is higher than those for the Philippines and Bangladesh of 20 per cent in 1975 (which, though, may come up to one-third by 1975), but lower than not only those of Japan and Taiwan but also Malaysia's and Sri Lanka's 39 per cent in 1979, and Thailand's 61 per cent in 1978/79. It is about the same as South Korea's in 1980, which also may have increased by 1985.¹⁰ Indonesia's share must be regarded as too low for 1985, so that the potential exists for raising it substantially particularly because of the large pool of underemployed rural labor as noted above.

¹⁰ Data from my paper on *Agricultural Diversification*, in this issue of PREB.

Elsewhere, I have found that roughly one-half of Taiwan's nonagricultural incomes of farm families came from employment in agro-industries, and the other half from non-agro-industries. Agro-industries get most of their raw materials from agriculture. There are likely to be extensive linkages to diversified agriculture.¹¹ For example, workers after harvesting fruits and vegetables take jobs in bottling, and canning, or in processing rubber, palm oil, corn, sugar-cane, and so on into finished products for human and animal feed. The non-agro-industries in Taiwan were found to be producing for domestic needs, often for rural families themselves.

In the 1984 *Susenas* Survey, there were 165,000 agricultural households engaged in the processing of their own farm products while there were 434,000 in the non-agro-industries. But as in Taiwan, more farm households were engaged in non-manufacturing industries: 400,000 agricultural households in trade, 120,000 in transport, 900,000 in services, and 480,000 in others, or a total of 1,900,000 households. And a similar pattern is found in the 1980 Census' unpublished tables on agricultural labor force working in additional jobs in manufacturing and non-manufacturing.

As suggested by Dr. Sayuti Hasibuan, there is not enough studies of agro and non-agro-industries serving as sources of employment to agricultural households. Because these are small and highly dispersed geographically, they tend to be neglected in micro-studies, and if they do exist, they are haphazardly studied without connection to policies and macro-studies. A large portion of non-agro-industries is likely to be cottage industries scattered in rural districts. And the data on hours of work from the 1980 Census suggest that they do not operate regularly throughout the year or season, probably more frequently during the slack months of rice-growing. The study of agro and other industries catering to the needs of rural families is important for other reasons.

Benjamin White, in his review of off-farm incomes, points out that, unlike my own studies for Japan, Taiwan and South Korea, off-farm employment in Java has not contributed to the equalization of family incomes, at least up to 1980. The reason was that the lower-income families were mostly employed in lower-paying non-agricultural jobs. Most of these menial and irregular tasks were done, for example by women carrying a few stones at a time from the bottom of the creek up to the site where road construction was being carried out, or jobs in marketing centers where women sit and sell small quantities of produce at low prices, or by becaks boys sleeping on their becaks while waiting for a passenger now and then. As

¹¹ See my paper in the Korea Rural Economic Institute, cited above.

long as labor was plentiful and cheaply obtainable, wages or piece rates were low and contributed little to family incomes. In contrast, in Japan where full employment was attained by the end of the 1950s, Taiwan at the end of 1960s and South Korea during the latter 1970s, off-farm jobs were plentiful and wages high. Hence, off-farm employment was crucial in lessening income disparities within the farm sector. Since it raised the average of farm incomes, it thus lowered the differences in average family incomes between the agricultural and nonagricultural sectors. Accordingly, if income inequalities are to decline, the quality of off-farm jobs must be upgraded, and labor surplus must be substantially reduced if "within" and "between" disparities in family incomes are to improve.¹²

It is difficult to reach full-employment growth without off-farm employment in monsoon Asia where small farms predominate. Japan, Taiwan, and South Korea, having sustained growth with full employment for sometime can now shift to the rapid reduction of the small farms as labor shortages dictate. But this is not so for other agrarian countries in Asia. And yet without a tightening of the labor market and accelerated rise in real wages, the process of capital-labor substitution is slow and GDP growth tends to be sluggish and unstable. South Korea found this out in the 1960s and early 1970s. Because of low levels of off-farm incomes, peasant purchasing power was insufficient and the markets for industrial products had to be sought abroad. Policies therefore had to be heavily export-oriented. The inadequate attention paid to small agricultural industries generated social unrest and instability, unlike the situation in Taiwan (although both are authoritarian governments.) Despite some shifts toward agriculture and small industries in the latter 1970s and early 1980s, social unrest continued in South Korea. Taiwan's policies were aimed much more on agricultural development and small businesses. Hence, Taiwan's growth has been much more decentralized and regionalized, unlike Korea's concentration in and around Seoul and Pusan, and off-farm incomes were substantially greater than in South Korea, although the Korean shares have risen in the late 1970s and early 1980s.¹³

Indonesian policies appear to have been closer to those of South Korea than Taiwan, and closer to the Philippines than to Thailand in the 1970s. But with the world economy no longer as vigorous as

¹²This is a summary of my two papers on off-farm incomes in R. Shand, (1985), and Choe (1987). Also on income distribution, see my paper in *Ekonomi dan Keuangan Indonesia*, March 1982 entitled "Perspectives on Trends in Asian Household Income Distribution."

¹³For details see my Tokyo University volume, *op. cit.*, Chapter 5, "The Contrast in the Economic Growth of Korea and Taiwan."

in the past, strategy and policy changes may be necessary.

Policy Issues

These issues are discussed in three parts: first regarding diversified agriculture, then on off-farm employment, and finally on statistical policies.¹⁴

As to diversified agriculture, yields of most crops (including cassava, sweet potatoes, soybeans, maize) are extremely low and growth rates are poor. In part, this is because they are grown in upland and rainfed areas, often under shifting cultivation. As rice yields in the lowland improve during the wet season, more of the lowlands should be devoted to diversified products in the dry period. Also for long periods, research investment, and incentives have focussed on rice to the neglect of other crops. With rice self-sufficiency, policy shifts are needed.

Constraints on transport and marketing, including storage and packing, heavily influence diversified crops, especially in the outer islands. Production and distribution of seeds of better varieties are necessary if product quality is to improve, especially for exports. In marketing and seed production, policies to encourage private enterprises to move into these activities are desirable. Policies for crop protection from pests and diseases are needed to promote diversified agriculture. Credit extension to diversified production is necessary with financial institutions working closely with government agencies responsible for promoting diversification. Extension agents trained to assist rice production must be retrained for the more difficult and varied skills of diversified agriculture. They need to work closely with the Village Cooperative Unit and other village organizations which also should participate in the distribution of credit. The participation of various government agriservice agents, private enterprises and farmers' institutions needs to be encouraged. Fortunately, the Indonesia Government is fully aware of these policy steps and attempts to implement them have been underway.

Diversification is a more difficult undertaking than rice development program, especially for a large and varied country like Indonesia. The village-level farmers' organizations have a particularly important role to play, as was the case in the success of Taiwan's multiple-diversified program. But the KUD, BUUD and other organizations are not as extensively and strongly organized as in Taiwan's

¹⁴For discussion of 1978 policies, see *An Employment, Income Distribution Strategy for Repelita III*, vols. I, II, III, IV and a summary volume, both found in the ILO Library, Jakarta.

farmers' associations or Japan's farm cooperatives.¹⁵ In both countries, the government financial agencies, extension services, and other activities were implemented through the farm organization. As to the promotion of off-farm employment through agri-business and cottage industries, the rapid development of diversified agriculture is of course most important, together with the development of infrastructure discussed above. Agri-business and cottage industries will need the infrastructure for the efficient marketing of their output to the urban sector and abroad. Fortunately, the government's extensive efforts in constructing infrastructure for rice will be valuable also for non-rice crops. But this effort has been heavily concentrated in Java and the next step will be to extend the effort to the other islands which may play an important role in diversified production.

Also, since public works for rural infrastructure, both for diversified agriculture and rural (inclusive of smaller towns) business, must generate off-farm jobs, they should use labor-intensive technologies to maximize labor absorption. And besides roads, irrigation and the like, the construction of communal workplaces, small factories for craft production, agro-processing, metal-working, the improvement of marketing centers, and so on will directly benefit rural industries.

The government has established various schemes for rural credit particularly in Java. But the extent to which credit extended was used for employment creation is not known. There is some evidence to indicate that much of it has gone to finance trading rather than to manufacturing, transport and construction.

Since most of the agro-industries, cottage industries and service units are very small enterprises, their efficiency could be enhanced through formation of producers' associations and cooperatives. But it is reported that government regulations restrict cooperative formation in non-farm activities to the multi-enterprise KUD. If so, the restriction in the formation of specialized, single-purpose cooperatives may not be suitable for various agro-industries, cottage industries and service enterprises.¹⁶

¹⁵ While in Taiwan the farmers' association was a multiservice organization handling various functions, in Japan a hierarchy of specific purpose cooperatives handled each activity such as credit, extension, irrigation, marketing, and so on.

¹⁶ In the foregoing, as I am not familiar with policy issue, I have followed closely the recommendations found in the volumes of the Centre of Agribusiness Development and Benjamin White's paper (1986).

Finally, as to statistics, the following suggestions may be useful in learning more about off-farm employment/income in Indonesia and for policy implementation. There is a need for migration surveys which can map out the movement of population from various regions and their destinations. Data on the characteristics of the migrants and the reasons for their decisions to move will be valuable for policies intended to reduce the flow. Data on the 1985 Intercensal Surveys could be tabulated into additional information such as those found in the voluminous sets of unpublished tables of the 1980 Census. This will give basic background information necessary for analyzing off-farm employment. The next census of agriculture should make a special effort to obtain greater information on diversified agriculture and agro-industries. Now that the quarterly labor force surveys have been started on an annual basis beginning 1980, basic information on the unemployed and underemployed population will be obtainable for each quarter including the dry months and wet months of the year. If separate migration and wage surveys are not to be undertaken, the labor force survey for the last quarter of 1987 could have riders inquiring about migrants, and in the 1988 surveys, wage data could be collected. Unemployment and underemployment data are difficult to obtain in population censuses such as those of 1980 and 1985, since these censuses mainly collect demographic information, including employment but not underemployment which involves data on hours of work. Now with the annual labor force survey becoming a regular part of Indonesia's statistical system, the population censuses do not have to be burdened with underemployment which varies between quarters.

Off-farm incomes (as distinct from off-farm employment) should be collected by the household income and expenditure survey (*Susenas*), as done in other countries of Asia. Income figures however are not published in the regular *Susenas* publication because they are said to be grossly understated. There needs to be a strengthening and improvement of *Susenas* since it is the best source of data on household incomes, their patterns, sources, size distribution, savings, and so on. As noted above, the Gini for the 1984 *Susenas* appears to be too low, and puts into doubt the published data on consumption. In particular, to get off-farm incomes, wages and salaries should be collected in detail so that they can be divided into on-farm and off-farm sources. Special (not regular) surveys on small-scale rural industries, especially agro-industries and cottage industries, may be useful. In these surveys, information can be collected on the characteristics of the workforce and employment, the duration and months of operation, the nature of the inputs and outputs, the technology used, sources and terms of financing, and

methods of marketing and destination of the products.¹⁷

¹⁷ I have been told at the National Accounts Division of the Central Bureau that work is underway to extend the national accounts from 1987 to include a household sector account, a government sector account, and a saving and investment account which together with the balance of payments can be set up as a system of national accounts along the lines of the UN 1986 System. Also the basic aggregates will be published quarterly. This is a welcome extension of the national income which up to now have been confined to a few tables. It is hoped that much more supporting tables will also be published with data on distribution shares.